



UNIVERSITY OF TM
KWAZULU-NATAL
—
INYUVESI
YAKWAZULU-NATALI

**AN AFRICAN EPISTEMOLOGICAL ANALYSIS OF
SOCIO-ECONOMIC CHALLENGES AND OPPORTUNITIES
OF TRADITIONAL FISHING COMMUNITIES IN
KWAZULU-NATAL COASTAL AREAS, SOUTH AFRICA**

by

Scelokuhle Mpilenhle Ziqubu

203512868

**A thesis submitted in fulfilment of the requirements for the degree
of
Doctor of Administration**

**College of Law and Management Studies
School of Management, Information Technology and Governance**

Supervisor: Professor F.A. Ruffin

2023

DECLARATION

I **Scelokuhle Mpilenhle Ziqubu** declare that

- i) The research reported in this thesis, except where otherwise indicated, is my original research.
- ii) This thesis has not been submitted for any degree or examination at any other university.
- iii) This thesis does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.
- iv) This thesis does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:
 - a) their words have been re-written but the general information attributed to them has been referenced;
 - b) where their exact words have been used, their writing has been placed inside quotation marks, and referenced.
- v) Where I have reproduced a publication of which I am author, co-author or editor, I have indicated in detail which part of the publication was actually written by myself alone and have fully referenced such publications.
- vi) This thesis does not contain text, graphics or tables copied and pasted from the Internet, unless specifically acknowledged, and the source being detailed in the dissertation/thesis and in the References sections.

Signed: 

ACKNOWLEDGEMENTS

I would like to thank GOD for granting me the opportunity to be a part of the PhD programme at the School of Management, IT and Governance at UKZN. GOD and my ancestors engineered the opportunity for me to enrol for my PhD programme under the great leadership, mentorship and supervision of Prof. Fayth Ruffin.

I would like to thank Prof. Fayth Ruffin for the role she has played in my life throughout this PhD journey. I could have not done it without her guidance, patience and encouragement. She has also played a significant role in assisting me with understanding my worldview and spiritual journey which has led me to become the person that I am today.

Many thanks are also extended to all the study participants who shared their time with me to complete the surveys and interviews and co-create knowledge with me. I would also like to thank my brother, Kevin Ayanda Ndlovu, for his unwavering support throughout my journey.

And last, but certainly not least, I acknowledge and appreciate my lovely wife Thobile Ziqubu, and our children Sabelo, Nandi and Nkanyiso —without your support and understanding I would never have come this far. This one is dedicated to you!

ABSTRACT

South Africa has the potential to improve socio-economic justice through policy promulgation and implementation. Literature shows that traditional fishers and their families along the coastline of KwaZulu-Natal, who fundamentally depend on subsistence fishing for food security and sustainable livelihoods, seem to be systematically excluded from participation in the ocean economy. Similarly, African beliefs and customs as practiced by traditional fishery communities have yet to be incorporated in promulgation and implementation of fishery policies. Therefore, this study aimed to apply an African epistemological analysis to navigating the complexities of governance, knowledge co-creation and policy dynamics when it comes to traditional fisheries.

The study implemented a multi-inter-transdisciplinary (MIT-D) approach underpinned by multiple worldviews of constructivism, hermeneutic phenomenology, interpretivism and African epistemologies. The study sites were eThekweni metropolitan municipality and uMkhanyakude and uGu district municipalities. The mixed methods research included administration of questionnaires to 125 middle and senior management of the South African Department of Forestry Fisheries and the Environment across the study sites. The qualitative component involved 21 in-depth individual interviews together with 14 group interviews (62 individuals) of traditional fishers, civil society members and *izinduna* yielding 83 individual interviewees. Hence, with quantitative and qualitative research respondents combined, there were 208 study participants. In addition, data quality control was maintained through forms of validity and reliability for quantitative data and elements of trustworthiness (credibility, dependability, conformability and transferability) for qualitative data. Quantitative data were analysed using SPSS whilst qualitative data were analysed through an integration of content, matrix and thematic analyses. The multi-paradigmatic approach was complemented by data, methodological and theoretical triangulation.

The MIT-D orientation of the study helped co-create knowledge with participants which led to a new African epistemologically inspired conceptual framework to address critical issues faced by traditional fishers in coastal communities. The theoretical propositions and conceptual framework could be instrumental in governance and policy-making structures that help facilitate inclusion of the traditional fishery industry in the ocean economy whilst promoting environmental sustainability. The evidence-based insights and recommendations offered may be transferable for improvement of the traditional fishing industry in other similarly situated coastal communities.

TABLE OF CONTENTS

DECLARATION	ii
ACKNOWLEDGEMENTS	iii
ABSTRACT	iv
TABLE OF CONTENTS	v
LIST OF FIGURES	xvii
LIST OF TABLES	xix
1. CHAPTER ONE: INTRODUCTION	1
1.1 Introduction.....	1
1.2 Context of the Province KwaZulu-Natal.....	2
1.2.1 uMkhanyakude (Dukuduku Community)	3
1.2.2 eThekwin Metro (Umgababa Community).....	4
1.2.3 uGu (Mthwalume Community).....	4
1.2.4 Local Economic Development	5
1.2.5 Indigenous Knowledge Systems	6
1.3 Background to the Study.....	7
1.4 Research Problem Statement.....	8
1.5 Contribution to Knowledge.....	9
1.6 Research Questions	10
1.7 Research Aims and Objectives.....	10
1.8 Preliminary Literature Review	11
1.9 Research Methodology.....	13
1.10 Outline of Chapters	14

1.11	Key Terms and Definitions	14
1.12	Conclusion	16
2.	CHAPTER TWO: PHILOSOPHICAL WORLDVIEWS AND ASSUMPTIONS.....	18
2.1	Introduction.....	18
2.2	Multi-Inter-Trans-Disciplinary Approach.....	18
2.3	Constructivism Philosophy	20
2.4	Hermeneutic Phenomenology Study.....	21
2.5	Interpretivist Philosophy	22
2.6	African Epistemologies.....	23
2.7	Integration of philosophical approach.....	26
2.8	Conclusion	28
3.	CHAPTER THREE: GOVERNANCE AND MANAGEMENT OF SOUTH AFRICAN FISHERIES.....	30
3.1	Introduction.....	30
3.2	Historical Background	30
3.2.1	Pre-colonial South Africa.....	31
3.2.2	Colonial South Africa.....	32
3.2.3	Post-colonial South Africa	33
3.3	Multi-Level Geospatial Policy Frameworks	34
3.3.1	Global policy framework	37
3.3.2	African continental policy framework	38
3.3.3	The SADC protocol on fisheries	40
3.3.4	South African policy framework.....	42

3.4	Fishery Governance	44
3.4.1	Intergovernmental relations.....	45
3.4.2	Co-management strategy.....	46
3.4.3	Economic governance	50
3.5	Environmental Governance and Sustainability	53
3.5.1	Environmental policy	53
3.5.2	Environmental education.....	55
3.5.3	Environmental compliance.....	57
3.5.4	Effects of climate change on fisheries and aquaculture	57
3.6	Management of Traditional Fisheries	58
3.6.1	Fisheries management	59
3.6.2	Integration of Indigenous Knowledge into management of fisheries	60
3.7	Policy Implementation Strategy.....	62
3.7.1	Adoption of a process approach in implementation.....	64
3.7.2	Prioritisation.....	65
3.7.3	Consultation, cooperation and participation.....	66
3.7.4	Equity and equality.....	67
3.7.5	Scalability.....	69
3.7.6	Sustainability.....	69
3.7.7	Accountability	70
3.7.8	Self-development	71
3.8	Conclusion	73

4.	CHAPTER FOUR: INDIGENOUS AND CONTEMPORARY CULTURAL, GENDER AND SOCIO-ECONOMIC CONSTRUCTS.....	75
4.1	Introduction.....	75
4.2	Traditions and Culture for Fishers	76
4.2.1	Cultural values and beliefs	76
4.2.2	Cultural heritage.....	77
4.2.3	Indigenous knowledge.....	78
4.2.4	Cultural preservation	79
4.3	Gender disparities in the traditional fishing industry	80
4.3.1	Limited access to and control over assets and resources.....	82
4.3.2	Constraining gender norms	83
4.3.3	Time and labour issues of remunerated work	83
4.3.4	Barriers to sustaining entrepreneurship.....	85
4.3.5	Ways to empower women in fisheries and aquaculture	86
4.4	Socio-Economic Factors	87
4.4.1	Fair and stable earnings.....	89
4.4.2	Communities to benefit from jobs.....	89
4.4.3	Protection of the workers	90
4.4.4	Improvement of healthcare in the community	91
4.4.5	Improvement of the education system in the community	91
4.4.6	Fisheries to be viable for future generations	92
4.4.7	Harvesters to have economic flexibility	92
4.5	Meta-theoretical Framework	93

4.6	Conclusion	94
5.	CHAPTER FIVE: RESEARCH METHODOLOGY	96
5.1	Introduction.....	96
5.2	Examining the Research Questions.....	97
5.3	Research Design: Mixed Method.....	97
5.3.1	The mixed method design	98
5.3.2	Alignment of the meta-paradigmatic framework with the research design	99
5.4	Research Strategy.....	100
5.5	Quantitative Methods and Instruments	101
5.5.1	Target population	102
5.5.2	Sampling procedure and recruitment strategy	103
5.5.3	Sample Size	105
5.5.4	Data collection and instruments for quantitative component.....	107
5.5.5	Operationalisation of study variables for quantitative component	109
5.6	Qualitative Methods and Instruments	112
5.6.1	Sampling Procedure and Recruitment Strategy.....	113
5.6.2	Sample Size	114
5.6.3	Data collection methods and instruments for qualitative component	116
5.6.4	Operationalisation of study constructs for qualitative component	120
5.7	Inclusion and Exclusion Criteria.....	121
5.7.1	Inclusion and exclusion criteria for quantitative component	122
5.7.2	Inclusion and exclusion criteria for qualitative component	122

5.8	Data Quality Control	123
5.8.1	Data quality control for the quantitative component.....	123
5.8.2	Data quality control for the qualitative component.....	125
5.9	Triangulation Framework.....	127
5.10	Data Analysis	129
5.10.1	Quantitative data analysis.....	129
5.10.2	Qualitative data analysis.....	132
5.11	Ethical Considerations	136
5.12	Limitations of the Study.....	137
5.13	Delimitation of the Study.....	138
5.14	Conclusion	140
6.	CHAPTER SIX: DATA PRESENTATION, INTERPRETATION AND ANALYSIS FOR QUANTITATIVE COMPONENT	142
6.1	Introduction.....	142
6.2	Data Presentation	142
6.3	Demographic Information.....	142
6.3.1	Age grouping of participants.....	143
6.3.2	Gender composition of participants	144
6.3.3	Participants' sphere of operation in government.....	145
6.3.4	Participants' level of management	145
6.3.5	Duration of involvement in the fishery Sector	146
6.3.6	Duration of respondents' working specifically with traditional fishers	147

6.3.7	Participants involved/not involved in traditional fisheries	148
6.4	Regression analyses for key variable in the study.....	149
6.4.1	Socio-economic barriers using a univariate linear regression	150
6.4.2	Socioeconomic opportunities using a univariate linear regression	154
6.4.3	Governance Functionality using a univariate linear regression	156
6.4.4	Indigenous Knowledge Systems using a univariate linear regression	158
6.4.5	Environmental Sustainability using a univariate linear regression	159
6.4.6	Traditional fishery development using a multivariate linear regression	161
6.5	Conclusion	164
7.	CHAPTER SEVEN: DATA PRESENTATION, INTERPRETATION AND ANALYSIS FOR QUALITATIVE COMPONENT.....	166
7.1	Introduction.....	166
7.2	Demographics	166
7.2.1	Age grouping of participants.....	166
7.2.2	Gender composition of participants	167
7.2.3	Duration of involvement in traditional fishing.....	168
7.2.4	Participants' highest level of education.....	169
7.2.5	Participants' employment status.....	170
7.3	Organisation of Secondary Data Presentation and Analysis.....	171
7.4	Presentation and Analysis of the Qualitative Data.....	172
7.4.1	The socio-economic opportunities and barriers for traditional fisheries in KZN, South Africa.	173

7.4.2	Co-create evidence-based knowledge with study participants to overcome barriers and expand opportunities for traditional fisheries in KZN, South Africa.	181
7.4.3	Examine implementation of the PSSF that governs traditional fisheries in KZN, South Africa as it pertains to traditional fishers, civil society members, traditional leaders and government.	183
7.4.4	Critically assess the functionality of governance and institutional framework for the fishery industry in KZN, South Africa, particularly as it pertains to African ways of knowing.....	189
7.4.5	Co-create with study participants an evidence-based policy framework and interventions for environmental sustainability to improve the operations of the traditional fisheries in KZN, South Africa.....	194
7.5	Conclusion	200
8.	CHAPTER EIGHT: COMPARATIVE ANALYSIS, TRIANGULATION AND EMERGING THEMES.....	201
8.1	Introduction.....	201
8.2	Qualitative Multi-Mode Data Triangulation	201
8.2.1	Socio-economic opportunities and barriers for traditional fisheries in KZN, South Africa.	202
8.2.2	Co-create evidence-based knowledge with study participants to overcome barriers and expand opportunities for traditional fisheries in KZN, South Africa.	204
8.2.3	Examine implementation of the SSFP that governs traditional fisheries in KZN, South Africa as it pertains to traditional fishers, civil society members, traditional leaders and government	205
8.2.4	Critically assess the functionality of governance and institutional framework for the fishery industry in KZN, South Africa, particularly as it pertains to African ways of knowing.....	207

8.2.5	Co-create with study participants an evidence-based policy framework and interventions for environmental sustainability to improve the operations of the traditional fisheries in KZN, South Africa.....	209
8.3	Mixed-Method Approach Triangulation	211
8.4	Theoretical triangulation	214
8.5	Paradigmatic Triangulation.....	216
8.6	Emerging Themes from the Data Analysis	218
8.6.1	Socio-economic opportunities in traditional fisheries.....	219
8.6.2	Cooperative governance.....	220
8.6.3	Capital resources	221
8.6.4	Indigenous Knowledge Systems in public governance.....	222
8.6.5	Environmental conservation.....	223
8.6.6	Policy implementation.....	223
8.7	Conclusion	224
9.	CHAPTER NINE: CONCEPTUAL POLICY FRAMEWORK FOR TRADITIONAL FISHERIES	227
9.1	Introduction.....	227
9.2	Recapitulation of Research Problem Statement	227
9.2.1	New Conceptual Policy Framework.....	227
9.2.2	Integration of philosophical worldview, MIT-D and meta-theoretical framework	233
9.3	Conclusion	234
10.	CHAPTER TEN: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS	236

10.1	Introduction.....	236
10.2	Recapitulation of Research Objectives and Research Questions	236
10.2.1	Chapter One summary.....	237
10.2.2	Chapter Two, Three and Four summary	237
10.2.3	Chapter Three summary	238
10.2.4	Chapter Four summary.....	238
10.2.5	Chapter Five summary	238
10.2.6	Chapter Six summary	239
10.2.7	Chapter Seven summary.....	239
10.2.8	Chapter Eight summary.....	239
10.2.9	Chapter Nine summary.....	240
10.3	Main Research Findings, Conclusions and Recommendations.....	240
10.3.1	Findings, conclusions and recommendations for Objective 1	240
10.3.2	Findings, conclusions and recommendations for Objective 2.....	242
10.3.3	Findings, conclusions and recommendations for Objective 3:.....	243
10.3.4	Findings, conclusions and recommendations for Objective 4:.....	245
10.3.5	Findings, conclusions and recommendations for Objective 5.....	246
10.4	Contributions of the study to bodies of knowledge.....	247
10.5	Ideas for future research.....	248
10.6	Conclusion of the chapter.....	248
11.	References	250
	ANNEXURE 1.....	1
	ANNEXURE 2.....	2

ANNEXURE 3.....	1
ANNEXURE 4.....	1
ANNEXURE 5.....	1
ANNEXURE 6.....	1
ANNEXURE 7.....	1
ANNEXURE 8.....	1

ANNEXURES

Annexure 1: Recruitment Flyer (English version)

Annexure 2: Recruitment Flyer (IsiZulu version)

Annexure 3: Survey for government officers

Annexure 4: Interview schedule for fisherman and fisherwoman

Annexure 5: Interview schedule for traditional leadership

Annexure 6: Interview schedule for civil society

Annexure 7: Informed consent letter (English version)

Annexure 8: Informed consent letter (IsiZulu version)

Annexure 9: Gatekeepers letter for EDTEA

Annexure 10: Gatekeepers letter for COGTA

Annexure 11: Gatekeepers letter for KZN Ezemvelo Wildlife

Annexure 12: Gatekeepers letter for Future Leaders of Change

Annexure 13: Ethical clearance

LIST OF FIGURES

Figure 1-1 Map of KwaZulu-Natal Province	2
Figure 3-1: Map of SADC	41
Figure 3-2: Economic contributions of traditional fisheries	51
Figure 3-3: Principles of policy implementation.....	63
Figure 3-4: Dimensions of social wellness	72
Figure 4-1: Obstacles encountered by women in the fisheries sector	82
Figure 4-2: Traditional fisherwomen fishing in the lake in Kenya	84
Figure 4-3: Traditional fisherwomen fishing in the lake in Senegal.....	85
Figure 4-4: Dimensions of social well-being and fisheries tool.....	88
Figure 4-5 The meta-theoretical framework for this study	93
Figure 5-1: Application of univariate and multivariate linear regression	130
Figure 6-1: Distribution of age grouping of participants	144
Figure 6-2: Distribution of gender of study participants.....	145
Figure 6-3: Distribution of participants based on sphere of operation in government.....	145
Figure 6-4: Distribution of participants based on level of management	146
Figure 6-5: Distribution of the duration of respondents' involvement in the fishery sector.....	147
Figure 6-6 Distribution of respondents by duration of working specifically with traditional fishers	148
Figure 6-7: Distribution of respondents involved/not involved in traditional fisheries	149
Figure 6-8: Socioeconomic barriers univariate regression analysis (Stata 17)	152
Figure 6-9 Socioeconomic barriers univariate regression analysis (Microsoft Excel).....	153
Figure 7-1: Distribution of participants by age	167

Figure 7-2: Distribution of participants by gender.....	168
Figure 7-3: Distribution of participants by duration of involvement in traditional fishing 169	
Figure 7-4: Distribution of participants based on level of education.....	170
Figure 7-5: Distribution of participants based on employment status.....	171
Figure 8-1: Theories and a concept triangulated in the study	216
Figure 9-1: Conceptual Policy Framework for Traditional Fisheries	228
Figure 9-2: Epistemically-driven sustainable development	232
Figure 9-3: Overall indigenisation of policy implementation.....	233

LIST OF TABLES

Table 1-1: Definition of key terms of the study	14
Table 2-1: Comparative disposition of paradigms applied to the study.....	27
Table 3-1: Synopsis of the goals of the global, continental, regional and national policy framework.....	36
Table 3-2 The fishery sector's contribution to the national economy in 2006.....	51
Table 5-1: A detailed breakdown of the survey target population	103
Table 5-2: A breakdown of the survey respondents.....	107
Table 5-3: The independent and dependent variables in the survey	111
Table 5-4: Proposed in-depth individual interviews	115
Table 5-5: Actual group interviews (or talking circles) conducted.....	116
Table 5-6: Actual in-depth individual interviews conducted	116
Table 5-7: Shows the study constructs for qualitative component.....	120
Table 5-8: Linear model analysis used for the study	131
Table 5-9: Terms and definitions used in qualitative data analysis	132
Table 5-10 Documents for Ethical Considerations	136
Table 6-1: Age grouping of participants	143
Table 6-2: Gender composition of study participants	144
Table 6-3: Composition of participants based on sphere of operation in government.....	145
Table 6-4: Composition of participants based on level of management	146
Table 6-5: Duration of respondents' involvement in the fishery sector.....	147
Table 6-6: Duration of respondents working specifically with traditional fishers.....	148
Table 6-7: Composition of participants involved/not involved in traditional fisheries.....	149

Table 6-8: Socioeconomic barriers univariate regression analysis (Model Summary).....	150
Table 6-9 Socioeconomic barriers univariate regression analysis (ANOVA)	150
Table 6-10: Socioeconomic barriers univariate regression analysis (Coefficients)	151
Table 6-11: Socioeconomic opportunities univariate regression analysis (Model Summary)	154
Table 6-12: Socioeconomic opportunities univariate regression analysis (Anova)	154
Table 6-13: Socioeconomic opportunities univariate regression analysis (Coefficients)	155
Table 6-14: Governance functionality univariate regression analysis (Model Summary) 156	
Table 6-15: Governance functionality univariate regression analysis (Anova)	156
Table 6-16: Governance functionality univariate regression analysis (Coefficients)	157
Table 6-17: IKS univariate regression analysis (Model Summary)	158
Table 6-18 IKS univariate regression analysis (Anova)	158
Table 6-19: IKS univariate regression analysis (Coefficients)	159
Table 6-20 Environmental sustainability univariate regression analysis (Model Summary)	159
Table 6-21: Environmental sustainability univariate regression analysis (Anova).....	160
Table 6-22: Environmental sustainability univariate regression analysis (Coefficients).....	160
Table 6-23: Traditional fishery development multivariate regression analysis (Model Summary)	162
Table 6-24 Traditional fishery development multivariate regression analysis (Avova)	162
Table 6-25: Traditional fishery development multivariate regression analysis (Coefficients).....	162
Table 7-1: Age grouping statistics	166
Table 7-2: Gender composition statistics	167

Table 7-3: Duration of involvement in traditional fishing	168
Table 7-4: Statistics of participants' highest level of education	169
Table 7-5: Statistics of participants' employment status	170
Table 7-6: Organisation of secondary data presentation	171
Table 7-7: Participant codes for qualitative data.....	173
Table 8-1: Qualitative multi-mode data triangulation for socio-economic opportunities and barriers	202
Table 8-2: Qualitative multi-mode data triangulation for co-creation of evidence-based knowledge with study participants	204
Table 8-3: Qualitative multi-mode data triangulation for examination of SSPF policy	205
Table 8-4: Qualitative multi-mode data triangulation for assessing the functionality of governance and institutional framework	207
Table 8-5: Qualitative multi-mode data triangulation for environmental sustainability	210
Table 8-6: Mixed-method triangulation	211
Table 8-7: Theoretical triangulation of the study	214
Table 8-8: Paradigmatic triangulation of data.....	217
Table 8-9: Emerging themes derived from matrix categories and subcategories	218
Table 10-1: Recapitulation of research objectives and research questions	236

LIST OF MATRICES

Matrix 7-1: Socio-economic opportunities	174
Matrix 7-2: Poverty alleviation	176
Matrix 7-3: Socio-economic barriers	177
Matrix 7-4: Inclusion of Indigenous knowledge in policy-making.....	181
Matrix 7-5: Inequality and marginalisation.....	184
Matrix 7-6: Public consultation process.....	186
Matrix 7-7: Political influence towards change	188
Matrix 7-8: Cooperative governance	190
Matrix 7-9: Cultural and Spiritual Approaches to Environmental Sustainability	191
Matrix 7-10: Traditional institutions and leadership.....	193
Matrix 7-11: Environmental sustainability	195
Matrix 7-12: Environmental education	197
Matrix 7-13: IKS conserves the natural environment	198

LIST OF ACRONYMS

AIKS	African Indigenous Knowledge Systems
AU	African Union
AUC	African Union Commission
CCRF	Code of Conduct for Responsible Fisheries
CPFTEF	Conceptual Policy Framework for Traditional Fisheries
DAFF	Department of Agriculture, Forestry and Fisheries
DDM	The District Development Model
DFFE	Department of Forestry, Fisheries and the Environment
EDTEA	Department of Economic Development, Tourism and Environmental Affairs
EEZ	Exclusive Economic Zones
FAO	Food and Agriculture Organisation
GBV	Gender Based Violence
GGP	Gross Geographic Product
IGR	Intergovernmental relations
IKS	Indigenous knowledge systems
KZN	KwaZulu-Natal
MIT-D	Multi-Inter-Trans-Disciplinary
MLRA	Marine Living Resources Act for South Africa
MM	Matrix Methodology
MPA	Marine Protected Area
MPAs	Marine Protected Areas
MRA	Marine Resources Act
MSPA	Marine Spatial Planning Act
NDP	National Development Plan
NGO's	Non-Governmental Organisations
OEMP	The Oceans Economy Master Plan
OSS	Operation Sukuma Sakhe
PFRSFAA	Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa
PGDP	Provincial Growth and Development Plan
PSSF	Policy for Small-Scale Fisheries
RASAP	Regional Aquaculture Strategy and Action Plan
SADC	Southern African Development Community
SDGs	Sustainable Development Goals
SMMEs	Small, Medium and Micro Enterprises

SPSS	Statistical Package for Social Sciences
SSFP	Small-Scale Fishery Policy
TFRF	Traditional Fishery Regulatory Framework
UKZN	University of KwaZulu-Natal
UN	United Nations
UNCHE	UN Conference on the Human Environment
WPMFP	White Paper of Marine Fisheries Policy for South Africa

1. CHAPTER ONE: INTRODUCTION

1.1 Introduction

In an ever-evolving global landscape, the socio-economic and cultural dynamics of coastal communities in South Africa stand as a testament to the intricate interplay between tradition, governance, policy and economic development. Against this backdrop, this study delves into the multifaceted realm of traditional fisheries within the uMkhanyakude, eThekweni Metro, and uGu districts to understand policy implications of the Small-Scale Fisheries Policy (SSFP). With a population deeply rooted in maritime livelihoods, these communities face a myriad of challenges ranging from resource management to socio-economic disparities. As such, the study endeavours to unravel the intricate tapestry of traditional fisheries, shedding light on the realities faced by coastal dwellers and their interactions with policy frameworks.

Central to this study is the exploration of traditional fisheries as a nexus of tradition, governance and policy. Drawing on concepts of sustainable development and indigenous knowledge systems, the research aims to elucidate the role of traditional fisheries in fostering community resilience and sustainable resource management. Furthermore, the study seeks to interrogate existing policy frameworks governing traditional fisheries, with a critical lens towards decolonizing research methodologies and policy formulation processes. By centring the voices of coastal communities in relation to the SSFP and embracing a paradigm shift towards decolonised research practices, this study endeavours to help bridge the gap between academic discourse and policy implementation.

As the researcher, my shift in worldview during my doctoral study represents a commitment to dismantling colonial legacies embedded within research methodologies and policy frameworks. Embracing an ethos of co-creation and participatory engagement, this study seeks to empower coastal communities as active agents in the research process. By foregrounding indigenous knowledge systems (IKS) and local perspectives, the study aims to challenge dominant narratives and foster inclusive policy dialogues that prioritise the well-being and agency of coastal dwellers. However, this is neither a cultural anthropological nor development studies thesis. Rather, it is an effort to try and work across a number of disciplines to understand how a researcher and study participants may as knowledge holders may co-create knowledge on how to improve policy frameworks regarding traditional fisheries.

This chapter serves as the foundation of the study, offering insights into the background and research problem while delineating the study's potential contribution to knowledge. It outlines the research questions and objectives, providing a roadmap for the ensuing exploration. Additionally, a preliminary literature review sets the stage for understanding the contextual

framework, followed by an overview of the research methodology employed in the study. The subsequent section offers a concise overview of the study area's contextual landscape.

1.2 Context of the Province KwaZulu-Natal

The study investigates the socio-economic dynamics of traditional fishing communities in three distinct areas within KwaZulu-Natal: uMkhanyakude (Dukuduku community), eThekweni Metro (Umgababa community), and uGu (Mthwalume community). The term socio-economic refers to the combination of social and economic factors that interact in circumstances surrounding traditional fishers who are also called subsistence fishers (Branch, May, Roberts, Russell and Clark, 2002 p. 440). Each of the three study areas present unique socio-economic challenges and opportunities that shape the livelihoods of their residents. The circumstances of the traditional fishers and community members who participated in this study suggest what Draanen, Tsang, Mitra, Karamouzian and Richardson (2020, pp. 1-2) refer to as socio-economic marginalisation. Draanen, *et al.* (2002) define SEM as a set of conditions that contribute to exclusion from social and economic opportunities and create vulnerability including: labour market exclusion; informal or prohibited income generation. To provide a visual representation of the study area, Figure 1.1 illustrates the geographical locations of these communities within the larger context of the respective districts.

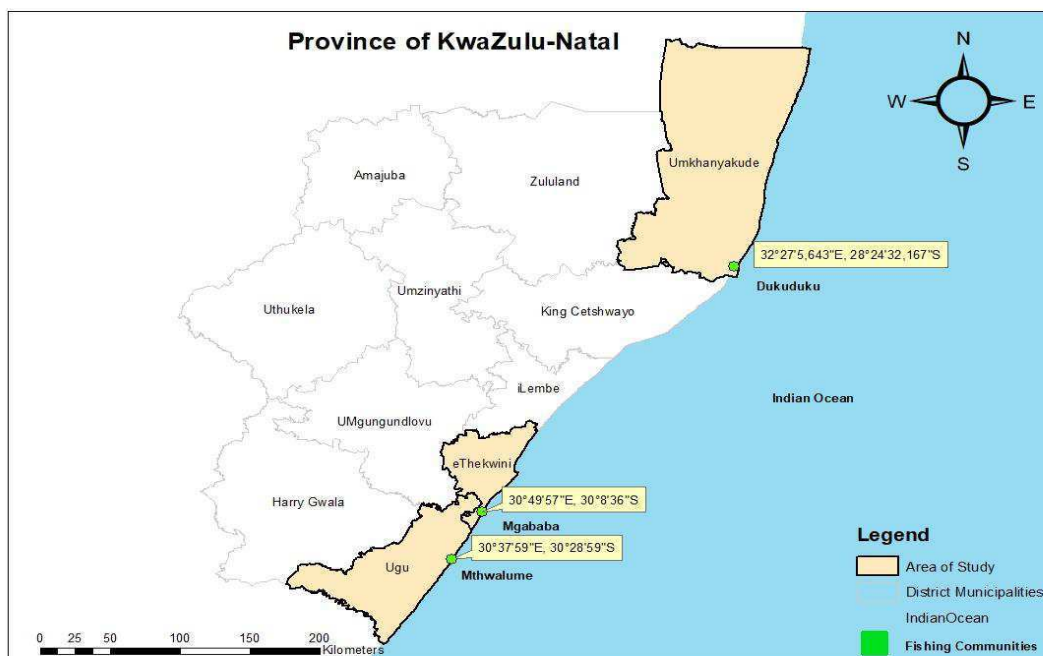


Figure 1-1 Map of KwaZulu-Natal Province

Source: Created by researcher using Geographic Information Systems software.

The study area encompasses three distinct locations within KwaZulu-Natal, each with its own unique socio-economic and geographical characteristics. The uMkhanyakude district, home to

the Dukuduku community, is situated in the northern region of the province. This rural area is characterised by its proximity to the coastline, dense forests, and rolling hills. The Dukuduku community, nestled within this picturesque landscape, relies heavily on traditional fishing practices and agriculture for subsistence. Moving to the eThekweni Metro, the Umgababa community is located within this metropolitan area, which includes the city of Durban, the largest city in KwaZulu-Natal. Umgababa is a coastal community situated south of Durban, known for its stunning beaches and vibrant cultural heritage. Finally, the uGu district, home to the Mthwalume community, lies along the south coast of KZN, encompassing both rural and semi-urban areas. Mthwalume is renowned for its scenic beauty and rich cultural traditions, drawing tourists and visitors seeking to explore the region's natural attractions.

Despite the diversity inherent in South Africa's coastal communities, one aspect that remains relatively uniform across the uMkhanyakude, eThekweni Metro, and uGu districts is the prevalence of isiZulu as the dominant language spoken. IsiZulu serves as a lingua franca, facilitating communication and interaction among community members, regardless of their specific cultural or ethnic backgrounds. This linguistic homogeneity fosters a sense of shared identity and cultural cohesion within each community, enabling residents to engage in social activities, express their needs and concerns, and participate in community affairs effectively. Additionally, the widespread use of isiZulu promotes inclusivity and unity, as it allows individuals from different linguistic backgrounds to communicate and collaborate seamlessly in various aspects of daily life, reinforcing the interconnectedness of these coastal communities.

1.2.1 uMkhanyakude (Dukuduku Community)

In uMkhanyakude, the Dukuduku community faces significant socio-economic challenges, including high levels of unemployment and poverty. According to Stat SA (2023), the unemployment rate in this community stands at around 40%, with many residents relying on subsistence agriculture and fishing for their livelihoods. Poverty levels are also alarming, with over 60% of households living below the poverty line.

Furthermore, the Dukuduku community deals with challenges related to crime and social unrest, particularly in areas where poverty and unemployment are prevalent. Incidents of theft and substance abuse are not uncommon, contributing to a sense of insecurity among residents. The daily struggles faced by residents include challenges related to access to education, healthcare, and basic services. This suggests socio-economic marginalisation as defined by Draanen, *et al.* (2002, pp 1-2). The Dukuduku community life histories often revolve around traditional fishing practices, agriculture, and close-knit community bonds. Generations of families have relied on fishing as a primary source of livelihood, passing down traditional knowledge and skills from one

generation to the next. The community's close connection to the natural environment, including the ocean and surrounding forests, influences daily routines and cultural practices. Despite the challenges of poverty and limited access to resources, resilience and a strong sense of community solidarity characterises life in Dukuduku.

A typical day in the life of a traditional fisher in Dukuduku often begins before dawn, as they prepare their fishing gear and set out to sea in search of a catch. Throughout the day, fishers navigate the challenges of unpredictable weather conditions and diminishing fish stocks, often returning home in the evening with scanty yields. Despite the hardships, fishing remains a vital source of income for many families in the Dukuduku community.

1.2.2 eThekweni Metro (Umgababa Community)

In the eThekweni Metro, the Umgababa community grapples with similar socio-economic issues, compounded by urbanization and population growth. The unemployment rate in Umgababa hovers around 35%, with limited formal employment opportunities available to residents (Stat SA, 2023).

Crime rates in Umgababa are a significant concern, with reports of theft, vandalism, and drug-related offenses impacting community safety (Stat SA, 2023). Poverty remains a persistent challenge, particularly among marginalized groups, including women and youth (DSD, 2023). In the eThekweni Metro, the Umgababa community's life histories are influenced by its location within a bustling urban centre. Residents navigate the complexities of urban life while maintaining cultural traditions and close family ties. The community's proximity to Durban's economic opportunities offers both advantages and challenges, with some residents finding employment in the city's industries while others face unemployment and economic hardship (DSD, 2023). Crime rates, social inequalities, and access to basic services shape the daily experiences of Umgababa residents, highlighting the intersection of urbanization and socio-economic disparities. A typical month in Umgababa is characterized by a mix of informal economic activities, including street vending, small-scale agriculture, and fishing (Cogta, 2023). Residents navigate crowded markets and bustling streets in search of opportunities to earn a living, often facing challenges related to competition and exploitation (DSD, 2023). Again, this suggests socio-economic marginalisation (Draanen, *et al.*, 2002 pp. 1-2).

1.2.3 uGu (Mthwalume Community)

In uGu, the Mthwalume community faces unique socio-economic challenges, influenced by its coastal location and proximity to tourist destinations. Despite its natural beauty, Mthwalume grapples with high levels of unemployment and poverty, exacerbated by seasonal fluctuations in

tourist traffic. According to Stat SA (2023), the unemployment rate in Mthwalume is estimated to be around 30%, with limited formal employment opportunities available to residents. Poverty levels are also significant, particularly in rural areas where access to basic services and infrastructure is lacking (DSD, 2023).

Crime rates in Mthwalume are relatively low compared to other areas, but issues such as substance abuse and domestic violence remain prevalent (DSD, 2023). In the uGu district, encompassing the Mthwalume community, life histories are characterized by a blend of rural and semi-urban lifestyles. Residents of Mthwalume engage in a variety of economic activities, including farming, fishing, and small-scale entrepreneurship. The community's rich cultural heritage is evident in its traditions, festivals, and customary practices, which play a central role in shaping social interactions and identity (Cogta, 2023). However, challenges such as unemployment, poverty, and inadequate infrastructure underscore the need for sustainable development initiatives to improve livelihoods and well-being in Mthwalume.

According to Cogta (2023), a typical day in Mthwalume revolves around fishing and agriculture, with many residents relying on these activities for their livelihoods. Fishers set out to sea early in the morning, while farmers tend to their crops and livestock throughout the day. Despite the challenges they face, residents of Mthwalume demonstrate resilience and resourcefulness in their pursuit of a better life. The subsequent section presents a concise overview of the study area's contextual landscape. The following section offers a succinct exposition of the study's background, providing essential context. It serves as a foundation for understanding the research problem and the rationale behind the study's focus.

1.2.4 Local Economic Development

In addition to traditional fishing, the uMkhanyakude (Dukuduku community), eThekweni Metro (Umgababa community), and uGu (Mthwalume community) engage in a variety of economic activities that contribute to their livelihoods and overall economic development. According to EDTEA (2023) agriculture is a prominent economic activity in these communities, with residents cultivating crops such as maize, vegetables, and sugarcane. Small-scale farming plays a crucial role in supplementing household incomes and ensuring food security, particularly in rural areas where access to formal employment opportunities may be limited. Furthermore, some community members rear livestock, including cattle, goats, and chickens, for meat production and sale.

Another significant economic activity in these communities is tourism, particularly in areas with natural attractions such as pristine beaches, wildlife reserves, and cultural heritage sites. Tourist activities such as beach tourism, nature-based tourism, and cultural tourism generate revenue for

local businesses, create employment opportunities, and stimulate economic growth (EDTEA, 2023). Additionally, the hospitality industry, including accommodation facilities, restaurants, and tour operators, thrives in these areas, catering to both domestic and international tourists (EDTEA, 2023).

Small-scale trade and entrepreneurship are also prevalent economic activities in the uMkhanyakude, eThekweni Metro, and uGu districts. Local markets, informal trading stalls, and roadside vendors are common sights, offering a wide range of goods and services to residents and visitors alike. Small-scale entrepreneurs engage in various businesses such as selling handicrafts, clothing, fresh produce, and traditional medicines. These micro-enterprises contribute to the local economy, empower communities economically, and provide opportunities for self-employment and income generation.

Lastly, the manufacturing and construction sectors play a role in the economic landscape of these communities, albeit to a lesser extent compared to fishing and agriculture. Small-scale manufacturing enterprises, such as carpentry workshops, brick-making factories, and textile mills, provide employment opportunities for local residents and contribute to the production of goods for both local consumption and export. Similarly, the construction industry experiences periodic growth due to infrastructure development projects, housing construction initiatives, and urban expansion efforts, creating temporary employment opportunities for skilled and unskilled laborers within the communities (EDTEA, 2023).

1.2.5 Indigenous Knowledge Systems

In this study, Indigenous Knowledge Systems (IKS) play a crucial role in understanding the traditional fishing practices and cultural dynamics of the uMkhanyakude (Dukuduku community), eThekweni Metro (Umgababa community), and uGu (Mthwalume community). Indigenous knowledge encompasses the traditional knowledge, skills, practices, beliefs, and values that have been passed down through generations within these communities. Regarding fishing, IKS include traditional fishing techniques, seasonal patterns, and ecological knowledge of local marine environments. For example, traditional fishers in these communities may possess intimate knowledge of fish behaviour, migration patterns, and suitable fishing grounds based on years of experience and observation.

Moreover, IKS extend beyond fishing practices to encompass broader socio-cultural aspects of community life. This includes traditional governance structures, social customs, rituals, and ceremonies that govern interactions within the community. For instance, the role of Izinduna as traditional leaders in mediating conflicts, resolving disputes, and upholding customary laws

reflects the embodiment of IKS in governance and decision-making processes. In recognition of traditional authority and customary practices, these communities harness local knowledge and expertise to address governance challenges and promote community resilience in the face of socio-political and environmental stressors.

Furthermore, IKS inform community resilience strategies and adaptation mechanisms in response to environmental changes and socio-economic challenges. Traditional ecological knowledge, passed down through oral traditions and experiential learning, guides resource management practices and sustainable use of natural resources. For instance, traditional fishers may have developed adaptive strategies to cope with declining fish stocks or changes in weather patterns, drawing upon Indigenous Knowledge Systems to inform their responses.

Moreover, IKS play a significant role in enhancing the resilience of communities to climate change impacts. Within the uMkhanyakude (Dukuduku community), eThekweni Metro (Umgababa community), and uGu (Mthwalume community), traditional ecological knowledge passed down through generations equips local residents with adaptive strategies to cope with environmental variability and extreme weather events. For instance, traditional weather forecasting techniques based on natural indicators such as cloud formations, wind patterns, and animal behaviour enable communities to anticipate and prepare for climatic shifts, minimizing agricultural losses and safeguarding livelihoods.

Traditional farming methods tailored to local ecological conditions, such as agroforestry, terracing, and crop diversification, enhance soil fertility, water retention, and pest control, thereby mitigating the adverse impacts of climate variability on crop yields. Additionally, Indigenous Knowledge Systems promote the conservation of traditional crop varieties and livestock breeds adapted to local climates, preserving genetic diversity and ensuring food security amidst changing environmental

Lastly, IKS contribute to the preservation of cultural identity and heritage within these communities. Traditional storytelling, music, dance, and art serve as vehicles for transmitting IKS from one generation to the next, ensuring the continuity of cultural practices and values. By acknowledging and integrating IKS into research and policy frameworks, this study recognizes the inherent wisdom and resilience embedded within these communities, fostering a more inclusive and holistic approach to sustainable development and resource management.

1.3 Background to the Study

In South Africa there is a rich marine life biodiversity distributed along the 3 200 km coastline, linking the east and west shores of Africa. The South African coastline supports a variety of

commercially exploited marine life that includes “hake, anchovy, sardine, horse mackerel, tuna, snoek, rock lobster and abalone” (DAFF, 2012, p. 116). The diverse marine life provides coastal communities with food and livelihood through harvested marine life and nature-based tourism. Furthermore, it significantly contributes to substantial opportunities for economic and social development. This is premised on the significant fisheries trade improvement in recent decades which has been driven by growing production caused by high global and local demand. Currently, the South African fishing industry contributes about R6 billion to South Africa’s economy which is approximately 0.5% of the national Gross Domestic Product (GDP) (DAFF 2014, p. 1). According to the Department of Agriculture, Forestry and Fisheries (DAFF, 2018), South Africa as a global south country continues to play a major role in the international supply of fish. However, these advancements are in constant threat from inappropriate developments, pollution, poaching and over-use. If these threats continue unabated, the commercial fisheries industry is set to decline its current value, which is purported to be around R2 billion annually and which employs about 27 000 people. Also, projected growth from 3 543 t to more than 90 000 t over the next ten years could be seriously hampered. Therefore, DAFF has adopted several policies aimed at preserving the marine environment and thus restoring and maintaining the biodiversity and productive capacity required for coastal communities to access substantial economic and socio-economic development opportunities.

1.4 Research Problem Statement

According to DAFF (2014) the South African fishing industry contributes about R6 billion to South Africa’s economy which is approximately 0.5% of the national Gross Domestic Product (GDP) and employs about 27 000 people. This signifies the South African coast’s potential to provide economic and social opportunities for development to coastal communities. However, according to Erwin and Sunde (2020, p. 21), families and traditional fisheries along the coastline of KwaZulu-Natal (KZN) who fundamentally depend on subsistence fishing for basic food security, economic opportunities, and livelihoods have been systematically excluded from the pertinent economic opportunities. Kittinger (2013, p. 315) posits that this exclusion is derived from the long existing marginalisation originating in the colonial period. This has excluded coastal communities from engaging in economic activities and accessing fishing technologies to improve the efficiency of their operations and their competitiveness. In other words, small-scale fisheries are subjected to historical legacies that exclude them from economic participation.

Erwin and Sunde (2020, p. 14) posit that even though in post-apartheid South Africa a number of reforms have been made pertaining to the legal, policy, social and economic environment for small-scale fisheries and coastal communities; those reforms have not led to significant changes in practice. This could be attributed to small-scale fisheries and coastal communities being

continuously excluded from policy participation and management processes (Finkbeiner and Basurto, 2015, p. 436). In addition, unresolved policy perspectives on whether or not subsistence fishing is viewed as a valid ‘safety net’ for the poor at various times in their lives remain unanswered, despite rising unemployment and food insecurity (Erwin and Sunde, 2020, p. 8). Furthermore, there is insufficient examination of traditional fishing activities and those involved with traditional fisheries continue to struggle to reach their potential, as vehicles that facilitate economic success and social change are inadequate (Finkbeiner and Basurto, 2015, p. 436). Therefore, all these issues point to an urgent need to facilitate change to the existing legal, policy, social and economic environment of traditional fisheries in South Africa (Sunde, Sowman, Smith and Wicomb, 2013, p. 120).

1.5 Contribution to Knowledge

The Sea Fisheries Act of 1940 (RSA, 1940) and the South African Small-Scale Fishery Policy (SSFP) (RSA, 2012) are two of the most prominent legislative framework policies aimed to benefit a greater majority of previously disadvantaged groups. These frameworks are expected to close disparities between well-resourced and poorly-resourced groups in society, address the socio-economic imbalances of the past, and ensure traditional fishers are accommodated and properly administered. Accordingly, they have been the subject of many studies within the South African literature. Several studies have been conducted to determine how these legislative frameworks directly and indirectly relate to both the availability of social and economic opportunity and sustenance in coastal fishing communities (Erwin and Sunde, 2020; Sunde, Sowman, Smith and Wicomb, 2013; Finkbeiner and Basurto, 2015). However, all the said studies have not considered the cultural framework and perspective, which this study seeks to employ as a lens of analysis.

Studies conducted by Salam (2018), and Shah and Bukhari (2019) have shown that a variety of cultures along the coasts depend on marine resources for the perpetuation of their cultures. Therefore, when examining policy implementation strategies, there is a need to consider cultural frameworks as well as African ways of knowing fishery activities and relationships with the natural environment. Sustainable livelihoods, traditions and cultures of most coastal communities are at serious risk of diminishing owing to various factors. These factors include the inability to capture fish of sufficient value and lack of access to the market which hinders the socio-economic development of such coastal communities (Islam, Swapan and Haque, 2013, p. 80). Furthermore, the overuse of new technological fishing techniques directly impacts the loss of traditional conservation practices used by traditional fisheries (Kebede and Gubale, 2016, p. 307). Therefore, there is a gap in the literature as to how African epistemological analysis relating to the challenges and opportunities of traditional fishing communities can be applied to legislation and policy

evaluation and implementation. with an intention to maximise these communities' access to the great potential of the marine economy.

1.6 Research Questions

In light of the research problem derived from the literature, research questions were formulated. Therefore, the study attempts to answer the following key questions:

- What are the complexities driving socio-economic opportunities and barriers for traditional fisheries in KZN, South Africa?
- How can evidence-based knowledge co-created with study participants overcome barriers and advance opportunities for traditional fisheries in KZN, South Africa?
- In what ways can any gaps found in the implementation of Small-Scale Fisheries Policy in South Africa be filled to enhance the socio-economic benefits and sustainable livelihoods of the traditional fishery sector?
- How effective is the functionality of governance and institutional framework for the fishery industry in KZN, South Africa as it pertains to African ways of knowing?
- What evidence-based policy framework and interventions for environmental sustainability can be co-created with study participants to improve the operations of the traditional fisheries in KZN, South Africa?

1.7 Research Aims and Objectives

Since the study conducted an African epistemological analysis of challenges encountered by the traditional fishing industry in South Africa, the research aims to make informed recommendations to DAFF and also offers insights into how the traditional fishing industry can be improved to benefit the coastal communities.

Based on the above aim, the objectives of the study are to:

- Identify the socio-economic opportunities and barriers for traditional fisheries in KZN, South Africa.
- Co-create evidence-based knowledge with study participants to overcome barriers and increase opportunities for traditional fisheries in KZN, South Africa.
- Examine the implementation of the Small-Scale Fisheries Policy that governs traditional fisheries in KZN, South Africa as it pertains to traditional fishers, civil society members, traditional leaders and government.

- Critically assess the functionality of governance and institutional frameworks for the fishery industry in KZN, South Africa, particularly as it pertains to African ways of knowing.
- Co-create with study participants an evidence-based policy framework and interventions for environmental sustainability to improve the operations of the traditional fisheries in KZN, South Africa.

1.8 Preliminary Literature Review

The study identified key literature that provides the framework of the research. The preliminary literature review identifies areas that offer support for new research and complements the study with an analysis and synthesis of the previous research in the context of the present problem.

African communities face various challenges which adversely affect socio-economic and socio-cultural status as addressed in Section 1.2 of the thesis. Therefore, this study embraces a philosophical orientation which attempts to influence the nature of enquiry of the study. Hence, the study endorses indigenous African epistemologies or knowledge systems to address the problem statement of the study and to devise possible interventions. African epistemologies are characterised by epistemic freedom whereby traditional African worldviews are put into practice centred around communalism (Adegbindin, 2018). African epistemologies promote the maxim of ‘African solutions to African problems’ to implement indigenous African-based systems to effectively govern the people. According to Letseka (2000, p. 181) communality plays a critical role in traditional African life.

In contrast, Western ways of knowing are characterised by the liberal notion of individualism, unconnected to any community, not bound by any socio-economic, political and cultural relationships (Stolp, 2020, pp. 250-256). Western philosophies were conceived and developed as a separate discipline in isolation from life (Van Stam, 2019, p. 58). The African epistemologies ideology should be adopted by government for policy development to provide solutions for African communities (Leshoele, 2020, pp. 2,3). The study therefore attempts to establish a uniquely African order of knowledge, co-created with study participants.

In addition, the study discusses multi-level geospatial policy implications for traditional fisheries. South Africa is part of the global community shaped by different global, continental and regional policies (SADC, 2003). The alignment of these policies influences the incorporation of local and international policies. The 2030 Agenda for Sustainable Development Division for Sustainable Development Goals (SDGs) and the African Union (AU) Vision 2063 form the basis for advocating for a thriving agriculture in rural communities and the alleviation of poverty (Crush

and Riley, 2018, p.45). The South African Development Community (SADC) policies are aligned with the national policies that govern marine economy. The Marine Resources Act (MRA) (RSA, 1998), Marine Spatial Planning Act (MSPA) (RSA, 2018) and Policy for Small-Scale Fisheries (PSSF) (RSA, 2012) are the statutes that govern the fishery sector at the national level. The study mainly focuses on the PSSF as the policy with the potential to change the status quo for traditional fisheries. It will interrogate the implementation of PSSF and attempt to develop sound and amicable solutions to improve the lives of the traditional fishers.

Moreover, the study expands on the application of different theories as an integrated approach to form a meta-theoretical framework of the study. A meta-theoretical framework approaches a complex social phenomenon which requires two or more theories to fulfil an aim of the study (Fleetwood, 2008, p. 7). It “is primarily the study of theory, including the development of overarching combinations of theory” (Mayo *et al.*, 2017, p. 4). The integration of theories advocates efficient policy framework, good governance, cultural values and environmental sustainability respectively. The meta-theoretical framework as highlighted in Chapter four, is aligned to the objectives of the study and is used as a tool to fulfil the overarching aim of the study.

Firstly, the stakeholder theory is a catalyst for collaboration of multi-sectors, interorganisational integration, public and other stakeholders that form part of social partnerships (Savage, Bunn, Gray, Xiao, Wang, Wilson and Williams, 2010, p. 22). The theory drives social partnerships through cooperative governance whereby collective organisations come together for a specific purpose of solving problems that cannot typically be solved by an organisation acting alone. Secondly, ethnography theory attempts to understand how the people understand their world and lived experiences. The theory is connected to the concept of holism and interconnected cultures (Nader, 2011, p. 211). Some studies reveal that traditional fishers perceive fishing as social capital which promotes spiritual connection with the environment (Birnbaum, 2016, p.306). Thirdly, Schnitzer (2018, p. 366) and Török and Helm (2017, p. 85) indicate that ecological theory plays an important role in the advancement of a science of ecological restoration. It is a theory for recovering damaged ecosystems or biophysical environments. There are studies that believe that government should ensure that fisheries comply with the objectives of social justice and environmental justice to improve sustainable fisheries management (Kanu and Agu, 2019, p. 33). Fourthly, the theories of well-being reflect numerous discussions of what constitute a good life and good society (Kraus, Park and Tan, 2017, p. 423). Theories of well-being are associated with policy debates that focus on the nature of the good society, and are also concerned with psychology, which seeks to describe the factors and states of mind underpinning and evident in personal development (Bagiensi and Kuhn, 2019, p. 42). Lastly, policy implementation, as a

concept, entails the intention of government to act positively or intervene in adverse situations with an intention to cushion the ultimate impact on communities (McLaughlin, 1987). Assessment of policy implementation aims to formulate a suitable model informing decision-makers to adopt particular instruments that seek to promote overall economic development and social welfare (Howlett, 1991). According to May and Winter (2009) various authors have examined policy implementation cascading to street-level bureaucrats to influence the behaviours at the frontline of service delivery. There are three literature review chapters in the study: Chapters Two, Three and Four, respectively.

The subsequent section provides a concise overview of the research methodology utilized in the study, outlining the key approaches and methods employed to address the research questions and objectives. This summary serves as a guide for readers, offering a glimpse into the systematic processes undertaken to generate and analyse data in pursuit of the study's objectives.

1.9 Research Methodology

This section introduces the research design, which is discussed in detail in Chapter Five. The research implemented the mixed method research design. According to Creswell (2018), the mixed method encompasses both quantitative and qualitative research methods to produce comprehensive results for the phenomenon under review. On the one hand, quantitative methods were used to gather statistical evidence regarding SSFP implementation. On the other hand, the study used qualitative research methodology to gain a deeper understanding of the challenges and opportunities of traditional fishing communities. The research used combined research strategies (non-experimental and hermeneutic phenomenology) to concurrently collect data. In this regard, the study applied a hermeneutic phenomenological strategy in conducting in-depth interviews with individuals from the selected population. It also employed a non-experimental strategy which is aligned to quantitative and statistical analyses tools. The research questions, legislation and policies were investigated through surveys administered to government officials from all spheres of government in KZN. Government officials were surveyed because of the role they play in the formulation and implementation of legislations and policies. For convenience and in compliance with the University Covid-19 protocols, the surveys were administered electronically through emails. All government officials had access to connectivity and technology. Furthermore, the study used structured qualitative interviews to ensure the consistency of questions throughout the data collection phase. The qualitative interviews were conducted telephonically to comply with a University COVID-19 circular and the country's COVID-19 regulations. *Izinduna* were requested to provide the researcher with contact details for community members and traditional fishers. However, when COVID-19 prohibitions were eased, the researcher conducted some qualitative research in person.

A total of 208 individuals participated in the study. The quantitative component included 125 surveys with government officials from different spheres of government. The qualitative component involved 21 in-depth individual interviews of traditional fishers, civil society members and *izinduna* along with 14 group interviews of traditional fishers and civil society members collectively comprising 62 participants.

1.10 Outline of Chapters

This section gives an overview of chapters contained in this thesis. Chapter One is an introductory chapter, presenting the study background, research questions and objectives, a brief overview of the methodology, study limitations and delimitations, ethical considerations and other pertinent topics. Chapter Two discusses the philosophical worldview and its links to ontology, epistemology, axiology, and methodology of the study. Chapter Three synthesises the reviewed literature, comprehensively details the theories underpinning this study and further introduces and unpacks pertinent concepts. Chapter Four synthesises the reviewed literature about indigenous and contemporary social constructs which reflect realities for traditional fishers and coastal communities. Chapter Five offers a description of research methodology including the design, processes and instruments employed by the study. Chapter Six offers a comprehensive presentation of results and findings from quantitative data. Chapter Seven presents findings from qualitative data using matrix analysis based on coding and interpretation of transcripts of in-depth interviews. Chapter Eight focuses on the organisation of the qualitative comparative analysis approach and conducts a triangulation of multi-method, mixed-method, theoretical and paradigmatic triangulation to develop a comprehensive understanding of phenomena. Chapter Nine focuses on the Traditional Fishery Regulatory Framework (TFRF) as new knowledge to address the findings presented and serve as the intervention of the study. Chapter Ten concludes the study with an overview of the chapters' contribution to the outcome, main research findings together with conclusions and recommendations. An indication of the contribution to the bodies of knowledge and suggestions for research bring the study to a close with the conclusion of the final chapter.

1.11 Key Terms and Definitions

The key terms for the study are defined in table.

Table 1-1: Definition of key terms of the study

Term	Definition
African epistemologies	African epistemologies can be defined as a theory of knowledge that is indigenous to Africa and which embraces African ways of knowing. It is an epistemological view is aligned with African metaphysics as true

Term	Definition
	wisdom lies in ontological knowledge (Etta and Mogu, 2012, p. 189). It is also founded on the premise of oneness or communal unity. This African philosophy lays the foundation for beliefs, values, language, experiences and insights of the African indigenous people (Ruffin, Teffo and Kaya, p. 185).
African epistemological lens	African epistemological lens is the lens through which the study view reality. The lens focuses on the application of an African theory of knowledge, which includes the African conception of the nature of knowledge guided by ontology, epistemologies, axiologies and cosmologies (Ndubisi, 2014, p. 33). The lens also incorporates indigenisation and Africanisation (Ruffin, 2019a) of SSFP implementation and decolonisation of contemporary governance system to concretise contextualised ways of understanding the world.
Fisheries or fishery	According to Olivier (2015, p. 1) “fisheries” or “fishery” means one or more stocks of fish or any operations based on such stocks which can be treated as a unit for purposes of conservation and management, considering geographical, scientific, technical, cultural, economic, recreational and other relevant characteristics. However, in the context of this study these terms refer to the occupation, sector or industry that harvests fish or other sea animals such as sponges, shrimp, or seals to sustain livelihoods. The two terms are used interchangeably throughout the study.
Socio-economic marginalisation (SEM)	SEM means a set of conditions that contribute to exclusion from social and economic opportunities and create vulnerability including: labour market exclusion; informal or prohibited income generation (e.g. theft, drug dealing, street-based work); material insecurity (e.g. housing or food insecurity) (Van Draanen, Tsang, Mitra, Karamouzian and Richardson 2020, pp 1-2)
Traditional fisheries	“Traditional fisheries” is a fishing practice characterised by African traditions which involves fishing households using a relatively small amount of capital, relatively small fishing vessels, making short fishing trips, close to shore, mainly for local consumption (Teh and Pauly, 2018, p. 44), whilst attaching spiritual ways of knowing the ocean and its manifestations.
Traditional fishers	Traditional fishers are men and women who operate with human-made wooden objects or boats which are normally less than 15 meters in length. They fish for local consumption and normally access shallow part of the shoreline. They are also defined as indigenous fishermen and fisherwomen situated within the communal land along KZN coastal area. They are described as indigenous people because their cultural and spiritual beliefs are strongly connected to African ways of knowing and local IKS.
Transformative worldview	It is a paradigm shift mechanism that eradicates imposed structural governance systems that perpetuate marginalisation and economic exclusion of traditional fishers and rural coastal communities (Hurtado, 2015).
Small-scale fisheries	Small-scale fisheries provide a quantity generally larger than that of traditional fisheries. This is done for business purposes locally and

Term	Definition
	externally. Small-scale fisheries are part of the value chain in the fishery industry.
Indigenous knowledge	Indigenous knowledge is defined as the unique, traditional, local knowledge existing within, and developed around the specific conditions of women and men indigenous to a geographic area (Ncube, 2022, p.227)

1.12 Conclusion

In conclusion, this introduction chapter has provided a comprehensive overview of the background, research problem, and objectives of the study. By delineating the context and significance of the research, it has laid a solid foundation for understanding the rationale behind the investigation into traditional fisheries governance in the selected coastal communities. The chapter has also highlighted the researcher's shift in worldview towards decolonizing research, emphasizing the need to ensure that the study's outcomes are relevant and beneficial to the communities under study. Additionally, the formulation of research questions and objectives, accompanied by a preliminary review of the literature, sets the stage for the subsequent chapters, where the research methodology will be detailed and the empirical findings presented and analysed.

Overall, this introduction chapter serves as a roadmap for the remainder of the study, providing readers with a clear understanding of its scope, purpose, and potential contributions to knowledge. It underscores the importance of engaging with local communities and decolonizing research practices to ensure that the study's outcomes are meaningful and actionable. As the subsequent chapters unfold, the research methodology will be unpacked, and empirical data will be analysed to address the research questions and objectives elucidated in this introductory section. Through this systematic approach, the study aims to shed light on the governance challenges facing traditional fisheries in the selected coastal communities and offer insights that can inform policy interventions aimed at improving the livelihoods of the people living in these areas.

Having laid the groundwork in this introduction chapter, the subsequent section delves into a comprehensive exploration of the existing body of knowledge related to traditional fisheries governance. The literature review chapter will critically examine relevant theories, concepts, and empirical studies to provide a theoretical framework for the study. By synthesizing and analysing existing scholarship, the review aims to identify gaps, debates, and key issues in the field, setting the stage for the empirical investigation conducted in this study. Through this critical engagement

with the literature, the study seeks to enrich understanding and contribute new insights to the discourse on traditional fisheries governance.

2. CHAPTER TWO: PHILOSOPHICAL WORLDVIEWS AND ASSUMPTIONS

2.1 Introduction

Chapter Two offers a comprehensive overview of the structural and philosophical framework underpinning the study, essential for understanding its methodology and theoretical underpinnings. At its core, this framework encompasses a multi-inter-trans-disciplinary (MIT-D) approach, strategically selected to enhance the study's outcomes by integrating diverse disciplinary perspectives. This chapter elucidates how the MIT-D approach serves as a guiding principle, facilitating the synthesis of insights from multiple disciplines to enrich the research process and outcomes.

Integral to the study's philosophical framework is the incorporation of constructivist philosophy, which posits that individuals actively construct their own reality and understanding of the world based on their experiences. By embracing this perspective, the study acknowledges the subjective nature of human interpretation and knowledge construction, emphasizing the importance of personal experiences in shaping individuals' perceptions and understandings.

Moreover, the study demonstrates a nuanced understanding of paradigmatic orientations, particularly within the realms of interpretivism, hermeneutic phenomenology, and African epistemologies. These paradigms are seamlessly integrated into the research design, allowing for a multi-paradigmatic approach that accommodates diverse perspectives, orientations, and worldviews. Specifically, African epistemologies serve as a guiding framework, offering insights into the political, economic, ethical, and societal upliftment of African communities.

The integration of African epistemologies is rooted in the ontology of oneness realities and community-based knowledge systems, aligning closely with the principles of the MIT-D approach. By harnessing the collective wisdom embedded within African epistemologies, the study aims to empower African communities and contribute to the holistic betterment of their conditions. Through the utilization of African epistemological tools, the study endeavors to reclaim and reconstruct various aspects of African society, including cultural, social, economic, political, and spiritual dimensions, ultimately fostering a more inclusive and equitable future.

2.2 Multi-Inter-Trans-Disciplinary Approach

The MIT-D approach enables African contemporary social, economic and ecological studies to research integrated problems and necessitates solutions derived from multiple disciplinary backgrounds. Otto *et al.*, (2016, p. 2380) assert that complex social-ecological and socio-

economic problems cannot be solved purely by one discipline. However, it requires the engagement and integrated collaborative or so-called trans-disciplinary approach to extend lenses to multiple disciplines. It also contributes to the transformation and effectiveness of many aspects of fisheries management, including small-scale and traditional fishery space. As an example, the two case studies conducted from the Bay of Bengal by Nayak, Oliviera and Berkes (2014, p. 1) focus on vulnerabilities and strengths for traditional and small-scale fisheries. The study further discusses small-scale and traditional fisheries as a multidimensional, complex and highly dynamic concept, which requires inter- and trans-disciplinary skills to suggest possible strategies to strengthen these fisheries. As Nayak and Berkes (2019, p. 2) allude to, an individual field of study provides a relatively narrow perspective in viewing complex issues whereas the study of the vulnerability of small-scale and traditional fisheries requires being inter- and trans-disciplinary.

In contrast, the integrated MIT-D approach is often believed to present confusion, time-consuming applications and is unusual in the traditional fields of study (Jones, 2010, p.26). Consequently, Stock and Burton (2011, p.1092) argue that the MIT-D approach has failed in various research projects due to the disconnection between the natural sciences and social sciences communities. There is an inability to break down methodological, epistemological and ontological boundaries that seek to prevent shared understandings of complex issues. For instance, traditional engineering education adopted a culture of framing problems in narrow techno-economic terms which often neglect broader social, environmental, ethical and political issues (Mulder, Wagenmakers, Ratcliff, Boekel and Forstmann, 2012, p. 2335). Moreover, academic institutions sometimes play a role in the siloisation of knowledge and the research paradigms of reduction and separation (Bugajak, 2020, p. 142). The complex nature of African social-ecological problems requires sustained MIT-D engagements across multiple disciplines (Hedtke, 2006, p. 4). Therefore, the single disciplines have been proven typically inefficient to provide sufficient skills or tools required to find effective solutions to African social-ecological and socio-economic problems (Kinzig, 2001, p.709). African Indigenous Knowledge Systems (AIKS) are characterised by diverse perspectives which enhance an understanding of complex social-ecological challenges (Jägerskog, 2021, p. 70). African epistemologies enable researchers to co-create and share knowledge with communities and across disciplines to comply with African value systems of holism and communal spirit to life and work.

Therefore, the MIT-D approach is an ideal mechanism to enable different disciplines to be collaborative, interconnected and integrated to obtain a holistic perspective of the study. In addition, this approach is problem oriented and provides solutions that are complementary to multi-disciplines. It reaches the greater scope of the study to present solutions that are

comprehensive and cross-disciplinary in nature. According to de Oliveira, Amaral and Pacheco (2019, p. 24) the MIT-D framework deals with complex phenomena with an aim of innovation, integration and co-creation of knowledge. This study of traditional fisheries in KZN applies a MIT-D framework due to its flexibility to promote collaboration and integration to defragment information for the creation of new knowledge. This research approach utilises different angles from various disciplinary backgrounds to obtain a full perspective of the study. World Bank (2018, p.39) attests to the growing recognition of the economic, socio-cultural, and ecological importance of traditional fishing as a significant component of global capture fisheries. Hence, the study utilises the MIT-D framework to ensure all important disciplines or fields are well captured to defragment the information and provide solutions that consider all perspectives.

In the context of this study, the MIT-D framework sync with changing views of traditional fisheries to present integration between governance, environmental, and socio-economic issues, with great emphasis on cultural change. The study utilises a meta-theoretical framework with an aim to integrate governance, socio-economic, cultural and environmental issues faced by traditional fisheries. The fusion of a meta-theoretical framework with the MIT-D approach provides the holistic perspective of the study. However, the policy has shortcomings in addressing challenges of traditional fisheries caused by apartheid. A democratic society of South Africa still has challenges in policy implementation for traditional fisheries, as well as in governance, and the socio-economic, environmental, and cultural spheres. The study accommodates different disciplines in digesting information from diverse sectors of society that meet to produce defragmented solutions for traditional fisheries. South Africa is currently facing multiple unprecedented challenges including the degradation of coastal ecosystems, over exploitation of fishery resources, climate change, economic disparities, and governance. These interconnected challenges are threatening the sustainable development of traditional fishery communities and society at large. Therefore, the application of the MIT-D framework in addressing these challenges will provide better understanding of issues at different levels and present co-created solutions.

2.3 Constructivism Philosophy

Kelly (2021, p. 507) defines constructivism as a view in which an individual mind constructs reality but within a systematic relationship to the external world. A constructivist theory is viewed as a framework which emphasises the active construction of new knowledge and intellectual competencies (Triantafillou, 2020, p. 7). As one of the key areas of social constructs, constructivist studies focus on construction of meaning regarding broad concepts of cultural values (Williamson, 2006, p. 3). The main constructivist approach is derived from social constructionists. It emphasises people developing meanings for their actions or activities when

constructing their reality together. It is not an objectivist paradigm because the researcher creates data for analysis through interaction with the participants (Kelly (2021, p. 509). The constructivism philosophical paradigm is an approach that enables people to construct their own understanding and knowledge of the world through their own experiences (Adom, Yeboah and Ankrah, 2016, p. 1). The constructivist philosophy projects the idea that learning does not just happen from the traditional method of teachers standing in front of the class and lecturing. Adom, Yeboah and Ankrah (2016, p. 1) further outline that there are two main processes through which knowledge is constructed. The first one is the accommodation process which frames one's mental representation of the external world to fit the new experiences. The second process in the construction of knowledge known as assimilation where the individual incorporates the new experiences into an already existing framework of old experiences.

Merve (2019, p. 21) claims that constructivism enables government to conduct public policy processes towards a more interactive, collaborative model, where governments seek to develop partnerships with civil society and private sector organisations to manage complex policy challenges. It intends to integrate, harmonise and reconcile government's economic, environmental and social policy objectives. The collaborative efforts through the constructive paths have taken policy development to the ground, which enables diverse participants to contribute to the policy development process. It is argued that there has been progress in public administration as the policy direction moves towards greater community participation for the tools, instruments and practices of public administration (Williamson, 2006, p. 2).

Therefore, the study applies constructivism as a philosophy that will construct knowledge rather than just passively take in information. The study is centred around people's experiences, and it constructs people's representations and how they incorporate new information into their pre-existing knowledge. The study variables are used as a vehicle that constructs the knowledge in line with meta-theoretical framework.

2.4 Hermeneutic Phenomenology Study

Phenomenology as a methodological framework has been used widely by many researchers and advanced into a process that seeks reality in individuals' narratives of their lived experiences of phenomena (Valentine, Kopcha and Vagle, 2018, p. 463). The philosophy of phenomenology is characterised by distinct varieties of phenomenology. These varieties of phenomenology include transcendental constitutive, naturalistic constitutive, existential phenomenology, generative historicist, genetic, hermeneutical and realistic phenomenology studies (Posselt and Nuñez, 2022, p. 165). This study implemented the hermeneutical phenomenology approach which ontologically view and comprises interpretive realities of experience. The hermeneutics philosophy studies take a broader view to reflect and interpret descriptions of lived experience

presented by research participants (Fink, 2020, p. 70). As a result, it provides a broader picture on which to qualitatively describe and analyse a phenomenon so as to lead to findings and conclusions (Posselt and Nuñez, 2022, p. 163).

The study aims to understand unique individual experiences and their meanings in different environments (Miller, Chan and Farmer, 2018, p. 241). Therefore, hermeneutic phenomenology is useful since it investigates reality in individuals' own narration of their internal world of human experience. The research understands and describes specific occurrences in depth and draws conclusions about the essence of participants' lived experiences (Yüksel and Yıldırım, 2015, p. 2). Hence, hermeneutic phenomenology enables the study to recognise and access the power of individual interpretation and value textual meanings and dialogues (Suddick, Cross, Vuoskoski, Galvin and Stew, G., 2020, p. 2). This phenomenological study is characterised by participants who have experienced the same phenomenon. Purposeful sampling is commonly used in qualitative studies because the researcher selects participants deliberately since they understand the phenomenon.

2.5 Interpretivist Philosophy

Interpretivism philosophy explores in depth to understand the context of study contracts or variables to obtain the meaning hidden in the data (Alharahsheh and Pius, 2020, p. 40). This philosophy regards humans as different from physical phenomena as assumptions of human beings are explored differently to physical phenomena. It also accommodates dynamics of cultures and traditions from different backgrounds to develop different social realities. Interpretivism can be said to critique the positivist approach by considering subjective perspectives in research.

Interpretivism philosophy comprises several qualities that are endorsed by the research study. Firstly, it enables the researcher to deeply explore individual experiences through structured interviews (Van der Walt, 2020, p. 60). Secondly, it enhances deep exploration of human experiences applying qualitative designs and methodologies (Junjie and Yingxin, 2022, p. 10). Thirdly, it enables the researcher explore individual experiences without considerations of generalised standards or measurements or expectations presented by the positivist paradigm (Alharahsheh and Pius, 2020, p. 41). Lastly, it has an ability to decode and synthesise collected data using different techniques of data analysis. Nickerson, 2022, p. 1). Therefore, the interpretivism philosophy acknowledges that different people or communities experience and understand the same so-called "objective" reality in different ways (Nickerson, 2022, p. 2). Hence, the research aims to, *inter alia*, capture and understand the individual experiences for KZN traditional fishers and rural coastal communities in relation to the objectives of the study.

2.6 African Epistemologies

The term “epistemology” is claimed to by some to have been derived from the Greek words “episteme” and “logos”. The term “Episteme” is translated as “knowledge” or “understanding”, whereas “logos” is translated as “account” or “argument” or “reason” (Thomas, Lubarsky, Varpio, Durning and Young, 2020, p. 1). African epistemologies is defined by Udefi (2014, p. 108) and Airobomann and Asekhaulo (2012, p. 15) as a worldview based on African culture and understanding context of reality by Africans. African epistemologies is, according to Mathebula (2018, p. 17) an African worldview with a holistic conception of knowledge. (This African holistic conception of the nature of knowledge involves different forms of attaining and validating knowledge as well as the role it plays in human existence whereby experientialism is an integral dimension.

Ikhane (2018, p. 2) claims that African epistemologies reflect on the experiences lived by Africans people. Consequently, it is the study of human knowledge and also the nature of human knowledge. Furthermore, Onyemelukwe and Fatuase (2020, p. 2) concur that African epistemologies should reflect on the reality within the African world. According to Carroll (2014, p. 1) integration of African Indigenous Knowledge Systems (AIKS) into policy in higher education should be escalated and implemented through the involvement of the custodians of indigenous knowledge such as *Amakhosi* (chiefs), *Izangoma* (diviner-spiritualists) and *Izinyanga* (diviner-herbalists) among others. For instance, the Rwandese tradition called Umuganda is a “traditional practice and cultural value of collaborative efforts and working together to solve social and economic problems for mutual benefits” which was implemented post-genocide (Uwihangana, Hakizamungu, Rutikanga, Bangwanubusa and Kalinganire, 2020, p. 5). African epistemologies relate more with ‘patterns for interpreting reality’ to understand about culture and it refers to the manner in which we engage social and lived phenomena (Mathebula, 2018). This suggests that using Eurocentric concepts to explain an African concept poses fundamental problems for research on Africa. Atta-Asiedu (2020, pp. 1-3) claims that the inability of African scholars to develop theories that are built on epistemic freedom deems African theories to be contextually misaligned with African challenges. Transformation of the African continent can be accelerated through the application of African worldviews to social constructs (Uwihangana *et al.*, 2020, p.11). In contrast, theories created by Western scholars are perceived to be misaligned with African constructs as further discussed in Section 3.2 of the research. Moreover, arguably, Western epistemologies systematically devalue AIKS by deliberate non-recognition of African ways of knowing (Jimoh, 2018, p. 7). The application of foreign methodologies to validate African systems of knowledge disintegrate originality of African ways of knowing (Jimoh, 2018, p. 9). Western epistemological assumptions advocate a paradigm of rationality that recognises a sole model of truth and imposes a so-called objective approach which is characterised by

universally binding problem-solving tools (Lawal, 2021, p. 58). Therefore, imposition of Western ways of knowing threatens African indigenous systems the latter of which is meant to address African challenges (Lawal, 2021, p. 60).

South Africa and various African countries have, however, inherited historical legacies that include the fundamental assumptions of the Cartesian doctrine of the isolated mind (Stolorow, Orange and Atwood, 2001, p. 648). In the Cartesian isolated-mind thinking (Stolorow, Atwood and Orange, 1999, p. 380), the mind is thought to exist independently and autonomously within the boundaries of the individual. Stolorow, Orange and Atwoode (2001, p. 470) affirm that the Cartesian doctrine claims that a mind is separated from an objective reality that it either accurately apprehends or distorts. The products of the mind are in this view to be treated as independent, self-sufficient creations, verified, falsified, or otherwise evaluated according to criteria that exist apart from the personal contexts out of which they arise (Atwood, Stolorow and Orange, 2011, p.274).

Various authors have a view that continental Africa should have a philosophy that contributes towards the political, economic, ethical and general upliftment of African people (Higgs, 2007, p. 1; Ndubisi, 2014, p. 33). Indigenous methodologies should be utilised for African-based research as it has ontological principles which embraces the African continent. According to Udefi (2014, p. 115) the idea of an African epistemology reflects interpretations and captures reality within the context of African culture. It advocates embracing knowledge, truth, and rationality using interpretation within African categories and concepts as provided by the African cultural experience. Ogunbure (2014, pp. 39,40) attests that the advent of the concept of Afrocentricity was intended to respond to the historical oppression of African people. African epistemologies are rooted in spirituality, communalism, cooperation, ethics, and morality. Ogunbure (2014, p. 40) asserts that most African countries, through the system of slavery, colonisation and apartheid were physically separated. There was an aim to consequently dilute African cultures and one's spiritual connection to the universe. Therefore, African epistemologies are an attempt to reclaim and reconstruct the cultural, social, economic, political and spiritual well-being of African people (Ogunbure, 2014, p. 39) in 21ST century context.

However, African epistemologies and other indigenous oriented knowledge systems are at times disregarded and deemed unworthy of academic consideration (Odhiambo, 2011, p. 669). The dominant western epistemological tradition advocates positivist scientific methods as the genuine and universal means of knowledge acquisition (Mukhungulu, Kimathi and K'Odhiambo, 2017, p. 178). On the one hand, some scholars argue that western epistemological methods discredit AIKS as an alternate, genuine means of knowledge acquisition (Sogolo, 1993, p. 3). On the other hand, some authors argue that AIKS lack validity and reliability which leads to deviation from

the truth, and that no conclusions can be made from the study (Cech, Metz, Smith and DeVries, 2017, p. 743). The Western view that African intellectualism is less objective or non-empirical perpetuates ideological suppression and devalues African knowledge production (Sithole, 2011, pp. 83-85). Hence, African epistemological views have been shrouded by underlying impressions of the inferiority of African minds (Keet, 2014, p. 25). African epistemological methods and indigenous knowledge systems are subjected to western-orientated scientific forms of knowledge acquisition in the African continent (Mukhungulu, Kimathi and K'Odhiambo, 2017, p. 179). This stems from a long history of racial degradation of African people which resulted in the denigration of African-oriented epistemologies. It also stems from the historical context of assumed western superiority, which excludes African contemporary academic considerations in policy formulation or academic research (Odhiambo, 2011, p. 670).

Mathebula (2018, p. 20) argues that conducting an African Public Administration study using science based on epistemologies of non-African societies could misdiagnose African problems and bring unsuitable solutions. Therefore, African scholars have a responsibility of generating knowledge about Africa using research procedures, methodologies and theories founded on an African epistemological lens. An African epistemological lens utilises AIKS and multiple theories to analyse social phenomena of a particular domain (Van der Waldt (2017, p. 3). In addition, an African epistemological lens incorporates indigenisation and Africanisation (Ruffin, 2019a) of policy implementation in alignment with "African constitutionalism" (Basheka and Auriacombe, 2020) to decolonise the contemporary governance system. Hence, the MIT-D approach plays a fundamental role in ensuring this study is collaborative, interconnected and integrated with different disciplines being subjected to an African epistemological lens. In addition, Erasmus (2020, p.1) claims that public administration phenomena are complex and require multiple models and theories to analyse them. For instance, the integration of theories that focus on governmental, political, economic, legal, social, and cultural systems to analyse and transform social phenomena in Africa is useful (Maserumule, 2009, p. 2). A combination of a transformative worldview and African epistemological lens are important to the study of social-cultural and socio-economic phenomena to influence a paradigm shift on the contemporary governance system.

In conclusion, the MIT-D framework is consistent with African ways of knowing as it applies a holistic approach to study social phenomena and values experientialism. African epistemologies are aligned with the MIT-D approach because of its capability of integrating social, economic, cultural and environmental phenomena, based on African ways of knowing.

The dependent and independent variables are operationalised in line with the African theory of knowledge to match the African conception of the nature of knowledge. That means the study

applies variables to gain knowledge from different sources of information. The dependent and independent variables were aligned with the study constructs which define the socio-economic, socio-cultural and ecological realities to which traditional fisheries and coastal communities are subjected. These variables are discussed in Chapter Five.

2.7 Integration of philosophical approach

The research inquiry for this study is fundamentally characterised by an integrated philosophical approach which comprises a set of assumptions, beliefs and models of conducting research. The study assumption is that traditional fishers and rural coastal communities have lived experiences within their world for co-creation of new knowledge (Pilarska, 2021, p. 67). Therefore, the study recognises deliberate exclusion of ideologies of marginalised groups to promote dominance of ideologies of elite societies. As a result, lack of essentialisation and integration of philosophical approach creates imbalances in the demographics of knowledge production due to dominion of certain ideologies (Sithole, 2011, p. 87). The integration of philosophical approaches orientates the study towards providing appropriate research inquiry to reflect the ontology, epistemology, axiology, methodology and technique that guides the researcher. Furthermore, the study acknowledges that the integration of philosophical approaches influences research methods and techniques that solve “real world” problems as it is aligned with MIT-D. In other words, integration of philosophical approach explores a specific relationship between two or more paradigms to intermesh, inter-relate and co-exist to interrogate and understand the phenomena (Moran-Ellis, Alexander, Cronin, Dickinson, Fielding, Sloney and Thomas, 2006, p. 11). Each of these paradigms are aligned to the study constructs and objectives and further operationalised for data analysis and interpretation. Data analysis generates the integrated relationship of paradigms and variables for in-depth understanding of the phenomena. Furthermore, integrated relationships of paradigms and variables could drive the study to new theoretical propositions which are guided by integration of philosophies.

Therefore, this study integrates constructivism, interpretivism and hermeneutical phenomenology philosophies together with African epistemologies which are then blended into a research design to trigger a humanistic approach to research about economic, cultural and social realities for traditional fishers, fisheries and rural coastal communities. Table 2-1 describes these integrated philosophies applied in the study.

Table 2-1: Comparative disposition of paradigms applied to the study

Paradigmatic Orientations	African Epistemologies	Constructivism	Interpretivism	Phenomenology
Ontology	<ul style="list-style-type: none"> • African traditional thoughts. • African experience and cultural view of reality. • African spiritualistic and dynamic metaphysics. • Bantu philosophy 	<ul style="list-style-type: none"> • Reality is socially constructed. • There are multiple truths, varying by individual and context. 	<ul style="list-style-type: none"> • There is no single truth or reality. • Multiple socially constructed. • There are multiple truths, varying by individual and context 	<ul style="list-style-type: none"> • Reality is socially constructed. • There are multiple truths, varying by individual and context.
Epistemology	<ul style="list-style-type: none"> • Knowledge is created through the concepts of wholeness, community and harmony which are deeply embedded in cultural values. 	<ul style="list-style-type: none"> • Subjective understanding through the meanings that people assign. • Knowledge is constructed between researcher and study participants, and thus cannot be independent of the researcher. • Aligned with African epistemologies. 	<ul style="list-style-type: none"> • Knowledge is created through interpretation of underlying meaning of events and activities. 	<ul style="list-style-type: none"> • Subjective understanding through the meanings that people assign.
Axiology	<ul style="list-style-type: none"> • African values have strong influence on inquiry. • Linked to communal values. 	<ul style="list-style-type: none"> • Phenomenological values. • Values have strong influence on inquiry. 	<ul style="list-style-type: none"> • Inquiry is value-bound. • The values of the research affect the study. 	<ul style="list-style-type: none"> • The concept of being, being in the world. • Community values.
Methodology	<ul style="list-style-type: none"> • A Social Study of Research. • Triangulation • Meta-theory. 	<ul style="list-style-type: none"> • Qualitative • Narrative research • Phenomenological • Ethnographies • Grounded theory • Case study 	<ul style="list-style-type: none"> • Qualitative • Narrative research • Phenomenological • Ethnographies • Grounded theory 	<ul style="list-style-type: none"> • Qualitative • Narrative research • Phenomenological • Ethnographies • Grounded theory • Case study
Methods	<ul style="list-style-type: none"> • Group interviews 	<ul style="list-style-type: none"> • Group interviews. 	<ul style="list-style-type: none"> • Group interviews. 	<ul style="list-style-type: none"> • Group interviews.

The philosophies highlighted in Table 2-1 also present their differences in terms of ontology, epistemologies and axiology which overcome weakness of each philosophy. For an example,

ontology for constructivist, interpretivist and phenomenology philosophies claims that there is no single truth or reality, whereby reality is socially constructed. Whereas, ontologies for African epistemologies assume and believe in an African experience and cultural view of reality. On the one hand, epistemology for constructivism advocates co-creation of knowledge with study participants. On the other hand, epistemology for interpretivism and phenomenology create knowledge through interpretation and understanding underlying meaning of events and activities. Therefore, integration of philosophies nullifies weakness for individual paradigm and sharpens the ultimate philosophy of the study.

The constructivist and interpretivist paradigms acknowledge multiple ‘truths’ which is socially constructed and ungoverned by “universal laws” to enhance valid categories for human experience (Valenzuela-Moguillansky and Vásquez-Rosati, 2019, p. 125). This enriches the study as it enables traditional fishers and rural coastal communities to construct their own understanding and knowledge of the world through their experiences. Constructivism and interpretivism philosophies have aligned ontologies and epistemologies which strengthens and complements co-creation of new knowledge by the study participants and the researcher (Pilarska, 2021, p. 58). Thus, integration of constructivism, interpretivist philosophy and African epistemologies create research inquiry that enhances traditional ways of knowing to co-create new knowledge that is socially constructed (Van Stam, 2019, p. 60). Consequently, the co-created new knowledge lays the foundation for development of a regulatory framework which aims to interrogate social phenomenal.

Moreover, having African epistemologies as the overarching lens of the study triggers African solutions to African socio-economic challenges guided by the assumptions of the study. Integration of philosophical approaches provides convergence of African traditional methodologies and AIKS through MIT-D approach to enhance diverse perspectives from different disciplines (Lawal, 2021, p. 86). Furthermore, integration of African epistemologies, constructivism, interpretivism AIKS is argued to enhance human resources which serve as knowledge capital unlocking economic opportunities and improvement of livelihood for African communities (Lawal, 2021, p. 88). Therefore, integration of philosophical approaches for the study encompasses theoretical and practical elements of the traditional values, beliefs and practices of the African communities (Van Stam, 2019, pp. 63,64).

2.8 Conclusion

In conclusion, Chapter Two has provided a thorough examination of the structural and philosophical framework that underpins the study. Through the exploration of the Multi-Inter-Trans-Disciplinary (MIT-D) approach, constructivist philosophy, and African epistemologies, the chapter has laid the groundwork for understanding the methodological and theoretical

orientations of the research. By adopting a MIT-D approach, the study aims to harness the insights from multiple disciplines, enriching the research process and enhancing the comprehensiveness of the findings.

Furthermore, the incorporation of constructivist philosophy highlights the significance of individual experiences and perceptions in shaping knowledge and understanding. This philosophical perspective underscores the dynamic nature of reality and emphasizes the role of subjective interpretation in knowledge construction. Additionally, the study's embrace of interpretivism, phenomenology, and African epistemologies reflects its commitment to a multi-paradigmatic approach, accommodating diverse perspectives and worldviews.

Most importantly, the integration of African epistemologies serves as a guiding principle, offering insights into the empowerment and upliftment of African communities. By drawing upon the rich cultural heritage and collective wisdom embedded within African knowledge systems, the study endeavours to contribute to the holistic betterment of African society. Through the utilization of African epistemological tools, the research aims to address various societal challenges and promote social justice, equity, and inclusivity.

Overall, Chapter 2 sets the stage for the subsequent chapters by providing a robust theoretical and methodological foundation for the study. It underscores the importance of embracing diverse perspectives and paradigms to generate nuanced insights and foster positive social change. Moving forward, the study will build upon this foundation to conduct empirical research and analyse findings that contribute to the advancement of knowledge and the well-being of communities.

3. CHAPTER THREE: GOVERNANCE AND MANAGEMENT OF SOUTH AFRICAN FISHERIES

3.1 Introduction

Chapter Three delves into the historical and geospatial context of the study, aiming to provide a comprehensive understanding of traditional fisheries in South Africa across different historical periods. Beginning with a reflection on pre-colonial South Africa, the chapter examines the indigenous practices and socio-economic dynamics of traditional fisheries before the arrival of European settlers. It then delves into the impact of colonialism on traditional fisheries during the colonial era, highlighting the disruption and exploitation experienced by indigenous communities.

Transitioning to post-colonial South Africa, the chapter explores the contemporary challenges and opportunities facing traditional fisheries in the aftermath of colonial rule. This historical analysis sets the stage for a nuanced examination of the policy framework governing traditional fisheries at various levels, including global, continental, regional, and local perspectives. By integrating a range of policies that govern the fishing sector, the chapter seeks to elucidate the complex regulatory landscape surrounding traditional fisheries.

Furthermore, Chapter Three scrutinizes fishery governance, shedding light on the key challenges confronting traditional fisheries and rural coastal communities. It delineates the roles and responsibilities of traditional fishers and coastal communities in managing the natural coastal environment to ensure environmental sustainability. Additionally, the chapter elucidates the perspectives of government authorities and traditional leadership in the management of traditional fisheries, with a particular emphasis on African epistemological worldviews.

Moreover, the chapter discusses the critical role of policy implementation in effecting change for traditional fisheries and rural coastal communities. By examining the strategies and mechanisms employed in the implementation of fishery policies, the chapter aims to identify opportunities for enhancing the livelihoods and well-being of traditional fishers and coastal communities. Overall, Chapter Three provides a comprehensive overview of the historical, geospatial, and policy contexts that inform the study, laying the groundwork for the subsequent empirical analysis and discussions in the following chapters.

3.2 Historical Background

This section of the study establishes the context of the challenges for traditional fisheries as articulated from Chapter One of the research. It attempts to provide clarity about why this

particular research topic is significant and essential to understand the main aspects of the study. The historical background for the study stems from marine resource governance in South Africa which reflects the marginalisation of Africans who used to occupy the coastal land. Therefore, the historical background of the study is structured following a sequence of timelines from the pre-colonial era to post-apartheid South Africa. The literature also presents different perspectives from various scholars to establish the nature of interaction between traditional fishers and their coastal natural environment during these eras.

3.2.1 Pre-colonial South Africa

Bennett (2019, p. 43) regards Southern Africa's pre-colonial era as a substrate for the establishment of European colonial rule which shaped political conflicts rooted in South Africa's history. According to Huffman (2012, p. 120) the pre-colonial farming communities with low-density population settled and dominated Southern Africa approximately 3500 BP ago. Subsequently, population density slowly increased in which relatively few sites were occupied along the Southern African coastal land, approximately between 8,000 and 4,500 years ago (Jerardino, Branch and Navarro, 2008, p. 282). During that era people were sparsely populated which led to greater availability of land for traditional fisheries. As a result, indigenous people of South Africa exploited the inland for agriculture practices and coastal land for traditional fisheries which played a pivotal role to sustain their livelihood (Wright, 2017, p. 5). There were fewer conflicts over inland and coastal land as there were no economic viability for property rights ownership to land (Green, 2013, p. 2). Hence, it can be concluded that there was insignificant conflict between environmental laws and the people during that time. It can be also claimed that there were no prohibiting laws and policies from accessing coastal areas and fishing activities. There are claims that reveal that rural coastal communities in the pre-colonial era had a strong relationship with the natural coastal environment as they called themselves "the people of the sea" (Sunde and Erwin, 2020, p. 7).

In addition, pre-colonial South Africa was an era where the country had minimal external worldview influences that could possibly interfere with the socioeconomic affairs of that era (Beinart, 2008, p. 4). Therefore, most part of KZN and other coastal provinces were communally owned and governed by traditional leadership as custodian of IKS. Amakhosi and Izinduna had authority to govern the coastal and inland through driving socio-political and economic matters affecting KZN rural communities (Koenane, 2018, p. 58). The KZN coastal communities had a strong relationship with the natural coastal environment. This stems from cultural values, spiritual practices and food security. Delius (2018, p. 64) presents evidence claiming that pre-colonial environmental conservation practices protected Hluhluwe Imfolozi National Parks in KZN for food security and cultural gain for indigenous people. Local communities applied IKS to enforced

environmental conservation practices to promote sustainable resource management (Akinola, 2018, p.1). Furthermore, indigenous people protected the natural coastal environment as it was publicly declared as 'sacred' (Wright, 2017, p. 8). Declaration of certain inland and coastal areas as "sacred" played a significant role in the conservation of the natural environment in KZN. For instance, sacred groves were seen as representing important pre-colonial forest conservation and sacred pools were the concept used for wetlands conservation (Murombedzi, 2003, pp. 1-4). Therefore, pre-colonial conservation practices existed during the colonial era in central and southern Africa in the context of religion or spirituality, because conservation did not exist as a separate discipline, but as part of community social organisation (Murombedzi, 2003, p. 1). In addition, it can be claimed that pre-colonial conservation practices were centred around the integration of constructivism, interpretivist and African epistemologies (Schwandt, 1994, p. 120) cemented by the MIT-D approach. Integration of these philosophical approaches enabled coastal communities in the pre-colonial times to socially construct their own experiences and knowledge of their world (Schwandt, 1994, p. 119).

3.2.2 Colonial South Africa

Settler colonialism grew in the 17th century as settlers from Europe gradually encroached from the southwest Cape Colony into most of Southern Africa (Tseng *et al.*, 2020, p. 1220 and Posel, 1987, p. 127). In the process African communities were subjugated by Dutch rule between 1652 and 1806, and later in the 19th century by the Boer republics and British colonies (Beinart and Dubow, 2013, p. 15). In the 19th century, European settlers overpowered African farmers and traditional fishers to seize their land. They forcefully removed African indigenous people from coastal land to deep inland (Hyslop, 2005, p. 777). For instance, there is a report that reveals that Bhengazi people were forcibly removed from the coast and the shores of Lake St Lucia (Sunde and Erwin, 2020, p. 7). Baumanova, Smejda and R  ther (2019, p. 505) affirm that indigenous peoples in South Africa have been marginalised due to inequality and oppression that led to a drastic interruption of their socio-cultural relationship with the earth and the ocean and spiritual relationship with the ocean. Hence, segregation policies established the foundation for capitalism in South Africa (Maylam, 2017, p. 44).

In addition, the forced displacement of traditional fishers and coastal communities from traditional lands had an impact on food security and governance systems which were centred around African way of knowing (Maruyama, 2018, p. 143). The Eurocentric systems were introduced to phase out African ways of knowing by the introduction of marine science which represented the powerful and predominantly white fishery sector. Consequently, the heavy

industrialised commercial fishers were established through the power exerted by the National Fisheries Department to racially and economically exclude traditional fishers from the ocean economy (Sunde and Erwin, 2020, p. 7). The economic and racial exclusion of indigenous communities created inequality between traditional fisherman and commercial industrialised fishers. It also prohibited indigenous people from accessing KZN shorelines for marine resources such as food and medicine (Christopher, 1990, p. 147). There was a strong socio-cultural relationship between those seaside rural villages along the KZN coast (Sunde and Erwin, 2020, p. 7).

Moreover, in the colonial era, the Cape Colonial legislature formulated a fisheries laws in the late 19th Century which provided a comprehensive governance framework for coastal fishery activities. Subsequently, the Cape Colony Fish Protection Act (Act 15 of 1893) was promulgated to deny traditional fishers permits to fish and access to coastal areas (Britz, 2015, p. 626). There is evidence that reveals that KZN coastal communities believe that ocean resources comprise social, medicinal and healing capabilities (Sunde and Erwin, 2020, p. 7). The formation of the Union of South Africa in 1910 intensified the efforts of the apartheid government to forcefully relocate coastal communities to gain control of economic and political power (Cernea and Schmidt-Soltau, 2003, p. 42). Subsequently, the territorial segregation was established and influenced firmly by the 1913 Black Land Act, Groups Areas Act and Population Registration Act (Posel (2013, p. 220). It can be assumed that colonial era imposed Eurocentric worldview to influenced many policies in South Africa. As a result, the PSSF is one among policies that are argued to be excluding the interest of traditional and indigenous fishers.

3.2.3 Post-colonial South Africa

Post-colonialism in South Africa is argued to be perpetuating socio-economic and socio-cultural struggles which continuously subject traditional fishers and indigenous people to injustices of colonialism (Maruyama, 2018, p. 147). South Africa is subjected to coloniality as the country still implements policies that were established on the basis of empowering Europeans and disempowering indigenous people. Introduction of democracy in South Africa disempowered traditional protocols and which created confusion of roles between traditional leadership and political representatives (Sithole, 2005, p. 114).

South African adopted a radical liberal democratic constitution with an aim for peaceful transition from Apartheid into democracy between 1990 and 1994 (Tseng, *et al.*, 2020, p. 1224). The country is still subjected to systems that are influenced by the colonial legacy (Maylam, 2017, p. 47). It is still characterised by economic inequality whereby 1% of South Africans own approximately 70.9% of the country's wealth, while the bottom 60% holds just 7% (Chatterjee,

Czajka and Gethin, 2020, p. 34). As a result, South Africa is argued to be the world's most unequal society and the split is largely along racial lines (Tseng et al., 2020, p. 1224). The study can speculate that there is a gap in the development and implementation of many policies in South Africa because they were constructed utilising Eurocentric frameworks. The study can also affirm that the PSSF is one among policies that excludes the interest of traditional fishers who are predominantly located in rural communities. Therefore, the post-colonial South Africa could be argued to be implementing neoliberal policies to protect the economic interests of the commercial fishers. Neoliberalism systems of South African fisheries are claimed to have increased profit generation for the few powerful economic actors, thereby excluding traditional fishers (Nthane, Saunders, Gallardo Fernández and Raemaekers, 2020, p. 22). The economic exclusion for KZN traditional fishers is orchestrated through neoliberalism which grants wealth and power to industrial fishing operations and disempowers the rural coastal communities (Schreiber, Chuenpagdee and Jentoft, 2022, p. 14). Furthermore, neoliberalism is argued to be deliberately subjecting traditional fishers to fishing rights bureaucracies, whereas, industrialised commercial fishers have privilege to fishing rights holders and a historical stake in marine resources (Gammage and Jarre, 2020, p. 477).

3.3 Multi-Level Geospatial Policy Frameworks

A policy is a statement of principles or positions that are intended to direct decision-making and operations that support the achievement of an entity's vision and objectives. Policies have a long-term focus and are applied across the entity as a whole and form the foundation of the entity's governance processes. Policies provide the basis of the quality system (North Carolina State University, 2020, p. 1). Policies support the achievement of quality outcomes, address compliance with legislative obligations, and reduce institutional risk by establishing standards and internal controls. A policy framework is guided by the principles set out in a governance framework. It comprises a standard model of concise high-level policies and related detailed procedures, which are complemented with various levels of documentation as required.

Therefore, it is imperative for the United Nations' bodies, as well as continental, regional and national governance bodies across the globe to formulate policies and programmes that speak directly to traditional fisheries. These policies and programmes should address the challenges that are caused by vertical, autocratic and scientific based methods to fisheries administration as well as control the fishing processes (Birnbaum, 2016, p. 309-313). Most countries involved in fisheries are or will become members of one or more regional bodies involved in utilisation, management and conservation of marine living resources (Crush and Riley, 2018, p. 51).

South Africa is part of the global community shaped by different global, continental and regional policies (SADC, 2003). The alignment of these policies influences the incorporation of local and international policies. The 2030 Agenda for Sustainable Development Division for Sustainable Development Goals (SDG's) and the African Union (AU) Vision 2063 form the basis of advocating for thriving agriculture in rural communities to alleviate poverty. The SADC policies are aligned with South African policies that govern marine economy. In South Africa, MRA, MSPA and PSSF are the statutes that govern the fishery sector at a national level. Table 3-1 below shows the main goals of the global, continental, regional and South African policy frameworks on fisheries and aquaculture.

Table 3-1: Synopsis of the goals of the global, continental, regional and national policy framework

	Main goals of the policy frameworks
Global policy framework	Code of Conduct for Responsible Fisheries (CCRF) was established in accordance with the relevant rules of international law such as United Nations Convention on the Law of the Sea, 1982, for sustainable fishing. The CCRF aimed to improve and sustain economic, social and environmental contribution towards the fishery sector leading to the availability of food, employment, recreation, trade, ecosystem and social well-being of the world population (Food and Agriculture Organization of the United Nations, 1995).
African policy framework	The Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa (PFRSFAA) aimed to capture wealth of fisheries, reduce poverty, increase food and nutritional security and ensure equitable distribution of the benefits particularly for the poorest, marginalized and most vulnerable in society, such as women (African Union Commission, 2014).
SADC policy framework	The SADC Regional Aquaculture Strategy and Action Plan (RASAP) is a SADC protocol on fisheries to provide strategic direction for the rapid, environmental sustainability, development of aquaculture which upholds an ecological integrity of aquatic ecosystems and conservation of common genetic resources. It further advances the development of cross border value chains that better enable the utilisation of aquatic and human resources within the region (SADC, 2016).
South African policy framework	White Paper of Marine Fisheries Policy for South Africa (WPMFP) recognises the importance of the fisheries to the economy in several coastal regions in South Africa, and for the livelihood of many communities. This perspective permeates all proposals put forward in this White Paper. This policy was founded on the belief that all-natural marine living resources of South Africa, as well as the environment in which they exist and in which maricultural activities may occur, are a national asset and the heritage of all its people, and should be managed and developed for the benefit of present and future generations in the country as a whole (RSA, 1997).
	Marine Living Resources Act for South Africa (MLRA) aims “to provide for the conservation of the marine ecosystem, the long-term sustainable utilisation of marine living resources and the orderly access to exploitation, utilisation and protection of certain marine living resources; and for these purposes to provide for the exercise of control over marine living resources in a fair and equitable manner to the benefit of all the citizens of South Africa; and to provide for matters connected therewith.” (RSA, 1998).
	Policy for the Small-Scale Fisheries (PSSF) aims to redress and recognise the rights of the Small-Scale fisheries communities in South Africa which have been previously marginalised and discriminated against in terms of racially exclusionary laws and policies, individualised permit-based systems of resource allocation and insensitive impositions of conservation-driven regulation. Its further advocates transformation of the South African fishing sector by providing the framework for the promotion of the rights of these fishers to fulfil the constitutional promise of substantive equality (RSA, 2012).

	<p>The Oceans Economy Master Plan (OEMP) aims to build on the foundation of the initiatives of Operation Phakisa and expands the scope to sub-sectors that had not been dealt with during this process. Those sectors include Marine Transport and Manufacturing offshore oil and gas; aquaculture and fisheries; coastal and marine tourism; and small harbours development (DFFE, 2020).</p>
--	--

Source: Fisheries, 1995, p. 5

The multi-level geospatial policy frameworks presented in Table 3-1 serves as a policy framework to help contextualise the study. This policy framework constitutes logical structure and set of principles to provide reference of overall governance of traditional fisheries.

3.3.1 Global policy framework

As Table 3-1 shows, in 1982, the United Nations Convention on the Law of the Sea developed a new policy framework for the better management of marine resources which they called the Code of Conduct for Responsible Fisheries (CCRF) (FAO, 1995, p. 1). The CCRF was produced in response to global concern over the clear signs of over-exploitation of fish stocks throughout the world. It recommends new approaches to fisheries management which included conservation, environmental, social and economic considerations. The policy framework gave coastal states rights to and responsibilities for the administration, control and utilisation of fishery resources within their Exclusive Economic Zones (EEZ). As defined by the UN Convention on the Law of the Sea (1982), an EEZ is an area of the sea in which a sovereign state has jurisdiction regarding the exploration and use of marine resources. However, the policy does not address explicitly the challenges faced by the marginalised population and traditional fisheries. These international policies advocate socio-economic opportunities and environmental conservation in attempts to achieve sustainability goals. However, this seems to reflect similar challenges worldwide when it comes to economic exclusion of traditional fisheries. Therefore, it can be argued that the SDGs disregard socio-economic development of traditional fisheries. The SDGs also pay less attention to the indigenous methods of environmental conservation which grants traditional fishers and rural coastal communities' access to engage with the biophysical environment.

The CCRF is the referral framework for national, regional and international endeavours in the development of policies and other legal frameworks to attain sustainable fishing and production of aquatic living resources without harming the environment. It sets out principles and international standards of behaviour for responsible procedures to achieve the effective conservation, administration and upgrading of living aquatic resources, and to also take maximum care of the ecosystem and biodiversity. Furthermore, the CCRF recognises the nutritional, social, environmental and cultural importance of fisheries and the interests of all stakeholders of the fishing and aquaculture industries.

It is therefore imperative for national, regional and international fisheries policies and administration procedures to reflect the principles of the CCRF to improve and sustain economic, social and environmental contributions towards the fishery sector. Availability of food, employment, recreation, trade, healthy ecosystems and social well-being of the world population are some of the expected benefits of the CCRF.

According to Hosch (2009, p. 7) the main challenges to maximum implementation of the Code include insufficient financial and human resources. The lack of awareness and information about the CCRF also played a significant role in the failure of its implementation. Hosch (2009, p. 9) indicates that inadequate scientific research, statistics and access to information contributed to the lack of implementation of the CCRF. Hosch (2009, p. 13) mentions that the lack of complete and enabling policy, and legal and institutional frameworks for integrated coastal zone management and aquaculture development led to CCRF implementation challenges.

In contrast to the Global Policy Framework, overfishing, ocean acidification, ghost fishing, commercial whaling, tonnes of plastic entering the ocean, irresponsible fish farming and continued habitat destruction are on the increase. This poses greater threat to the fishery sector across the globe (Seriksson, 2019, p. 4). Despite these international legal developments, the level of implementation of the SSFP Guidelines at national level, from a policy and legal standpoint, remains unclear for most countries.

3.3.2 African continental policy framework

Fisheries play very important social and nutritional roles in Africa. The sector contributes to food and nutrition security, and provides jobs, in particular for coastal populations, who are often among the poorest and most vulnerable. The World Bank has been supporting the commitment of African states in their endeavour to invest in sustainable fisheries as a way to build the resilience and improve the livelihoods of coastal communities through the Africa Programme for Fisheries. Since 2005, the project has focused on sustainable use of marine resources, governance of the sector and deep engagement with coastal communities. Transformative interventions through the African Programme for Fisheries are giving new hope to coastal traditional fishing communities.

Africa has diverse fish resources with immense potential and opportunities for contributing significantly to the socio-economic growth of Africa and improving livelihoods of its citizens. Furthermore, Africa is fortunate in having rich and diverse fisheries resources, both marine and inland, which together generate significant economic benefits for the continent in terms of revenues, food and livelihoods. Thus, despite the challenges that continue to beset the sector,

there are enormous opportunities for the sector which could significantly increase its contribution to the socio-economic growth of AU member states. Therefore, African states must commit to develop fisheries and aquaculture in a way that focuses on productivity, profitability, sustainability, wealth generation, social welfare, nutrition and food security (Allison, 2011, p.13).

The Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa (PFRSFAA) was formulated with the main purpose of facilitating coherent policy development for the sustainable management of fisheries and aquaculture resources in AU member states (African Union, 2014, p. 6). Pertaining to small-scale fisheries development, the policy framework aimed at improving and strengthening the contribution of small-scale fisheries to poverty alleviation, food and nutrition security and socio-economic benefits for fishing communities (African Union, 2014, p.4). This may be attained by enhancing effective bilateral and regional cooperation in the management of shared resources. It can be achieved through promoting, supporting and coordinating sustainable pro-poor development. Improving fisheries governance through participatory management and building on traditional fisheries management systems can also assist in improving small-scale fisheries (African Union, 2014, p. 12).

The PFRSFAA provides opportunities for AU member states to optimise benefits from their natural resources by implementing the strategic reforms as clearly explained in the policy document. The whole process requires commitment by member states to undertake reforms through the appropriate institutions of the member states (Sjöstedt and Jagers, 2014, p. 145). The policy framework document provides guidance on good governance principles considered as best practices in fisheries management and outlines strategic actions for key pillars for reform of African fisheries (Hosch (2009, p. 9).

The PFRSFAA emphasises the wealth created by fisheries and vast opportunities for livelihoods enhancement, underpinned by the recognition that the sustainability of fisheries depends upon better governance. One of the principles of the strategy is concerned with the development of small-scale fisheries to contribute to poverty alleviation. The role of women in the fisheries sector is also acknowledged (Ababouch and Fipi, 2015). The policy framework also provides for guidelines on how countries should better capture the wealth of fisheries, reduce poverty, increase food and nutritional security and ensure equitable distribution of the benefits. This is particularly for the poorest, marginalised and most vulnerable in society, such as the youth and women (Allison, 2011, p.10).

In contrast, the fisheries and aquaculture sector in Africa has serious challenges and flaws which are impeding the capability of most governments to ensure the sustainability and profitability of the sector so that it can contribute to the well-being and economic development of the continent

(Heck, Béné, and Reyes-Gaskin, 2007, p. 215). The policy makers have paid very little attention to the role of fisheries and aquaculture in national economic development, food and nutrition security and the need to place the optimisation of these benefits at the centre of national development planning. Policies formulated for simple biological assemblage of species structure should differ from those prepared to suit the management of multispecies fisheries serving resource-poor producers as well as specialised regional and international markets (Belhabib, Sumaila and Pauly, 2015, p. 74). Many African countries lack the legal, policy and institutional frameworks which are crafted to suit the unique features of fisheries and aquaculture and this has resulted in mismatches and overlaps. Ababouch and Fipi (2015, p. 6) claim that there is insufficient human capacity to cover all key areas in fisheries and aquaculture administration, management and research. Moreover, weak information-collection and analysis systems hamper sound decision-making processes.

3.3.3 The SADC protocol on fisheries

The SADC region has an abundance of fish which translates to being a source of food, a livelihood and an economic activity. Therefore, the proper management of the fisheries industry is also a solution to food security since fish and fish products offer a good source of protein.

The SADC protocol on fisheries was signed in 2001 by members of 14 SADC member countries: Angola, Botswana, DRC, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania and Zimbabwe (Bischoff, 2013, p. 79). The objective of this protocol was to promote the responsible and sustainable use of the living aquatic resources and aquatic ecosystems. This was done to promote and enhance food security and human health, safeguard the livelihood of fishing communities, generate economic opportunities for nationals in the region. It would further ensure that future generations benefit from these renewable resources so as to alleviate poverty with the ultimate objective being eradication (Lamberth and Turpie, 2003, p. 133).

The map of SADC is shown in Figure 3-1 below.

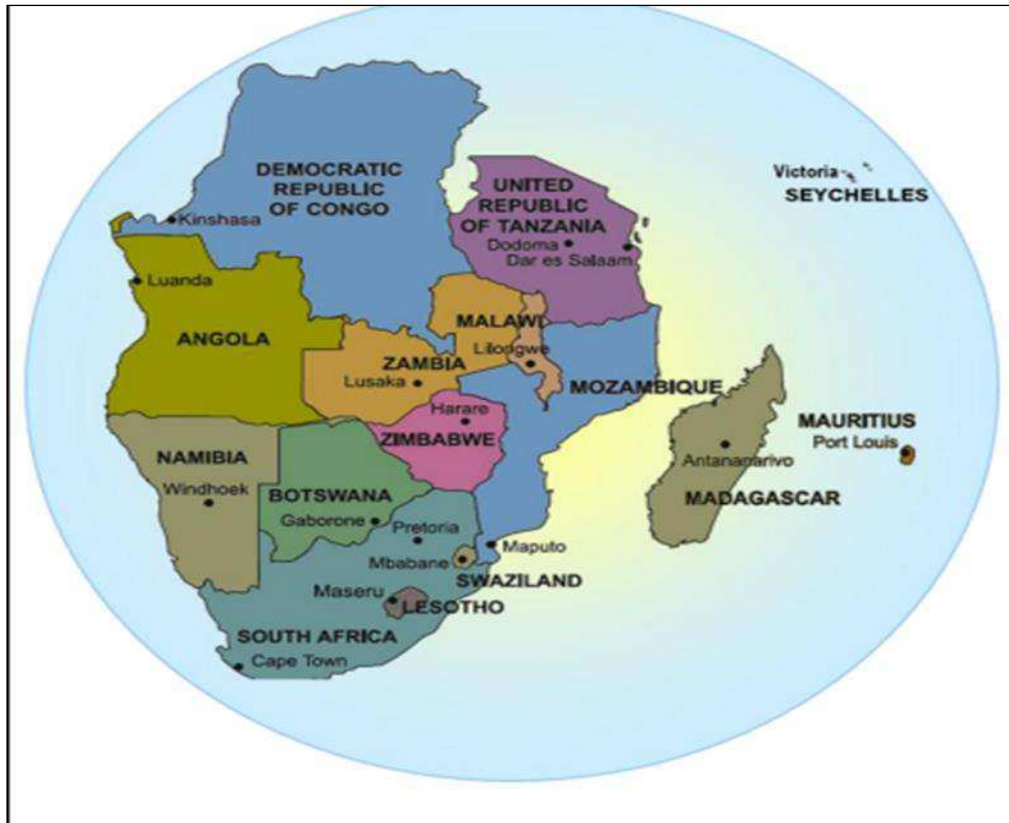


Figure 3-1: Map of SADC

Source: <http://amis-fis.jp/>

According to SADC (2016, p. 1), the fisheries sector in the region contributes an average of about 2% to the SADC GDP, with total average exports worth USD152 million and average imports of USD100 million. It employs an average of 145 000 people, of whom more than a million benefit indirectly. Per capita fish consumption in the region is 11kg per person, which constitutes an average of 16% of the total animal protein intake and 5% of the total protein intake and this makes the contribution of fisheries to food and nutrition security in the region significant (SADC, 2016, p. 1).

Thus, on a regional level, a protocol on fisheries has been implemented to watch over fisheries management through policies, legislation and management of fisheries and the aquatic environment through regional coordination. The goals of the sector are to promote responsible and sustainable use of the living aquatic resources and aquatic ecosystems to enhance food security and human health. The specific policy objectives are to promote effective management of fish stocks, protect and preserve fish resources, promote aquaculture development and promote trade in fish.

According to SADC (2012:1), at that time the region was experiencing challenges with fish diseases, limited technical skills and technologies, limited funding that continues to affect the

growth of aquaculture, and fish stocks continuing to dwindle due to challenges with illegal, unreported and unregulated (IUU) fishing, degradation of aquatic environments, climate change and lack of capacity to effectively manage fish stocks.

In contrast to all these policies, SADC still has lack of capacity and capability for monitoring, control and surveillance. The SADC sanctions are not severe enough to deter perpetrators, there is still poor information sharing between member countries. In addition, porous and unclearly defined borders continue to pose problems to control and monitor illegal fishing activities (January, 2008, p. 3).

3.3.4 South African policy framework

The management of traditional fisheries on the African continent was formulated from ancient times (Maia *et al.*, 2018). During that time, elders worked as a collective in enforcing certain principles to manage the subsistence commercial fishing activities and exploitation of ocean resources. The communities were expected to respect community leaders and also adhere to the guidelines for compliance (Belhabib, Greer and Pauly, 2018, p. 4). On the contrary, in recent times modern fishery practices have demonstrated exclusion of rural and vulnerable people from coastal communities (Rodrigues and Villasante, 2016, p. 34). Hence many authors recommend that the formation of a policy that regulates fishery management should be based on fishery methods of ancient times.

South African society has undergone changes since the adoption of democracy in 1994. The MLRA (RSA, 1998) was endorsed as law that governs marine related issues. New policies and regulatory frameworks for fisheries management were formulated from that law (Perry *et al.*, 2010). In 2007, the South African Equality Court ordered the government to come up with a small-scale fisheries policy that would address the socio-economic requirements of traditional fisheries in coastal areas. Faasen and Watts (2007, p. 38) affirm that pieces of legislation on the protection of natural resources in apartheid South Africa were earmarked to totally exclude people from protected areas by denying them access to certain rights and privileges. Rural people had previously enjoyed these areas that are now labelled as conservation reserves. Therefore, transformation of South African fishing sectors aimed to benefit a greater majority of previously disadvantaged groups to close the disparities between the well-resourced and the poorly-resourced groups in society (Miller *et al.*, 2010, p. 340).

Witbooi (2006, p. 35) claims that the South African policy framework on fisheries and aquaculture was developed in response to the opportunities and challenges associated with fisheries and aquaculture development. Furthermore, the South African government was guided

by the FAO CCRF to ensure fisheries and aquaculture development contributions to the Millennium Development Goals (Isaacs, 2013, p. 18). The policy framework assisted the government in creating and ensuring the appropriate enabling environment required to fully utilise its opportunities and contribute to national food security, national wealth and the creation of employment opportunities. Some of the legislative acts that supported and enforced the implementation of the principles of the policy framework are discussed below.

The MLRA (RSA, 1998), as highlighted in Table 3-1 “was enacted to provide for the conservation of the marine ecosystem, the long-term sustainable utilisation of marine living resources and the orderly access to exploitation, utilisation and protection of certain marine living resources; and for these purposes to provide for the exercise of control over marine living resources in a fair and equitable manner to the benefit of all the citizens of South Africa; and to provide for matters connected therewith” (DAFF, 2019, p. 1).

However, the MLRA, excludes small-scale and artisanal fishers who catch and sell fish to sustain livelihoods. It also excludes those involved in post harvesting and other activities like bait preparation, cleaning, processing and marketing. In 2005, the government adopted long-term fishing policies that made no provision for small-scale fishers.

Although some progress has been made in establishing institutional arrangements and management systems for the subsistence and small-scale fisheries in South Africa, the granting of access rights to poor fishers has been complex and slow. According to Sowman (2006, p. 5), there four major challenges pertaining individual rights-based approach to fisheries sector. Firstly, the criteria developed for classifying fishers. Secondly, financial and nonfinancial resources suitable for fishing operations. Thirdly, lack of a clear policy directive with regard to the contribution of traditional fisheries to addressing food insecurity and poverty. Lastly, the sectoral approach to traditional and small-scale fisheries management in South Africa.

In June 2012, the SSFP was finally adopted and moved away from an individual allocation of rights, and a largely commercial focus, to one which is collective and has a developmental focus. The policy gives legal recognition to small-scale fishers. The SSFP also include setting aside of preferential fishing zones for small-scale fishers. Small-scale fishers are permitted to harvest or catch multiple species throughout the year (DAFF, 2019, p. 1). However, the policy is argued to be excluding welfare of traditional fishers and coastal rural communities. Thus, the policy has been designed to improve the livelihoods of small-scale and commercial fishers. The policy aimed to provide rights to small-scale fishing communities and to ensure that they have equal access to marine resources; to recognise that this sector was left behind in the past, introduce new

ways to approach the small-scale fisheries sector and specifically focus on human rights, gender and development (DAFF, 2019, p. 1).

The MSPA (RSA, 2018) as highlighted in Table 3-1, “was enacted to provide a framework for marine spatial planning in South Africa. It also provides development of marine spatial plans and institutional arrangements for the implementation of marine spatial plans. Moreover, it advocates governance of the use of the ocean by multiple sectors and provide for matters connected therewith” (DAFF 2019, p. 1).

The adoption of the PSSF was done to address the disparities of the pre-independence period in an attempt to ensure that small-scale fishers were recognised (Sowman, 2011, p. 300). Furthermore, it served to support investment in these traditional fishing communities, to take joint responsibility for perpetually managing the fishery resources and effectively deal with the depletion of critical fisheries stocks (Sowman *et al.*, 2014, p. 32). Although law enforcement has been significantly strengthened, greater political will and government commitment are required to implement alternative strategies that will have a long-term impact on levels of compliance (Hauck and Kroese, 2006, p.79).

In South Africa, there is a need to encourage engagements and discussions around the role of Marine Protected Areas (MPAs) in influencing the involvement of fishing communities in governance and the management of local knowledge. Local knowledge is regarded as a powerful tool in terms of local resource management (Sunde and Isaacs, 2008, p. 97). Institutional frameworks are needed to play vital roles in governance of marine space and to improve relations between ever-changing ecological and social systems which seem present the major obstacles to the sustainability of oceanic ecosystems (Hughes *et al.*, 2005, p. 383). There is also a need to improve compliance and enforcement of fishery legislation and policies in South Africa since some fisheries were subjected to historical legacies that excluded them from economic participation (Hauck, 2008, p. 639).

3.4 Fishery Governance

“Governance” is the way in which access to and control over natural resources is managed in a society. It includes how competing priorities and interests of different groups are reconciled, how individuals and groups participate in decision-making, how government is accountable to others, and how society obliges its members to observe rights, freedoms, rules and laws (MRAG, 2010, p. 2). Secure access to these resources by community members is important to eradicate hunger and poverty, support sustainable development and enhance the environment. The major obstacle affecting fisheries management and aquaculture development in some nations is inadequate

governance. This led to inadequate transparency and accountability, incoherent policies, limited structured participation of resource users and exclusion of government representatives in the formulation of policies and management of the resources (Carisson and Berkes, 2005, p. 69).

However, according to Evans, Cherrett and Pemsil (2011, p. 1), coastal communities such as in the Philippines and Indonesia have proven that co-management of fishery resources brings great success for the local economy and livelihood for traditional fishers. That has strengthened the role of customary management to protect both the local natural environment and the rights of resource-users (Kyvelou and Ierapetritis, 2020, p. 3). The co-management system has improved the legitimacy of state involvement in fisheries management through more inclusive and transparent decision-making processes. The inclusion of various role players in the fishery sector leads to higher compliance with management institutions and conflict resolution (Nunan, 2020, p.5). Furthermore, it enables integration of more diverse knowledge systems in policy formulation, decision-making, social learning, and innovation (Roberts, Burroughs and Moge, 2019, p. 12).

Various studies reveal that semi-commercial fishing activities around the world suffer from weak governance. This leads to maladministration, perverse monetary assistance, favouritism, nepotism, uncontrolled access, and poor fishing methods. For instance, Pomeroy (2016) claims that weak governance, poor management, corruption, inequality and red-taping are the main causes of the marginalisation of traditional fisheries. Jentoft and Johnsen (2015) further suggest that interactive governance theory promotes interventions to socio-economic and cooperative governance and inclusive participatory systems. Co-management theories ensure that there is proper governance which promotes inclusiveness stakeholder participation (Birnbaum, 2016, p. 308).

3.4.1 Intergovernmental relations

Intergovernmental relations (IGR) gained popularity amongst public administration scholars in the 1930s as an important issue of concern for any political and administrative system (Lowatcharin, 2017). The concept of governance requires collaborative inputs of private and public sectors in the policy arena (Lowatcharin, Crumpton and Pacharoen, 2018, p. 44). IGR is important for multi-sectoral fishery issues. These require the participation across various levels and within government departments to ensure policies that address fishery management. It is a key to policy innovation to increase the effectiveness of the State in responding to socio-economic challenges (McEwen, 2021, p. 40). Therefore, the lack of proper IGR in the fishery sector has caused poor economic relations which lead to the increase of unemployment and the inflation rate. The country's economic growth should provide financial resources to local self-governing

municipalities, where one of the most important aspects is inter-budgetary relations (Abuselidze, G., 2021, p. 1).

Intergovernmental relations strengthen the strategic pillars of the fishery sector as multiple stakeholders play a vital role from their respective sectors. This study is guided by the framework of stakeholder theory as a mechanism that enhances efficiency in strategic management and moral content. Clarkson (2016, p. 2) defines stakeholder theory as a vehicle that drives organisational management and ethics. It is also a catalyst for collaboration of multi-sectors, interorganisational integration, public and other stakeholders that form part of social partnerships (Savage *et al.*, 2010). The theory drives social partnerships through cooperative governance whereby various organisations come together for a specific purpose of solving problems that cannot typically be solved by an organisation acting alone. Therefore, this study attempts to apply stakeholder theory to incorporate proper governance which promotes inclusiveness and stakeholder participation to the fishery sector.

Non-governmental Organisations (NGO's), civil society and the private sector should play a critical role in knowledge transposition to cover socio-cultural gaps to address certain fishery issues at different levels. This is important for multi-sectoral fishery management issues that require the participation of all three spheres of government to introduce decolonisation mechanisms of formulating policies by integrating African epistemologies to policy change (de Oliveira, 2019). Government stakeholders, such as NGO's, private sector, civil society organisations and the general public, are increasingly playing a pivotal role in knowledge generation to cover socio-economic gaps at different spheres of government (Kadirbeyoglu, 2017, p. 483). For instance, Indonesia is regarded as one of the large and centralised countries that has been transformed into a decentralised democratic country in the world (Rochwulaningsih *et al.*, 2019, p. 5). The Indonesian government policy objective is to give greater autonomy to districts and local municipalities to formulate and review their own policies. It enables implementation of policies at the local level. The fishery policies' objective is to protect IKS and secure the creation of local welfare by providing a better public service. It encourages the empowerment and involvement of local people into policy formulation and implementation (Mahi, B.R., 2010, p. 49).

3.4.2 Co-management strategy

The stakeholder theory incorporates co-management which is commonly formulated in terms of some arrangement of power sharing between involved parties. This could be government and a community of resource users, and it is believed to be a continuous problem-solving process involving extensive discussions. There is negotiation and joint learning within the problem-

solving networks (Cucuzza, Stoll and Leslie, 2021). Fishery co-management is a mode of governance through which resource users and governments share responsibility and authority for the management. This is done with support and assistance as needed from other stakeholders, external agents, academic and research institutions. Co-management is being acknowledged in small-scale fisheries, for which local management capacity and responsibility, combined with the support of formal legal frameworks and information/decision-making arrangements are offering specific advantages (FAO, 2020, p. 1). However, its potential depends on the existing policy and legal environments, and local and national support for community-based initiatives. Kittinger (2013, p. 313) reveals the importance of co-management of natural coastal resources as the framework which advocates joint management authority between traditional fisheries and government authorities. The co-management strategies have assisted the transformation of traditional and subsistence commercial coastal fishing activities in communities such as in the tropical areas of the Pacific Ocean. Therefore, co-management is a participatory strategy that supports the planning and management of coastal resources. This study encourages the integration of co-management strategies and IKS to drive environmental and social change.

Ford and Stewart (2019) argues that the introduction of stakeholder theory which is an inclusive approach in terms of governance can present efficient co-management and better opportunities for traditional fisheries. Brewer and Moon (2015) affirm that stakeholder theory has been adapted by small-scale fisheries as an intervention regarding the socio-economic unsustainability of the fishery industry. It is an extension of co-administration which is the process where authority between users of resources and national government is mutual. Moreover, the inclusive development and co-management strategy can be implemented to develop the marginalised and facilitate community social movements to improve semi-commercial fisheries (Gupta, Pouw and Ros-Tonen, 2015, p. 2). Interactive governance should enable the empowerment of traditional fisheries and adopt efficient governance systems to facilitate the functionality of semi-commercial fisheries. Therefore, integration of co-management strategies and stakeholder theory could create inclusivity of traditional fisheries. Interactive governance could provide empowerment of marginalised people (Gupta, Pouw and Ros-Tonen, 2015, p. 1).

Ford and Stewart (2019) argue that challenges faced by traditional fisheries are partly caused by the bureaucratic processes and a use of top-down approaches to manage the fisheries sector. Government efforts have not been able to curb over-exploitation of fish populations due to sector mismanagement and incompetence. The bottom-up approach should be applied and be aligned to stakeholder theory and co-management strategy to improve the fisheries' status quo. Pomeroy (2016, p. 1) claims that many communities across the globe that have been relying on fishing for centuries are living under poverty. For this reason, the co-management strategies and stakeholder

theory could recognize both traditional fisheries and subsistence commercial fishing activities. This would in turn facilitate resolutions in improving economic status for traditional fisheries. Therefore, such integration provides a meta-theoretical framework help resolve weak governance, poor management, corruption, inequality and “red taping” as sources of the marginalisation of traditional fisheries.

Alternately, Finkbeiner and Basurto (2015, p. 435) argue that traditional fisheries are excluded from the economy due to their operations being overridden by the highly specialised fishery industry and their non-compliance with governance policies. Consequently, that has led to the weakening of approaches developed by various governments across the globe to manage fisheries issues and provide possible solutions. Furthermore, it is suggested that state governments are required to create and implement an efficient legal framework that takes control to manage institutional arrangements at the local level.

The inclusion of local resource users’ knowledge and views in decision-making procedures, is useful for at least two reasons. First, cooperative administration enables participants to consider the wealth of local knowledge. Secondly, this open more opportunities for acceptance of policies by local resource users (Pieraccini and Cardwell, 2016, p. 730). Participation in the administration by resource users elevates them to a higher level whilst representing the marginalised voices, rebalancing power dynamics in relationships by widening the interest groups involved in decision making (Pieraccini and Cardwell, 2016, p. 736). Fish and fisheries are an integral part of most societies and make important contributions to economic and social health and well-being in many countries and areas. For instance, Kallonga *et al.*, (2003) reveal that over three quarters of the people of Tanzania living in rural communities depend on animal and crop farming and fishing to survive. This proves that there is a strong correlation between rural livelihoods and natural resource management which drives economic growth and poverty reduction. The products from these fisheries are used in a wide variety of ways. These range from subsistence use to international trade of highly sought-after and highly valued items. Governance is vital to fisheries, taking into consideration the manner in which power and influence are exercised over their management. According to the Marine Resources Assessment Group (MRAG) (2010, p. 1), fisheries governance is a combination of legal, social, economic and political systems used to manage fisheries, and it has international, national and local dimensions encompassing legally binding rules and customary social patterns.

The FAO (2016, p. 1) also states that modern fishery governance is a systematic idea pertaining to the process of economic, political and administrative authority which guides the operational and conceptual guiding principles and long-term objectives. Its controls the basic physical and organisational structures and facilities of social, political, economic, and legal entities and

instruments. It also manages the nature and methods of carrying out the processes, roles and responsibilities of participants or stakeholders. Fisheries arrangements are complex and ever-changing, so much that fisheries management entities need to consider a plethora of information types and changing priorities in the sector. According to FAO (2016, p. 2), fishery governance focuses on providing the deciding principles and short-term goals of the sector and develops policy and regulatory frameworks. It creates an enabling environment for the government to link with civil society, individuals, sectorial and community views. It maintains social harmony and fruitful social-ecological systems and stabilises stakeholder interaction. Most importantly, it controls the distribution of power, resources and benefits and upholds the governance system's capacity to learn and change.

Therefore, there is a need to ensure that there is proper governance of the fishery industry which promotes inclusiveness and stakeholder participation in South Africa. Fisheries cannot be managed in isolation and must be integrated into coastal zone and fisheries policy and planning and national policies. It is also imperative to introduce a multi-level co-management to promote cooperative governance and inclusive participatory systems and the government should create efficient legal frameworks that will take control to manage institutional arrangements at the local level (Finkbeiner and Basurto, 2015, p. 437). For instance, the subsistence commercial fishing business provides employment to many rural communities in Africa and these activities are very important as they promote economic growth of the fishery sector (Njaya, 2007). However, there is still a lot to be done by government to improve governance for the fishery industry. The failure of governance in the African region leads to over-exploitation of coastal resources and the exclusion of subsistence commercial fishing practices from all the economy's related activities in order to perpetuate the production of goods and services (Menon, Sowman and Bavinck, 2018, p. 3). Furthermore, through the participation of stakeholders, co-management can improve accountability and the overall marine governance system. There is gap at the policy level regarding the protection of the natural environment and small-scale fisheries.

Interactive governance should enable the empowerment of traditional fisheries and adopt an efficient governance system to facilitate the functionality of semi-commercial fisheries. In addition, interactive governance provides adaptive learning for marginalised people in fishing communities (Gupta, Pouw and Ros-Tonen, 2015, p. 551). Genuine participation in the management process by fully informed users is consistent with the democratic principle, facilitates identification of acceptable management systems, and encourages compliance with laws and regulations.

In line with international trends, South African coastal fishery co-management systems are experiencing crisis situation in the industry (Sunde and Erwin, 2020, p. 6). The crises entail over-

exploitation of resources, an increase in illegal use and forced removals from land. Widening tensions between conservation authorities and local communities have resulted in alternative management procedures being explored and implemented (Hauck and Sowman, 2001, p. 175).

3.4.3 Economic governance

Across the African continent, fisheries and aquaculture directly contribute \$24 billion to the African economy, representing 1.3% of the total African GDP in 2011. The sector provides employment to over 12 million people, that is, 58% in the fishing and 42% in the processing sector. In South Africa, involvement in subsistence fisheries is wide because many coastal communities have traditionally used the inter-tidal and shallow-water resources as a source of food. Only surplus that is not consumed by family members is then sold. Traditional fisheries involve households using a relatively small amount of capital and energy, employing small vessels, making short fishing trips close to shore. The catches are mainly for local consumption (FAO, 2015, p.1).

The stakeholder theory can be implemented as an interactive governance framework that places the emphasis on a socio-economic system which is inclusive and provides support for traditional fisheries. For instance, Jentoft and Johnsen (2015) assert that Norway implemented a similar framework during the transformation of their fishery industry by amending policies to favour small scale fisheries. That was achieved due to cooperative governance whereby most institutions made partnerships with the government and local fishers from coastal communities. Good marine governance is characterised by the acknowledgement of the interests of all players and administration structures which manage and practise cooperative governance (Abdullah, 2017). Therefore, stakeholder theory considers the interests for all stakeholders and adheres to all policies and statutes for an attainment of marine sustainability. The empowerment of coastal communities should be one of the government initiatives to support small scale fisheries. The development of coastal villages should be a government priority to reduce the disparities between the indigenous and commercial fisheries (Hajar, Tanjung and Yenni, 2017).

One important way by which the fishery sector contributes to national economies is direct and indirect employment. The post-harvest sub-sector provides women with many jobs, playing an essential role in economic and social development. This has an immense impact on household well-being, particularly the health and education of children. Table 3-2 provides examples of the fishery sector's contribution to the national economy of selected countries. Table 3-2 likewise displays the contribution of the fishery sector to the GDP and the contribution to employment.

Table 3-2 The fishery sector's contribution to the national economy in 2006

Country	Contribution to Gross Domestic Product	Percentage of the Labour Force Engaged in Fisheries
Democratic Republic of Congo	2.75%	6.8%
Mali	4.5%	7.2%
Mauritania	4.5%	10%
Senegal	4.1%	17%

Source: Zeller, Booth and Pauly 2006, p. 360-368

Table 3-2 above shows that the fishery sector plays a significant role in increasing the wealth of nations and also employs a number of people, both directly and indirectly. Therefore, employing a large number of workers means that the tax base of the government widens, the standard of living of people greatly improves and other sectors in the value chain are economically promoted (FAO, 2015, p.2). Adding value to national wealth, foreign currency earnings and taxes from fishing licenses are some of the economic contributions of the traditional fisheries as shown in Figure 3.2 below.

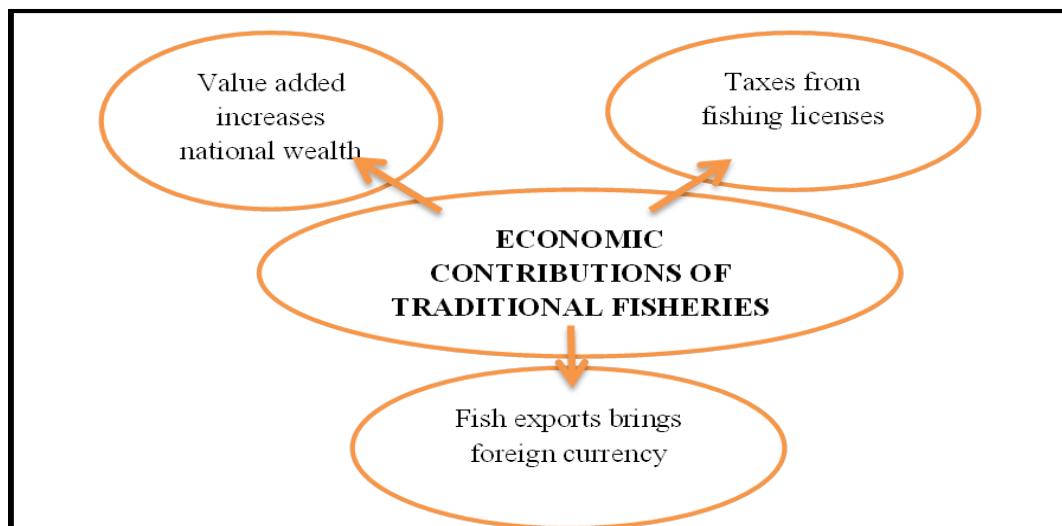


Figure 3-2: Economic contributions of traditional fisheries

Source: Zeller, Booth and Pauly (2006, p. 360)

Figure 3-2 demonstrates that value added generated by the fisheries sector substantially increases national wealth, although assessing this contribution in national accounts is generally limited to

the primary sector (Horemans and Kebe, 2006, p. 4). To obtain an accurate estimate of the total value added by the fisheries sector, it is necessary to consider all activities such as drying, salting, smoking and freezing (secondary sector) and activities related to the trade of fresh, processed and imported products and catering (tertiary activities).

Fish exports help national economies enter into international markets, particularly in high added value segments. When the trade balance in fishery products is positive, as is the case in Senegal, Mauritania and Gabon, the fisheries sector is a net provider of currency to the national economy (Worldbank, 2020, p. 3). Fishing licenses and fishery-related taxes are an important source of income for many countries. These taxes typically apply to imported fishing inputs, such as fishing gear, engines and fuel, and to fish exports, and they represent a certain percentage of the value added from fisheries-related activities in the countries of the region. The taxes contribute to financing the costs of fisheries management (Schuhbauer and Sumaila, 2016, p. 70). The financial resources can be used to ensure the development of basic social infrastructure and services, such as schools, health centres and roads, both inside and outside the fishery sector.

In South Africa, the fisheries sector is worth R6 billion annually and directly employs about 27 000 people in the commercial sector, and thousands more and their families are dependent on these resources for food and basic needs of life. Traditional fisheries in South Africa are important to the livelihoods of rural coastal communities by providing food security and employment despite the fact that they remain marginalised with the state, under-resourced and unable to adequately cater to their needs (DAFF, 2016, p. 5). Besides employment and food security, traditional fishing activities are intertwined with local cultural practices and traditions. The retention of subsistence catch is commonly used in non-monetary mutual exchanges shared amongst friends and family members.

The South African traditional fisheries sector plays a small part in direct economic terms in the economy of the country, contributing only about 1% to GDP. According to the DAFF (2014, p.1), the South African fishing industry contributes approximately 0.5% to national GDP, but in the Western Cape it contributes approximately 2% to Gross Geographic Product (GGP). The South African coast provides substantial opportunities for economic and social development. Hence, the government adopted the SSFP which seeks to address the imbalances of the past and make sure that the traditional fishers are accommodated and properly administered.

Kittinger (2013, p. 320) states that subsistence commercial fishing activities play a significant role in strengthening the livelihoods for local communities, and also contribute greatly to the economies. According to Rodrigues and Villasante (2016, p.37), traditional fisheries are excluded from the country's economic value chain which has the negative impact on employment creation

for rural communities. Coastal traditional fishing communities that are struggling to participate in local economies can be assisted by adopting co-management strategies. This enhances efficiency in providing administrative, technical, and financial services. Such strategies can be used to reduce economic problems, poor fishing methods and unfair sharing of proceeds derived from fishing activities (Sowman, 2006, p. 67).

In South Africa, the main challenge in traditional fisheries is to create a balance between three factors. First is maximising the social and economic potential of the fisheries industry. Next, is securing the integrity and standards of the country's marine and coastal systems. Finally, is factor of dealing with transformation issues in the sector. In line with the international trajectory, the department overseeing the affairs of traditional fisheries recognises fisheries as an economic activity rather than an exclusively environmental or biodiversity issue (DAFF, 2016, p. 3).

According to Bennett and Dearden (2014, p. 97) the marine protected areas (MPAs) are effective conservation and fisheries administration instruments that can enhance social, cultural and economic development for coastal communities. Laffoley *et al.*, (2019, p. 555) claims that the 17 MPAs located near coastal areas are heavily reliant on coastal resources. The MPAs play a vital role in improving governance, social, educational, and cultural benefits for rural communities. Conversely, Bennett and Dearden (2014, p. 4) argued that MPAs lack efficiency towards marine governance. Furthermore, MPAs are perceived to be promoting a neoliberal agenda of mainly protecting economic interests for industrialised commercial fishers and continuing to marginalize traditional fisheries. Implementation of MPAs is also argued to be failing to redress the socio-economic injustices which were imposed by the apartheid government to economically exclude traditional fisheries and coastal communities (Gammage and Jarre, 2020, p. 22). Therefore, government has a challenge to review the cultural, social and economic impacts of MPAs and other fishery policies in South Africa.

3.5 Environmental Governance and Sustainability

Various authors associate environmental governance and sustainability with ecological conservation (Vatn, 2018, p.173). However, other scholars have explored sustainability in various contexts, including policy and economic development and social responsibility. Sustainability exists since the South African pre-colonial era where environmental governance was centred around IKS (Murombedzi, 2003, p. 4).

3.5.1 Environmental policy

Most global policies developed in the post-World War II era, are characterised by development paradigm which narrowly focused on mechanisation and industrialisation without consideration

of possible environmental impacts (Bøås, 2019, p. 29). Fishery policies started considering environmental management after the 1972 UN Conference on the Human Environment (UNCHE), and moved towards more sustainable fisheries after the 1992 UN Conference on Environment and Development (UNCED) and the adoption of the FAO Code of Conduct for Responsible Fisheries in 1995. The culture and consumption of fish is regarded as an important factor for national income and food security (Momi et al., 2021, p. 93). However, the various sectors in South Africa are facing environmental challenges such as climate change, water and environmental pollution, and natural disasters. That calls for the South African government and various stakeholders to establish initiatives which improve a balance between sustainable development and economic growth.

In addition, it is argued that environmental conservation strategies implemented by various governments has socio-economic and socio-cultural impacts to coastal communities in many parts of the world (Mascia, Claus and Naidoo, 2010, p. 1424). The creation of MPAs is one of the popular conservation strategies which is poorly understood by traditional fishers and coastal communities. MPAs are claimed to have a detrimental impact on socio-economic indicators such as food security, resource rights, employment, community organisation, and livelihood (Eriksson, Johansson and Blicharska, 2019, p. 63). Hence, their contribution to poverty alleviation, creation of economic opportunities and sustainable development is minimal. Furthermore, minimal community involvement in the governance of MPAs contributes to negative socio-economic impacts for traditional fishers and coastal communities (Robertson, Greenhalgh, Korovulavula, Tikoibua, Radikedike and Stahlmann-Brown, 2020, p. 6). For instance, Charles *et al.*, (2016, p. 1) claim MPAs in coastal areas require a combination of effective governance and conservation systems along with socio-economic opportunities through a governance system that allows effective participation of traditional fishers and coastal communities. Furthermore, there are issues of disagreement between government authorities and coastal communities about MPA regulations which enforces the top-down decision-making approach and commonly results in minimal participation of traditional fishers and coastal communities (Pita et al., 2020, p. 1). For instance, in South Africa, the declaration of MPAs has not done much to improve the economic growth of the country or to create more opportunities for small scale fisheries. There should be engagements and discussions around role of MPAs in South Africa addressing the involvement of coastal communities in governance (Sunde, and Isaacs, 2008c, p. 169).

The study acknowledges the critical role that is played by MPAs in the environmental governance of ocean environments. The study also recognises that MPAs maintain and enhance a biodiverse natural environment with healthy functioning ecosystems (Blühdorn and Deflorian (2019, p.4). However, MPAs should also incorporate community participation to enable and encourage the

public to have meaningful input into the decision-making processes. The environmental conservation system should also consider the context of the historical socio-economic background, current challenges and socio-cultural factors to strengthen its governance. Therefore, the integration of ecological, stakeholder and ethnography theories aim provide solutions to complex development challenges for traditional fishers and coastal communities (Gómez, S. and Maynou, 2021, p. 13).

3.5.2 Environmental education

According to Ramadhan, Sukma and Indriyani (2019, p. 2) the aim of environmental education is to equip traditional fisheries with various ways to protect the environment. Gissi, Portman and Hornidge (2018, p. 217) state that traditional fisheries participate in protecting the environment, however, government authorities should develop knowledge about environmental awareness and changes in behaviour toward the natural environment. Winther, *et al.*, (2020, p. 1455) claim that environmental education assists rural communities to understand the correlation between humans and the natural environment, and also creates awareness of environmental challenges faced by the community.

Environmental education that includes ecological restoration theory, for example, can inspire the restoration of sites within communities and ecosystems that have been degraded or destroyed by human activities or natural calamities (Young, Porensky and Veblen, 2019, p. 1). Humans are considered to have changed the local native populations of varies species of plants and animals, introduced destructive and pirating species, turned natural communities to extractive use, drastically deteriorated the quality of waters, and degraded soil resources (Fang *et al.*, 2018, p. 55). However, the goal of ecological restoration could be achieved through environmental education, whereby government authorities and coastal communities constantly engage on matters of environmental governance within coastal communities.

Simpson (2002) affirms that most developing countries face some of the most devastating effects of environmental destruction. They struggle to deal with toxic contamination brought to the environment through long-range transport, industry, and government ignorance. According to Brownscombe *et al.*, (2019, p. 250) if the public were more aware and engaged in issues related to inland fishes and fisheries, it would lead to stronger conservation actions for aquatic systems. The external threats to marine fisheries can be classified as habitat degradation, sea pollution, and invasive species that are anthropogenic in nature (Karataş and Karataş, 2016). Generating public awareness of environmental conservation issues is essential to change behaviour and also to facilitate informed decisions and engage governments or regulatory authorities to act. Bolpagni *et al.*, (2019, p. 2) claim one of the effective methods for conservation of aquatic systems is the

ability of scientists to communicate the information efficiently to the general public, and of politicians to put these issues on the public agenda and promote evidence-based decision-making. This could assist in overcoming devastating environmental degradation impacting fishery communities, knowledge systems, traditional governance systems, foods, and cultures. The lack of reliable sources of information could be a major obstacle for the rural communities to overcome poverty. It also indicates the great need for training and development of rural communities in ensuring economic empowerment (Fairer-Wessels, 2017, p. 6).

In contrast, environmental governance and education has shifted to collaborative planning. Integrated or collaborative planning requires polycentric governance and co-creation procedures, which include indigenous traditional approaches with the involvement of different role players (Zingraff-Hamed et al., 2020, p. 1). This approach advocates for co-design and co-implementation of environmental education systems with an aim of attaining self-organised and self-reliant communities. The study acknowledges challenges facing traditional fishers and coastal communities which can be resolved by the restoration of natural and cultural systems. Integration of IKS with environmental governance strategies could empower both government and communities to adopt a complex adaptive systems approach to implementing environmental and fishery policies (Chabay *et al.*, 2021, p.1). In addition, indigenous languages play a significant role in environmental education. A use of indigenous languages enhances communication to create awareness and attitude change for rural communities. Moreover, indigenous languages aim to effect positive change to rural communities through environmental communication (Ford, King, Galappaththi, Pearce, McDowell and Harper, 2020, p. 535).

Therefore, the collaboration of ecological, stakeholder and ethnography theories can result in environmental education systems to benefit both government authorities and coastal communities. According to Akhtar-Khavari (2019, p. 30) the ecological restoration theory has been practised for many years by many traditional people to sustain natural ecosystems. This theory aims to enhance fast-growing business that needs the assistance of well-informed recommendations and research (Spaargaren and Mol, 2020, p. 60). In addition, some studies reveal that traditional fishers perceive fishing as a social capital which promotes spiritual connection with the environment (Jentoft and Chuenpagdee, 2015, p. 1). The integration of ecological restoration and ethnography theories would recognise the existence and importance of traditional fisheries and their cultural beliefs around environmental governance of the coastal ecosystem. There are studies which argue that government intervention should move beyond traditional conceptualisations of co-management for traditional fishers (Gómez and Maynou, 2021; Harper, Grubb, Stiles and Sumaila, 2017). Nevertheless, it should incorporate stakeholder

theory which encourages principles of cooperative partnerships and co-creation of environmental conservation information (Akhtar-Khavari, 2019, p. 32).

3.5.3 Environmental compliance

In a world environment which is slowly deteriorating due to climate change and other environmental hazards, application of ecological theory would be a tool to resolve environmental challenges (Na and Lee, 2020). These studies show that government should ensure that fisheries comply with the objectives of social justice and environmental justice to improve sustainable fisheries management. Ecological restoration theory has been practised widely by other countries to assist many indigenous peoples to sustain natural ecosystem services (Choi, 2004). The ecological restoration theory is one mechanism that ensures efficient protection of marine environment and prevents over-exploitation of fishes (Palmer, Zedler and Falk, 2016, p. 11).

Africa has vast fish resources (in marine, inland capture and aquaculture) the exploitation of which is providing a wide variety of benefits to Africans in terms of revenue, employment and general contribution to socio-economic growth and development. These benefits are currently threatened by the increasing over-exploitation of the fish resources. Oyanedel, Gelcich and Milner-Gulland (2020, p. 1120) claim that non-compliance in the fishery sector is one of the major challenges for the sustainable management of coastal ecosystem which has greater impacts in traditional fisheries. The possible solution for environmental non-compliances from the coastal environment is implementation of a MIT-D approach to accommodate integration of economic, social, cultural and institutional variables (Oyanedel, Gelcich and Milner-Gulland, 2020, p. 1124). In addition, enforcing environmental compliance in traditional fisheries is argued to be challenging due to implementation costs (Mackay et al., 2018, p. 258). Nevertheless, Russeng *et al.*, (2020, p. 698) encourage more cost-effective efforts from government to provide conservation training to traditional fishers. Government authorities should capitalise on using indigenous knowledge including the historical continuity of knowledge resources relating to complex ecological systems in fishers' own communities. The value of experience of traditional fishers should be acknowledged as an evidence-based conservation method. IKS should be incorporated in environmental enforcement policies for the best interest of the poor and the marginalised communities (Reyes-García and Benyei, 2019, p. 660).

3.5.4 Effects of climate change on fisheries and aquaculture

According to Clark (2006, p. 85), the earth's climate is slowly changing due to the influence of anthropogenic activities. As a result, the global surface temperatures are claimed to be contributing to rising sea levels. Therefore, the sea level rise induced by climate change has the

adversely possible environmental and economic impacts in the ocean ecosystem (Clark, 2006, p. 86). The environment of fish is very dynamic and conditions of the aquatic environment can differ greatly over time because of tides, seasonal variability in water temperature and currents, decadal variability in the occurrence of El Niño events and other regime changes (McClanahan *et al.*, 1997, p. 119). These variations may affect the dynamics of fish populations, resulting in differences in growth rates, recruitment and natural mortality rates. Climate change and disasters are already impacting on Africa's aquatic systems and the livelihoods and economies that depend on them. Rising sea levels, increasing water temperatures, changes in salinity and currents, and more frequent extreme weather events are among the changes expected (Frazin, 2019, p. 2). It is imperative for all stakeholders in fisheries to advocate for ways of reducing climate change vulnerability and to increase the resilience of fishing communities, fish stocks and supporting ecosystems, including building on existing capacities and coping strategies.

Frequent fluctuations in any of the biological, chemical, geological or physical aspects of the ecosystem can have serious implications on the resource population and community, especially when they are beyond human control such as large-scale temperature anomalies (Young, Porensky and Veblem, 2019, p. 4). Destruction of coastal habitats for development and the direct impact of fishing on the substrate due to human action may also negatively affect the ecological environment. Therefore, fisheries management should consider the impacts of the frequent changes of the environment on the resource and take steps to minimise their impacts on the fishery ecosystem.

The manner in which stakeholders can determine ecosystem considerations differs because some are caused by and some independent of human action. However, the constraints imposed on the resources and the fishery by biological and non-biological ecosystem factors need to be assessed and taken seriously (Nordhaus, 2019, p.1993). Therefore, national or regional governments should examine the implications of environmental factors on target stocks and species belonging to the same ecosystem or associated with or dependent upon the target stocks and analyse the link among the populations in the ecosystem (Frazin, 2019, p. 4). Furthermore, appropriate steps should be taken and implemented carefully to reduce waste, catch by lost or abandoned gear, catch of non-target species (both fish and non-fish species), and negative implications on linked or dependent species.

3.6 Management of Traditional Fisheries

The management of traditional fisheries requires a holistic approach which is characterised by well contextualised socio-economic and socio-cultural background. The management strategy for traditional fisheries should emerge from a collaborative and transdisciplinary approach to

promote a paradigm shift in the fishery sector (Fache and Pauwels, 2020, p. 43). Short- and long-term interventions should address community-based problems for traditional fisheries by promoting IKS and African epistemologies as the worldview for coastal communities Mathebula, 2018, p. 19). Moreover, the solution for traditional fishers should be proposed through the promotion of methods that aim to achieve better coordination and formalisation of public participation and involvement of different stakeholders in the policy-making and knowledge co-production processes.

According to Kyvelou and Ierapetritis (2020, p. 2026) utilisation of co-management theory in the management of traditional fisheries bridges a gap between government authorities and coastal communities. Furthermore, the ethnography theory enhances local economic benefits through preserving recreational and cultural mind sets of coastal communities. In addition, it enhances the spiritual connection of traditional fishers and coastal communities with the natural coastal environment, social capital, and provides health and economic benefits (Young, Foale and Bellwood, 2016, p. 116).

Therefore, integration of ethnography and co-management theory is considered as community-based fishery resource management because both government and various role players including coastal communities are involved in the decision-making process concerning the management of traditional fisheries. Traditional fisheries management is very important in rural coastal communities to sustain livelihoods and economic growth. Beside their economic benefits, traditional fisheries are practised and preserved for recreational and cultural purposes. These traditional fishers also regard fishing as an enhancement of the spiritual connection with the natural environment, social capital, and provision of health and economic benefits (Young, Foale and Bellwood, 2016, p. 116). Therefore, integration of stakeholder, ethnography and ecological restoration theory could form a strong and effective framework to manage traditional fishers and transform the lives of the rural coastal communities. Management of fisheries should be driven by certain grades and incorporate IKS as subsequently discussed.

3.6.1 Fisheries management

According to FAO (1997, p. 12), management is the term used broadly to describe that legal entity which has been designated by the national government as having the jurisdiction to perform specified fisheries management functions. In practice, it may be a national or provincial ministry, a department within a ministry, or an agency and could be governmental, parastatal or private body. The area of competence, geographical area, fish resources and fisheries for which a given management authority is responsible must be precisely specified in each case in the appropriate legislation.

According to FAO (2016, p.4), fisheries management is the integrated process of information gathering, analysis, planning, consultation, decision-making, allocation of resources and formulation and implementation of regulations or rules which govern fisheries activities in order to ensure the continued productivity of the resources and the accomplishment of other fisheries short-term and long-term goals. Thus, fisheries management involves a complex and wide-ranging set of tasks, which collectively have the achievement of sustained optimal benefits from the resources as the major long-term objective.

The goals in fisheries management can be divided into four subsets, namely, biological; ecological; economic and social, where social includes political and cultural goals (Stephenson et al., 2019, p. 2). The relative balance between social and economic considerations in a fishery depends on the priority given by the appropriate authority to social objectives and economic objectives (Lynch et al., 2020, p. 579). Integration of ethnographic, stakeholder ecological restoration theories through hermeneutic phenomenological approach to provide cross-cultural perspective and behaviours into their fishing experiences (Young, Foale and Bellwood, 2016, p. 117).

Basurto *et al.*, (2013, p. 10) reveal a need for collaboration between the authority and the interested parties because it is a pre-requisite for effective partnerships. Thus, it is common and frequently desirable for the national government to transfer some fisheries management functions to local government or to smaller groups such as fishing communities and also to specify precisely the responsibilities, functions and the geographical area falling under this local authority or smaller group. Without this, there is the danger of overfishing and the ineffectiveness of fisheries management whose consequences include dissatisfaction within a number of agencies and governmental and non-governmental organisations (Nomura, 2008, p. 9). The major obstacle affecting traditional fisheries management is inadequate governance which has led to inadequate transparency and accountability, incoherent policies, limited structured participation of resource users and exclusion of government representatives in the formulation of policies and management of the resources.

3.6.2 Integration of Indigenous Knowledge into management of fisheries

As earlier stated, IK means traditional and local knowledge that is uniquely practiced and developed around specific location (Ncube, 2022, p. p.227). Literature suggests that management of fisheries is not effective in protecting species diversity or ecological functions due to limited integration of IK into fishery policies. As a result, the conflict between government and local traditional fishers arises when government authorities impose policies that disregard IK (Mcclanahan et al., 1997, p. 106). These imposed policies are often informed by foreign

influences which lead to failure to control fishery resources. Therefore, there is a need to contextualise fishery policies by incorporating IK, stakeholder involvement and public participation in the policy formulation processes.

Many of the traditional forms of fisheries management are incompatible with the policies of foreign institutions (McClanahan, Glaesel, Rubens and Kiambo, 1997, p. 108). Consequently, there is confusion and conflict between government enforcement agencies and traditional fishers and coastal communities because of the application of rules and regulations which contradict the realities on the ground. Solving these conflicts requires discussions between government authorities and traditional and national fisheries leaders, coastal communities and other various stakeholders to develop MIT-D fishery policies that are characterised by an African epistemological worldview.

Some governments do not legally incorporate traditional management systems or consider the knowledge and traditional practices of the communities because there is a belief that traditional management systems of marine resources are not well-known and documented and that they have been mainly based on taboos and customs (Hilborn, 2017, p. 8). Furthermore, poor service delivery and the absence of proper political leadership in traditional fishing communities have been embraced and normalised (Nayak, Oliveira and Berkes (2014, p. 382). Hence, this study advocates a paradigm shift in the governance of the fishery sector to influence a change in policies to transform and develop traditional fisheries and coastal communities.

According to Kittinger (2013, p. 370), there is need to support a joint management authority between traditional fisheries and government authorities to transform the traditional and subsistence coastal fishing activities in communities along the coastal areas. Encouraging the integration of co-management with customary and traditional knowledge systems to drive environmental and social change may go a long way in assisting the proper management of traditional fishing activities. Thus, the traditional fishery sector should implement a bottom-up management system which is decentralised to improve the status quo. Furthermore, it should also facilitate an alignment of these policies and programmes with other sectors to ensure that traditional fisheries find access to market and contribute to the economy. Some studies argue that government intervention should not only exceed traditional ideals of co-administration for small scale fisheries, but also adopt and encourage principles of cooperation, democratic participatory engagement, polycentricism, and governance networks (Akhtar-Khavari, 2019, p. 29 and Spaargaren and Mol., 2020, p. 56). The integration of stakeholders and co-management theories through the MIT-D approach could possibly improve accountability and the overall marine governance system (Njaya, 2007, p. 140). The role of policy implementation in the development of traditional fisheries is next discussed in section 3.7.

3.7 Policy Implementation Strategy

Konyango, Ngugi, Rotich and Orwa (2018, p. 16) maintain that public policy implementation plays a vital role in shaping the lives and welfare of the nation by coordinating efforts to achieve the nation's aspirations. Policy implementation focuses on effectiveness and efficiency. It requires great leadership and management skills and coordination among many individuals, since its success hinges on the skills and cooperation of managers who can professionally push the needed changes in their organisational units (Mullins (2010, p. 43). One of the keys to successful implementation is for management to communicate the case for organisational change programmes so clearly and persuasively to members, so that there is determined commitment throughout the ranks to carry out the strategy and meet performance targets.

The policy implementation process comprises of a series of stages of policy formulation and/or policy implementation (Howlett and Saguin, 2018, p. 5). According to Thomann, Hupe and Sager (2018, p.311) various authors have examined policy implementation cascading to street-level bureaucrats to influence behaviours at the frontlines of service delivery. That means policy implementation strategies enhance the translation of higher-level goals into street-level actions (Derrington and Campbell, 2018).

Policy implementation in fisheries and aquaculture, according to Gelcich *et al.*, (2018), is the joint responsibility of government ministries, departments or agencies in charge of fisheries, donor agencies, technical institutions and all others involved in the sector. In contrast, the people tasked to execute policies fail to involve some vital role players and the target beneficiaries due to improper planning and political instability (Ajulor, 2018, p. 1505). Effective policy implementation requires strong cooperation, collaboration, coordination and investment across a range of entities based on a visionary, sequential and participatory approach guided by certain principles which are shown in Figure 3-3 and explained below.

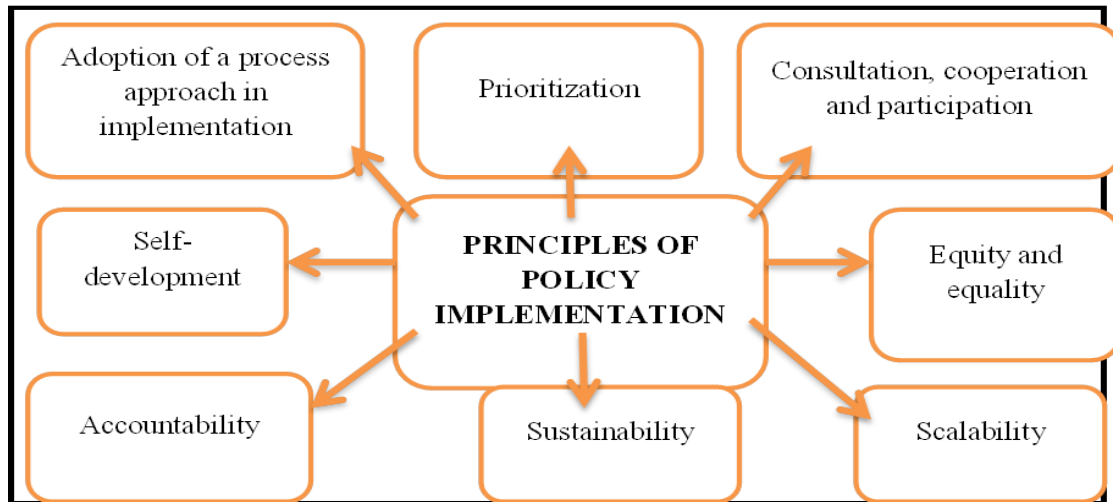


Figure 3-3: Principles of policy implementation

Adapted from Howlett and Rayner, 2007

As Figure 3-3 shows policy implementation is driven by certain principles. Policy implementation entails government’s intention to do something or intervene to stop its wrongdoing to ultimately impact communities (McLaughlin, 1987). Assessment of policy implementation is used to formulate a suitable model informing decision-makers to adopt particular instruments to promote overall economic efficiency and social welfare (Howlett, 1991). Most policy analysts use a similar strategy in attempting to develop instruments to facilitate a policy implementation process. The study applies the policy implementation strategy within the framework of the theory of well-being. Tang, Wang and Guerrien (2020) define the concept of “well-being” as optimal psychological functioning, experience and self-realisation. Social Well-being in Fisheries Tool (SWIFT) incorporates resilience-oriented concepts of well-being which include security, flexibility, and viability. Security is the dependability of a continued livelihood because secure systems are able to maintain themselves and are also well positioned to adapt to change (Schuhbauer and Sumaila, 2016:68). The outline of a secure fishery would be that the labour force is fairly remunerated, is protected, and has a strong, accessible healthcare system., A theory of social well-being as a lens critically reviews a global perspective of socio-economic and political structures for traditional and semi-commercial fisheries. Weeratunge, Béné, Siriwardane, *et.al.*, (2014) further recommend that the theory on well-being should be recognised to include socio-economic themes for small scale fisheries.

Menon, Sowman and Bavinck (2018) argue that the lack of legislation protecting fishing activities has indirectly and negatively impacted food availability and sustenance in coastal communities due to their exclusion from the main economy. There are law enforcement efforts by many countries to improve subsistence commercial fishing activities’ compliance with local legislation

and policies. Therefore, efficient policy implementation has been adopted by many countries to improve compliance and enforcement of local fishery legislations and policies. However, in South Africa, small-scale fisheries are subjected to historical legacies that exclude them from economic participation. Therefore, policy implementation should take historical legacies into cognisance to facilitate change in the existing environment of fisheries in South Africa. The eight principles of policy implementation highlighted in Figure 3-3 are next discussed in sections 3.7.1 to 3.7.8.

3.7.1 Adoption of a process approach in implementation

Taking into consideration relevant available information, all stakeholders in the fisheries and aquaculture sector must develop and put into practice relevant interventions. These need to be flexible to be applied over time in reaction to opportunities established and obstacles faced (Newstrom and David, 2002, p. 41). This aims to ensure policy-makers gather the relevant information on the practicalities of implementation by analysing the feasibility of policy implementation. Policy design incorporates understanding of the problem statement, budget and implementation context (Hudson, Hunter and Peckham, 2019, p. 3). For instance, developing a policy that aims for integration of sustainability for oceanic social-ecological systems and economic systems in compliance with Sustainable Development Goals (SDGs) is a vital issue (Kleiber, Frangoudes, Snyder, Choudhury, Cole, Soejima, Pita, Santos, McDougall, Petrics and Porter, 2017, p. 280). The goals 8, 13, 14 and 15 of the SDGs recognise the four pillars of fishery implementation and decision-making. These are ecological, economic, social (including cultural) and institutional.

Yet, contrary to that assertion, not all policy formulators take into consideration the social, political, economic and management atmosphere when evaluating policy execution (Ajulor, 2018, p. 1507). Thus, many governments end up adopting foreign-made processes which may also look down on the capacity of local people to act on local issues. The failure to consider these four pillars results in a failure to achieve the aspirational objectives of sustainable development and ocean-related policies of many countries. Therefore, there should be a longstanding recognition of the need to assess and manage fisheries as integrated systems, taking into consideration SDGs' pillars, the society and its leaders (Stephenson, Benson, Brooks, Charles, Degnbol, Dichmont, Kraan, Pascoe, Pau, Rindorf and Wiber, 2017, p. 1982).

Moreover, traditional and semi-commercial fishing activities make a significant contribution towards the local economies. They can be transformed to drive development and social change in traditional fishing communities (Jentoft, McCay and Wilson, 1998). The theory of social well-

being lens expands on discussions around social, economic and political implications for traditional and small-scale fisheries (Weeratunge *et al.*, 2014). There are coastal communities that lack market power and alternative income sources struggling to participate in local economies. Therefore, the theory of social change further recommends the emphasis on community development initiatives that promote greater levels of community autonomy to improve socio-economic development (Weeratunge *et al.*, 2014).

3.7.2 Prioritisation

According to Castaneda, Juarez and Guerrero (2018, p. 1018), most governments prioritise public policies with the aim of reaching specific targets motivated by internal political agreements. However, on the contrary, all these plans are stifled by a plethora of inefficiencies such as corruption or the diversion of public funds for private gains. Flaws in prioritisation may be due to lack of dedicating time to prioritisation, failure to take into consideration the big picture of the whole process, getting distracted by less important issues that may crop up during the implementation process, failure to delegate some duties or responsibilities and failure to adapt to new information and procedures (Johnson, 2015, p. 5). Whilst implementation of the policy should be indiscriminate but with supporting activities working in parallel, more focus should be given to the attainment of short-term and long-term goals in line with local, regional or national priorities (Mainiero and Tromley, 2004, p. 59). There should also be an alignment of these policies and programmes with other sectors to ensure that traditional fisheries find open access to market and contribute to the economy. For instance, Bennett (2002) reveals that poverty in coastal areas in Ghana is slowly decreasing in spite of challenges faced by the government and coastal communities. It indicates that Ghana requires serious intervention to ensure the attainment of their aim of better sustenance in traditional fisheries. There is misalignment of disregarded traditional management systems and the modern management system that mostly influences national policy related to fishery management (Ameyaw, Tsamenyi, McIlgorm and Aheto, 2021, p. 10). The non-functionality of existing institutional arrangements due to political influences has a detrimental impact on the Ghanaian local economy. Therefore, change is required at the policy level to positively disrupt the current status quo in the fishery sector for many African countries. Consequently, Stephenson *et al.* (2017, p. 17) recognise the need for South African government to incorporate major pillars of sustainability (ecological, economic, social, cultural and institutional) in fishery governance to create economic opportunities for the rural coastal communities. Njaya (2007, p. 164) concurs that South African fishery policies deliberately exclude indigenous and traditional ways of fishing and promote technological approaches. Hence, some rural communities from various parts of Africa were against the introduction of advanced fishing technologies as they were only limited to industrialised commercial fishers (Menon,

Sowman and Bavinck, 2018). Even though international treaties and agreements in most parts of the world call for the incorporation of these pillars, the socio-economic and cultural aspects remain untransformed (Eriksen, Akpalu, and Vondolia, 2018, p. 7). The failure to integrate economic, social and institutional aspects has resulted in many countries not realising their desired goals of sustainable development.

3.7.3 Consultation, cooperation and participation

Public participation enhances the decision-making process by establishing acceptance of and/or support for the decision (Uittenbroek, Mees, Hegger and Driessen, 2019, p. 2530). It presents the community practices and cultures to be integrated into the enactment of policy, and also ensures that people are at the forefront of the successful implementation of policy (Purcell, 2019, p. 208). The community directly participates in the processes of decision making together with their government and various other role players. Public participation contributes to nation building, transparency, efficiency and accountability of government to its people. Chalong (2019, p. 10) argues that stakeholder engagement contributes to cooperation and collaboration of major stakeholders to coordinate governance operations. It also acknowledges and respects the cultural, environmental, political and socio-economic background of communities which might be affected during the policy implementation. Its inclusiveness also covers less represented groups such as indigenous peoples, women, children, the elderly, and marginalised people to create sustainable communities. Therefore, different role players collaborate with various relevant stakeholders on the public platform to discuss and exchange views on how challenges affecting the public can be addressed (Mankuebe and Manicom, 2020). To obtain the views and informed consent of the stakeholders on decisions that affect them, there is a need for effective engagement, unity and involvement of all people from the lowest to the highest possible decentralised level. There is a need to analyse these inputs to incorporate them into pieces of legislation and decision-making to enhance the level of integration and cooperative governance. González-Mon *et al.* (2019) affirms that the majority of trades have more exports of fisheries resources to international markets than other resources. Therefore, there is great need for local production systems that are connected to international systems so that semi-commercial fisheries and traditional fisheries can be introduced to the global market.

By comparison, there are wide gaps in the community's comprehension of the purpose, processes and consequences of the international policy contexts and efforts to execute community involvement in fishery programmes (Tierney *et al.*, 2018, p. 997). There is also no substantiated evidence pertaining to how all the stakeholders cooperate to promote and execute community involvement in the fishery activities. Furthermore, there seems to be no clarity and consensus

between all participating groups about the roles of community representatives, which remains a major hurdle to effective community involvement (Tierney *et al.*, 2018, p. 998). Those at the top are not seeking acceptable solutions and procedures for the challenges in the traditional fishery sector through a genuine exchange of views and information. Therefore, those at the top echelons in the planning and implementation process should try by all means to engage in discussions about the development of practices and issues of traditional fisheries with all stakeholders or their representatives.

Moreover, consultation, cooperation and participation enhance flexibility which means the freedom of choice, degree of options, and potential mobility within the fishery system. Keyes (1998, p. 121), highlights that flexible social systems which have diverse economic and livelihood options are more likely to recover from unforeseen calamities. The outline of an ideal flexible fishery would be that fishers can sell their harvest to anyone they wish, fishery wealth remains in their communities, and the youth in the community have a strong educational system that opens up new opportunities. Viability refers to whether the fishery and associated global production network is likely to continue from a social perspective as long as the fishery is properly and ecologically managed. Viability deals with the relationship between individual well-being and the well-being of a fishery system as a whole, looking at demographic attributes and trends in fisheries, rather than their individual participants or communities (Schuhbauer, 2016, p. 75). A viable fishery demonstrates signs of continuity through demographic patterns that show that women and the next generation have attractive opportunities for engagement. Viability promotes the people's understanding of the current social and ecological state of the fishery and the likelihood that the system can persist or transform.

3.7.4 Equity and equality

Equity is regarded as a projection of fairness and justice where people are treated uniquely by public policy to compensate for different circumstances. Whereas, equality is defined as projection of justice by public policy to remove barriers to give people same and equal opportunities (Wu, Chen, Wang, He and Zhou, 2020, p. 2). Engagement procedures should be inclusive, fair and transparent, non-discriminatory to women, vulnerable and disadvantaged groups and subject to clear and steady rules and processes. Alonso-Población and Niehof (2019, p. 14) claim that in countries such as Norway, Malawi, and Peru, women's contributions towards fishing are overlooked due to gender norms, cultural expressions, or symbolic barriers that limit women's involvement in fishing. These countries feature policies that represent men's dominance in fishing politics hence most women are still excluded from the ocean economy. Changing the status quo requires a paradigm shift from assumptions that fishery is a male-dominated industry,

to be inclusive of women in the value chain of the ocean economy (Frangoudes, Gerrard and Kleiber, 2019, p. 245). For instance, gender mainstreaming in the marine and fishery sector is one of the strategies that aims to achieve gender equality and fight prejudice through public policies. This means that are women inclusive and have equal access to and control over resources with male counterparts. It is also a tool that enhances gender integration to ensure there is fairness and equitable participation in the decision-making processes. The implementation of Gender Mainstreaming promotes and supports SDGs, namely the goals (1) End poverty anywhere and in all forms; (2) End hunger, achieve better food security and nutrition and support sustainable agriculture; (5) Achieve gender equality and empower all women and girls; (8) Support inclusive and sustainable economic growth, a full and productive workforce and decent work for all (Nurlaili *et al.*, 2021). In other words, women are supposed to play direct and indirect roles in the fishing industry to contribute to livelihoods and community development. Women's inclusion in the ocean economy has greater benefits such as increased income and greater food security (Manyungwa-Pasani *et al.*, 2019).

In contrast, there is no gender equity and equality or active participation of both genders in all the main aspects of social and economic development which are the key prerequisites for poverty alleviation (Thera, 2010, p. 4). There is a need to promote gender equity and equality through control of fishery resources and access to political and economic information because the promotion of gender equity and equality is a vital and a fundamental human right of social justice and development. According to Stella *et al.*, (2017, p. 3), several studies have exposed the prevalence of gender inequalities in project implementation and have also shown that there is low representation of women in relation to men in the decision-making process.

The theory of well-being encourages the equality and betterment of traditional methods so that there is open access to fishery resources for traditional fishermen. Carlson, Taylor, Liu and Orlic (2018, p. 4) affirm the evidence indicating that community-based approaches promote income equities within traditional fisheries. Policy makers should ensure that traditional fisheries are included in the economy value chain and participate in supply, production, and distribution of products. The link between traditional fisheries and other sectors in the implementation of fisheries programs and projects would improve the economy and empower many traditional fisheries. However, Koralagama, Gupta and Pouw (2017, p. 2) claim that gender inequality impacts the government efforts to drive socio-economic systems and environmental sustainability. Women are the most marginalised in the fisheries industry and this gender discrimination and inaccessibility of resources to female fishers undermines sustainability and development of marginalised communities.

3.7.5 Scalability

Activities need to be crafted in a manner that they can be applicable at local, regional and national levels, but with room to be modified or adapt to different situations. The policy that promotes issuing of permits for commercial fishing for big companies threatens the empowerment and economic exposure of small-scale fisheries (Azhar, Suhartoyo, Alw, Suharso and Herawati, 2018, p. 3). Fishermen who depend on traditional methods of fishing lack capacity to compete with large fishing companies. According to Gopal, Edwin and Meenakumari (2014, p. 78) the policy should provide protection to traditional fishermen to be included in the economy. Consequently, many traditional fishers in South Africa do not legally enjoy fishing rights because of the complexities of the ocean economy. The policy that promotes protection of traditional fishermen should be implemented by the law enforcement agencies to strengthen healthy competition in the fishing industry (Azhar, Suhartoyo, Alw, Suharso and Herawati, 2018, p. 2). For instance, the Bangladesh government is implementing a policy that presents and resolves challenges of developing small scale fisheries. The Bangladesh fishery policy protects and supports roles that small-scale fisheries play in the expansion of the country's marine economy. Hence, the government adopted the concept of marine economy across relevant policies and plans with an aim to create more opportunities within the marine environment. Furthermore, it strengthens food security, eradicates poverty, creates jobs and protects the natural coastal environment (Hussain, Failler, Al Karim and Alam, 2017, p. 6).

Conversely, most projects fail because of factors such as location, budgetary considerations and complexity (Anandajayasekeram, 2018, p. 3). Thus, the fisheries projects which cover large areas are failing to incorporate cross-cultural complexities. Such projects experience coordination issues due to lack of flexibility pertaining to re-allocation of capital investment and key personnel. According to Steenbergen, Song and Andrew (2022, p. 670), over that there seems to be less focus given to the theory guiding such projects and an insufficient comprehension of what it means to scale innovations of such magnitude, despite the increased attention on scaling community-based fisheries management.

3.7.6 Sustainability

The Code of Conduct for Responsible Fisheries established “sustainability” as a most important principle in fishery management, stipulating that “the long-term sustainable use of marine fishery bio-resources is the main purpose of conservation and management” (Amarullah and Sumardi, 2018, p. 5). Policy implementation strategy should consider guarding against undesirable bio-ecological and socio-economic results by taking precautionary measures or risk management steps. In the fishery sector, the Sustainability Impact Assessment (SIA) system is mainly used for

public consultation to examine possible synergies in developing integrated policies. The SIA accommodates a holistic approach to policy development to propel long term, sustainable and integrated development. It is characterised by three pillars of sustainable development, namely, ecological, economic and social aspects (Malvarosa *et al.*, 2019, p. 17). Therefore, this would present the long-term compromise between socio-economic and cultural goals for traditional fisheries and also conservation of the natural environment (Edwards *et al.*, 2019, p. 34).

According to FAO (2016, p. 34), the total capture globally for fishery production in 2014 was 93.4 million tonnes, of which 87% was from the ocean and 13% from inland waters. The world population growth has triggered an increase in seafood consumption which translates into high demand for marine resources. Zhou *et al.*, (2019, p. 19) claim that global fishery resources are threatened by the anthropogenic impacts that cause the decline of ecosystem functionality. These anthropogenic impacts include environmental pollution, overfishing and climate change. Consequently, that poses serious threats to the sustainability of marine resources across the globe. The unsustainability that is caused by depletion of fish stocks due to overfishing and the dysfunctional fishery management programmes has been a major challenge in most countries (Bonanomi, Colombelli, Malvarosa, Cozzolino and Sala, 2017, p. 66). NGO's, government and environmental agencies have conducted awareness campaigns that aimed to promote sustainable fisheries.

In contrast, the ever-increasing demand for seafood across the world has prompted more people to enter the fisheries industry, both legally and illegally, leading to an increase in the overall fishing effort and levels of overfishing, IUU fishing and unsustainable and destructive fishing practices (Food and Agriculture Organisation, 2019, p. 2). When all these negative fisheries factors combine with negative climate change effects, the outcome is the reduction of fish stocks, deterioration of critical marine habitats and their ecosystem services which ultimately cause the alteration of species composition and food webs. Hence to achieve sustainability, it seems that both anthropogenic and non-anthropogenic impacts call for MIT-D evaluations whereby the four pillars of sustainability are integrated into governance systems to achieve the goals of the SDG's (Stephenson *et al.*, 2019, p. 57).

3.7.7 Accountability

According to Zhou *et al.*, (2019, p. 21) sustainability for natural resources for the future generation has become a global interest, especially concerning the management of marine resources. The fishery awareness campaigns and accountability are promoted and aligned to government efforts to make the ocean economy inclusive of traditional fisheries (Hyndman and McKillop, 2018, p. 3). There is a strong positive correlation between accountability and public

governance, which means behind a government's improved performance there is a good accountability system (Dwianika, Murwaningsari and Suparta, 2020, p. 8).

All stakeholders involved in the policy implementation process should be held responsible for their decisions and actions. Policy implementation emphasises compliance with policies and laws that are in place to regulate the fishery industry. So, there are suggestions that government should formulate policies and programmes that speak directly to traditional fisheries. The overutilization of technological solutions for fishing creates income inequalities within communities. These policies and programmes should address challenges that are caused by vertical, autocratic and scientific based methods of fisheries administration. Therefore, Galappaththi, Ford, Bennett and Berkes, (2021, p. 165) recommend that the fishery sector implement a bottom-up management system which is decentralised to improve the status quo.

3.7.8 Self-development

Global education encourages the unity, interrelation and interdependence of community members to develop a sense of self-development and cultural diversity (Kassymova *et al.*, 2018, p. 172). It is based on universal values of love and tolerance, solidarity and cooperation, equality and non-violence in society. Therefore, it aims at changing people's perceptions and attitudes and encourages them to play their respective roles to make the world a better place. A sustainability study by Batista and Francisco Palacios *et al.*, (2018, p. 422) reveals that public participation plays a significant role in the self-governance and self-development of communities to attain sustainable development utilising fewer resources. That means sustainability at the community level requires all role players to be "socially connected" to provide the basic needs for communities (Fu and Ma, 2020, p. 5). The spiritual well-being of community members through self-determination and self-development with shared collective resources in the community enhances quality of life (Saleem, Lamarque and Hasan, 2020, p. 12).

Furthermore, Goleman (2020, p. 1) attests to the link between self-development and social well-being which has an ability to transcend good relationships and social stability in communities. Thus, it is the evaluation of an individual's state of affairs and functioning in a community and society. Social integration, social acceptance, social contribution, social actualisation and social coherence are the social changes that form possible dimensions of social wellness (Keyes, 1998, p. 122). The dimensions are shown in Figure 3-4 and discussed below.

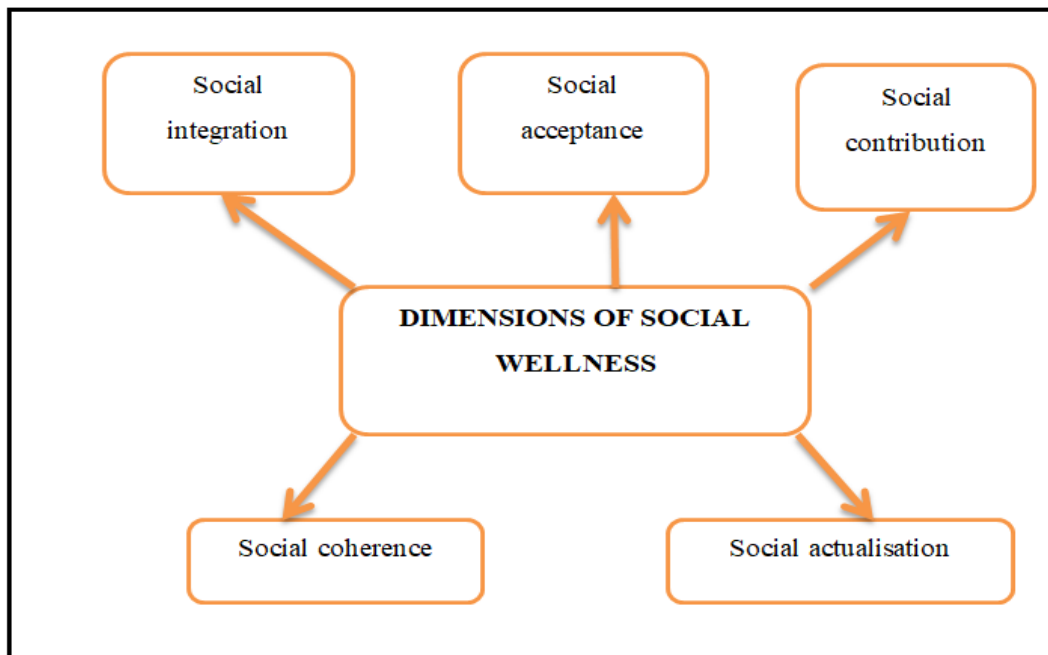


Figure 3-4: Dimensions of social wellness

Source: Keyes, 1998

Figure 3-4 depicts successful interaction in global community and lived up expectations and demands of personal roles. It is the degree to which the members of the society feel that they have something in common with others who are their social reality, and the degree to which they feel that they belong to their communities and society are central to self-development (Keyes, 1998, p. 130). Social acceptance is translation of society through the characters and qualities of other people as a generalised group. Socially accommodating people hold favourable views of human nature and feel comfortable with others (Van Holt *et al.*, 2016, p. 669). People who demonstrate social acceptance also trust others and expect others to be kind and hardworking. According to Cooke *et. al.* (2013, p. 5) inland aquatic resources and their associated fisheries provide employment, recreation, culture and, in developing regions, a considerable proportion of human nutrition and food security. Social contribution is the assessment of one's social worth which encompasses the idea that an individual is a vital member of society with something of great value to offer to the world. Social contributions represent the ideas of efficacy and responsibility (Goleman, 2020, p. 2). While self-efficacy pertains to one's worth and ability to perform certain behaviours and attain certain short-term goals, social responsibility pertains to the extent to which people feel that their performance in the world is valued by society. Social actualisation is the assessment of society's potential and trajectory which assumes that healthier individuals in society are optimistic about the condition and future of society (Van Holt, *et al.*, 2016, p. 669). They also take cognisance of the society's potential and believe that other individuals in society similar to them are potential beneficiaries of social growth. Social coherence is the view of quality arrangement and operation of the social world which encompasses a concern for having

knowledge about the world. This asserts that healthier individuals care about the kind of world in which they live, can understand events around them and see their personal lives as meaningful and coherent (Keyes, 1998, p. 139). This upholds self-development as part of policy implementation.

Government should create a conducive environment which enable all stakeholders to fully participate to the global efforts of driving sustainable utilisation ocean resources. Therefore, the study interrogates the impact of PSSF, and recommends viable policy implementation strategies which would enhance the development of traditional fisheries. This policy implementation strategy will be used in relation to co-management, the theory of social well-being and ecological restoration to obtain suitable solutions for traditional fisheries. That means the policy implementation strategy will interrogate management, cultural, environmental and economic barriers from government strategic level to street level. The study will integrate all the theories that govern the research to form a system that will be used to assess PSSF.

3.8 Conclusion

In conclusion, Chapter Three has provided a detailed exploration of the historical, geospatial, and policy contexts shaping traditional fisheries in South Africa. Through an analysis of pre-colonial, colonial, and post-colonial eras, the chapter has illuminated the evolution of traditional fisheries practices and the enduring impact of historical legacies on contemporary fishing communities. The examination of policy frameworks at global, continental, regional, and local levels has revealed the complex regulatory environment within which traditional fisheries operate, underscoring the need for a multi-level approach to governance.

Furthermore, the discussion on fishery governance has highlighted the myriad challenges faced by traditional fishers and coastal communities, from resource depletion to limited access to decision-making processes. By elucidating the roles of various stakeholders, including government authorities and traditional leaders, in managing traditional fisheries, the chapter has underscored the importance of collaboration and inclusive governance approaches.

Moreover, the exploration of policy implementation strategies has shed light on the practical challenges and opportunities in translating policy objectives into tangible outcomes for fishing communities. The chapter's analysis has underscored the significance of context-specific interventions and community-driven initiatives in fostering sustainable fisheries management practices.

Overall, Chapter Three has deepened our understanding of the socio-economic, environmental, and governance dynamics shaping traditional fisheries in South Africa. By contextualizing the

study within historical trajectories and policy frameworks, this chapter lays a solid foundation for the empirical investigations and policy recommendations that follow in subsequent chapters.

4. CHAPTER FOUR: INDIGENOUS AND CONTEMPORARY CULTURAL, GENDER AND SOCIO-ECONOMIC CONSTRUCTS

4.1 Introduction

Chapter Four, delve into the intricate tapestry of indigenous traditions and cultures that underpin the development of traditional fisheries and rural coastal communities in South Africa. Exploration extends beyond mere surface-level observations to uncover the profound impact of cultural values, beliefs, and heritage on the practices and livelihoods of traditional fishers. Delving into the rich reservoir of indigenous knowledge systems, the chapter seek to elucidate how these cultural foundations shape fishing practices, resource management strategies, and community resilience.

Furthermore, the chapter investigates and shines a spotlight on the pervasive gender disparities within the traditional fishing industry. Despite the invaluable contributions of women to fisheries-related activities, they continue to face systemic marginalization and exclusion, perpetuated by Eurocentric economic and fishery policies. Through a critical examination of these inequalities, the chapter aim to illuminate the challenges faced by women in accessing economic opportunities, decision-making roles, and resources within the fishery sector.

Moreover, this chapter underscores the profound socio-economic factors that influence the dynamics of traditional fisheries and coastal communities. Drawing on insights from Rodrigues and Villasante (2016) and Kittinger (2013), the research confronts the stark realities of economic exclusion and inequality faced by traditional fishers, who are often excluded in South Africa's economic value chain. Despite their significant contributions to local livelihoods and community well-being, traditional fisheries are overlooked in favour of heavily industrialized commercial operations, exacerbating disparities and perpetuating cycles of poverty.

Finally, Chapter Four introduce the meta-theoretical framework that underpins the study, offering an integrated approach that aligns with our philosophical views and research objectives. By integrating multiple theoretical assumptions and perspectives, the framework seeks to transcend disciplinary boundaries and embrace the complexity of the research subject. In particular, the meta-theoretical framework is imbued with the principles of African epistemologies, reflecting the interconnectedness, holistic worldview, and community-cantered ethos inherent in traditional African ways of knowing. Through this convergence of theories and paradigms, the study

endeavour to foster a deeper understanding of traditional fisheries and pave the way for more inclusive and equitable policies and practices.

4.2 Traditions and Culture for Fishers

Khakzad and Griffith (2016, p. 95) identified that many policies in various parts of the world overlook contributions of fisheries to the socio-cultural well-being of coastal rural communities. Therefore, this chapter attempts to unpack the socio-cultural issues and traditions in fishing communities.

4.2.1 Cultural values and beliefs

Indigenous African values and beliefs are strong and well embedded within cultures across different communities. These values include, *Ubuntu* principles, indigenous values and the sense of oneness (Awoniyi, 2015, p. 1-3). Furthermore, African epistemological worldviews endorse these cultural values and beliefs as core axiology in alignment with transdisciplinary approach (Ruffin, 2019a, p. 117). According to Pita and Gaspar (2020, p. 287), a key requirement for ensuring that social and cultural considerations are properly considered is to involve the interested parties in fisheries management, keeping them well-informed on the management aspects of the fishery and providing them with the opportunity to express their needs and concerns. Thus, the interests of fishers, including those engaged in subsistence, small-scale and artisanal fisheries are taken into consideration and in areas under government control. There is a need to identify relevant local individuals or groups who have a legitimate interest in the use and administration of fisheries resources and develop a plan for consulting them to gain their cooperation in attaining responsible fisheries (Sarpong, 2005, p. 1). Since there is a relationship between fishing and cultural ecosystem services, the conservation of cultural values for traditional fisheries and the sea should prevail for the benefit of both traditional fishing communities and the natural environment (Urquhart and Acott, 2014, p. 15). There also is a need for fishing related assistance in order to open more avenues for women to enjoy the benefits of the fishing activities without dislodging the socio-cultural structures in these traditional fishing communities (Gopal *et al.*, 2014, p. 38).

The marine resources in Hawaiian societies played a vital role to connect subsistence fisheries with cultural values. However, this has changed in recent years due to the introduction of new methods of fishing which are profit-driven (Friedlander *et al.*, 2013, p. 442). That has caused a significant distortion to cultural values and practices, and increased the vulnerability of fish species. It is revealed that these declines are associated with intensive overfishing, pollution,

climate change, and access to technological innovations. Furthermore, the introduction of modern, effective and efficient fishing methods exacerbates the distortion of cultural values.

Morales, Lepofsky and Berkes (2017, p. 5) argue that most coastal communities have adopted complicated systems with serious cultural threats to manage coastal resources. For instance, the environmental hazards such as climate change, over-exploitation of marine resources and pollution threaten traditional fisheries and the cultures that have been preserved for many centuries. The use of those cross-disciplinary and community-based projects can enhance the reconnection of local culture and spiritual values for coastal communities and could be the system that drives cultural preservation. Moreover, the Saanich community in Canada embraces traditional fishing methods and how it has benefited people (Dekker, 2019, p. 8). The Saanich education imparts fishing techniques that represent cultural values and tradition for the local community (Claxton and de France, 2018, p. 217). These fishing techniques allow the Saanich to prosper economically and find cultural fulfilment in their own lands and waters. This fishing technique achieves more than catching of fish, it enhances good governance for the Saanich people.

4.2.2 Cultural heritage

Cultural heritage is defined as the legacy of physical indigenous cultural property and intangible attributes of a society inherited from the past (Sullivan, 2015, p. 604). Furthermore, cultural heritage bridges a gap between the past and the future through practice of certain communal approaches in the present (Holl, 2023, p. 1-3). Kittinger (2013, p. 315) affirms that the Asia-Pacific region embraces a wide variety of cultures in the coastal areas whose perpetuation and sustenance mostly depends on the aquatic life from the ocean. The subsistence commercial fishing activities play a significant role in strengthening the livelihoods for local communities, and also contribute greatly to the economies. However, Berkes (2017, p. 17) reveals that these coastal communities still face various local and global threats in terms of economic and environmental sustainability. Therefore, the traditional lifestyles and cultures of coastal communities are at risk due to the rapid introduction of technological systems. That amplifies the claims about the poor relations between the national and local authorities in Indonesia's coastal communities pertaining to dominance, control and access to and use of natural resources. The local communities believe that they have a strong connection to the land and its importance in the maintenance of their livelihood, as well as their conservation ethic which highlights sustainability. That credits the importance of indigenous knowledge which is regarded as a powerful tool not only in terms of local resource management but also for cultural and environmental governance (Bettinger, Fisher and Miles, 2014, p. 197). These experiences complement claims by Shah and Bukhari (2019, p. 650) that women play a vital role in fishing

and traditional cultures of the Pacific Islands. They have been able to reflect their cultural values and practices through fishing in shallow waters using locally made baskets and sticks. Therefore, this depicts that the communal traditional practices coexist with what the community believes will appease their gods and their spiritual realm.

4.2.3 Indigenous knowledge

As discussed in Chapter 1, Ncube, (2022, p. 227) defines IK as unique, traditional, local knowledge existing within, and developed around the specific conditions of indigenous community. Indigenous knowledge is associated with value-laden belief systems and language conventions subject to intergenerational transfer (Ruffin, 2019a, p. 112). In addition, it is considered as the social capital for traditional fishers and rural coastal community. It is a valuable asset to invest in rural communities to achieve sustainable development of poor people (Senanayake, 2006, p. 87). In contrast, Westernised ways of knowing often disconnect with many rural South Africans communities due to language barriers and socio-cultural and spiritual ontologies, epistemologies and axiologies (Ruffin, 2019a, p. 112).

The UN Declaration on the Rights of Indigenous Peoples (2007) recognises and values the significant role played by indigenous knowledge, cultures and traditional practices for sustainable and equitable development of rural communities. Furthermore, Masoga and Shokane (2019, p. 2) argue that indigenous knowledge should be accepted as a tool in the development of marginalised communities. Conversely, the colonial rule imported knowledge systems to marginalised communities for the exploitation of local resources. The foreign western knowledge systems have dominated over AIKS resulting in the disruption effects on the current education system in Africa, including in South Africa. This disruption has led colonial and apartheid educational systems to deny traditional and indigenous communities access to economic resources, restricted rights and exclusion in decision-making (Masoga and Shokane, 2019, p. 5).

The utilisation of indigenous knowledge contributes extensively to the management and preservation of local natural resources and the spiritual, cultural and economic well-being of local communities (Wanyonyi *et al.*, 2018, p.270). According to Jabali, Wamukota and Fulanda (2020) in Kenya, the indigenous knowledge enables traditional fishers to have an extensive understanding of coastal ecosystems. In addition, it provides resource sustainability that supports fishers to apply environmentally friendly fishing techniques. However, there are challenges from the fact that indigenous knowledge may not always be successfully implemented to the sustainable management of marine resources alongside scientific knowledge (Jabali, Wamukota and Fulanda, 2020, p. 25). The management of fisheries should include better control of national government and restoration of cultural beliefs for traditional fisheries organisation. According to

Pomeroy (2016, p. 155) there should be use of traditional management systems which embrace and give a balance between modern and traditional management systems so that cultural values for small scale fisheries are protected.

Moreover, traditional fisheries possess local wisdom that embraces traditional practices as their adaptation to climate change. Some of the key hereditary traditional knowledge is weather forecasts, timing for fishing, and traditional fishing methods, and these traditional skills enable traditional fisheries to adapt to climate change. However, these traditional practices seem to be threatened by modern fishing practices that focus less on the natural environment and the sustainability of their catching ecosystem. For this reason, policy makers should consider establishing traditional rights for traditional fisheries in national fisheries management. Therefore, Sari and Latifah (2021, p. 3) concur that the role of traditional fisheries in climate change is very important because of their high dependence on nature, which justifies the existence of traditional rights to be considered in fisheries management policies.

4.2.4 Cultural preservation

Ruffin (2019a, p. 114), opines that westernised epistemologies have distorted and invaded cultural heritage for many South African rural communities due to colonial impact. Hence, there were/are attempts to continually erode IK. Consequently, erosion of cultural heritage threatens the lives, livelihood and health of indigenous rural communities (Priyadarshini and Abhilash, 2019, p. 1). Therefore, a drive for cultural preservation is vital for the socio-cultural and economic development of traditional fishers and rural coastal communities. The preservation of cultural values and practices requires government to formulate and enforce pieces of legislation aimed to promote social and cultural well-being of traditional fisheries (Urquhart and Acott, 2014, p. 260). Implementation of policies that promotes cultural heritage by cooperation of government and other role players can play a major role to prevent erosion of cultural values for traditional fisheries (Jabali, Wamukota and Fulanda, 2020, p. 21). The relationship between fishing and cultural ecosystem services requires conservation of cultural values.

Sari and Latifah (2021) claim that for many years the traditional and local wisdom in coastal communities has predominantly shaped the development of the marine and fisheries economy. Moreover, undocumented customary rules in fisheries resource management have caused serious harm in the loss of local communities' wisdom in the era of modernisation. Consequently, the failure of customary institutions to enforce compliance and supervision of customary rules has led to lack of transfer of knowledge to the current generation. Sari and Latifah (2021, p.7) also express that traditional fisheries should preserve cultural wealth and heritage. Furthermore, there

is a great need for the integration of indigenous knowledge, cultural systems and cultural institutions in managing fishery resources.

4.3 Gender disparities in the traditional fishing industry

Gender is a social construction (Posselt and Nuñez, 2022, p. 1). In some indigenous ways of knowing, gender complementarity existed. For example, domination and control of colonial settlers in South Africa disempowered and stripped indigenous mechanisms of gender equity (Ruffin, 2019a, p. 112). Contemporarily, gender disparities are on the rise with regard to the fishing industry. According to Szymkowiak and Rhodes-Reese (2020, p. 1), despite the evidence of women's contribution to the sustainability of fisheries across the globe, their roles in fisheries remain poorly understood and also most often unrecognised. Furthermore, Mangubhai and Lawless (2021, p. 4) state that fisheries are not immune to gender inequality, and women tend to experience the brunt of inequality as undervalued and underrepresented actors in fisheries management and development. A comprehensive understanding of the gender approaches in use, including potential barriers to their implementation, is needed to promote gender equitable outcomes in the small-scale fisheries industry. From small-scale fisheries in developing nations to industrialised fisheries, there is a systematic gap in the availability of data pertaining to the types of work that women do (Bevitt, 2020, p. 1). Furthermore, Gough, Russell, and Whitehouse (2017, p.3) claim that women are the most marginalised group in rural communities, and they have been excluded from socio-economic opportunities in the fishery sector. Traditional fishers have less interest in the decline in fisheries resources and are much more concerned about the unequal distribution of ocean economy where commercial fishers dominate (Fabinyi, Foale and Macintyre, 2015, p. 3).

Gender disparity is the social process by which men and women are not treated as equal, and this may emanate from variations pertaining to biology, psychology or cultural standards. Whilst some of the variations have their foundations in empirical evidence, others are socially constructed. Uncontested cultures of male dominance result in the subordination and exclusion of women, which effectively side-lines more than 50% of the world's talent, experience and knowledge. Thus, some communities are compelled to operate at less than 50% capacity due to exclusion of women.

However, the SDG number 5 on gender equality aims to bridge the gap created by unequal socio-economic opportunities which led to gender disparities (UN, 2018, p.15). Giving women enough space to fully participate in and benefit from fisheries and aquaculture can greatly increase output, reduce poverty and promote nutrition and food security for millions of households that depend on the fishing industry. In 2014, women accounted for about 50% of the total workforce in

fisheries and aquaculture, when the secondary elements such as processing and trading are included (CGIAR, 2017, p. 1). This dependence is fundamental given that the sectors support the livelihoods of approximately 10 to 12 % of the world's total population and are the basis of global food and nutrition security.

Gopal, Edwin and Meenakumari (2014, p. 36) claim that the fishing production methods and technological advancements have resulted in the shifting of women from their perceived responsibilities in society in ancient times, but women are still completely excluded from fishing operations which perpetuates gender inequality. Thus, women are excluded, exploited and discriminated against in decision-making processes in the traditional fishing communities.

Despite women's substantial involvement and contributions, fisheries management and development have largely focused on commercial, high-value fisheries which are dominated by men and less on subsistence, low-valued fisheries which are dominated by women (Szymkowiak and Rhodes-Reese, 2020, p. 2). Women in developing nations encounter insurmountable obstacles when compared to men in their endeavour to fully participate in and benefit from fisheries and aquaculture. In the traditional fishing industry, the circumstances, participation, constraints, obstacles, options and benefits are different for men and women (Bevitt, 2020, p. 2). However, women play a vital role in fisheries and aquaculture since they make up about 15% of the total people participating in the fisheries and aquaculture primary sector. Figure 4-1 below shows some of the major obstacles encountered by women in the aquaculture and fisheries industry.

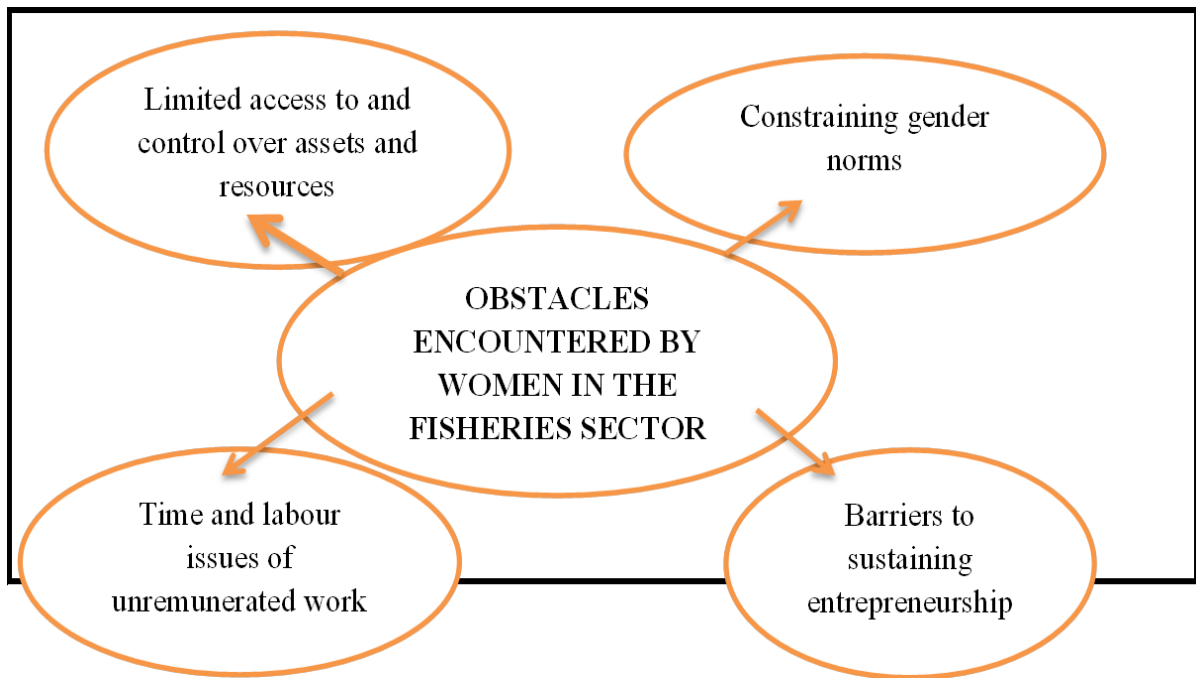


Figure 4-1: Obstacles encountered by women in the fisheries sector

Source: Gopa *et al.* (2020, pp. 1-9)

Figure 4-1 affirms that contribution of women to fisheries economies in most parts of the world is overlooked. Furthermore, gender inequality in mainly affect women in small-scale fisheries which are often excluded from policy and decision-making processes (Harper, Grubb, Stiles and Sumaila, 2017, p. 4)

4.3.1 Limited access to and control over assets and resources

FAO (2013, p. 24) claims that an estimated population of 180 million people worldwide is working in fisheries and aquaculture; of those nearly half are women. Women in traditional fisheries encounter obstacles to access and control key assets such as land, ponds, capital skills, technologies and extension services, which are the basis for attaining secure and stable livelihoods. Access to resources means the livelihoods of many are based on equitable access to, and secure tenure of, land, fisheries and forests (Mangubhai and Lawless, 2020, p. 14). Secure access to these resources is important to eradicate hunger and poverty, support sustainable development and enhance the environment. For example, in Zambia men have uncontested land ownership and women can only have access to land for fisheries and aquaculture through men. In Bangladesh women can work in ponds within their homesteads, but do not have control over them. Furthermore, Siles *et al.*, (2019, p. 9) claim that the fishery sector is challenged by pervasive inequalities, including Gender Based Violence (GBV). This confirms that some cultures consider it a cultural taboo for women to participate in the fishery space.

4.3.2 Constraining gender norms

In most nations or communities, women's roles are defined by gender standards which can be very constraining or coercing. Thus, women's adoption and use of fisheries and aquaculture knowledge, technologies and practices through extension are limited by gender norms. Some gender standards prevent women from contributing to community decision-making even on issues pertaining to traditional fisheries and aquaculture governance (CGIAR, 2017, p. 3). For instance, in Bangladesh, it is socially taboo for women to enter an aquaculture pond to do the harvesting solely because it is regarded as men's work. In addition, women in Egypt are required to get permission from their husbands if they are to leave home to go and work as fish retailers. This denies the women's an opportunity to be part of the fishing community and inclusive economy.

4.3.3 Time and labour issues of remunerated work

In most traditional fishing communities, women do unpaid work such as collecting bait, fixing fishing nets, cooking food for fishermen and managing family accounts. When women are employed in traditional fisheries and aquaculture, they are not covered by international and national labour laws, depriving them of benefits enjoyed by men in the sector (Szymkowiak and Rhodes-Reese, 2020, p. 3). They also lack representation in any policy negotiations with any stakeholder in the fisheries and aquaculture business. The below figure 4-2 show traditional fisherwomen from Kenya at work in the fisheries.



Figure 4-2: Traditional fisherwomen fishing in the lake in Kenya

Source: Longreads, 2020

Women working in the estuary as presented in Figure 4-2 play a significant role in Kenyan government initiatives to alleviate poverty. The Kenyan fisherwoman mainly participate in traditional fisheries for sustainable livelihood (Galappaththi Armitage and Collins, 2022, p. 1101). However, Kenyan fisherwoman are still subjected to cultural beliefs which promote participation of fisherman in traditional fisheries. In addition, food insecurity, wildlife attacks, lack of fishing equipment, poor governance and environmental impacts are the main challenges faced by Kenyan fisherwoman.

Similarly, the Senegalese fisherwoman are subjected to gender inequality, food insecurity, wildlife attacks, lack of fishing equipment, poor governance and environmental impacts. However, traditional fisheries have contributed significantly to the Senegalese economy and it continues to open more opportunities for traditional fisherwoman (Sall and Nauen, 2017, p. 615). The below figure 4-3 shows the level of participation of Senegalese fisherwoman to traditional fisheries.



Figure 4-3: Traditional fisherwomen fishing in the lake in Senegal

Source: Longreads, 2020

These images (Figure 4-2 and 4-3) show that women do participate in traditional fisheries. However, literature affirms that women in fisheries have been marginalized mainly because they were invisible for the outside world. Furthermore, women's contribution in traditional fisheries is given little attention since they only occasionally own vessels or work on board fishing vessels (Frangoudes and Gerrard, S., 2019, p. 3).

4.3.4 Barriers to sustaining entrepreneurship

Gender inequality and marginalisation of women in the fishery sector challenges the socio-economic and environmental sustainability of the traditional fishery communities (Koralagama, Gupta and Pouw, 2017, p. 3). According to Mangubhai and Lawless (2021) women's contributions to the ocean economy are shaped by the historical background which presents commercial and high-value fisheries dominated by men, and subsistence and low-valued fisheries dominated by women. Furthermore, gender inequalities influenced by cultural norms and social expectations of women has led to exploitation of women in the fishery sector. The exclusion of women in decision-making platforms has led to inequitable access to natural, social and material resources (Ajala, 2016, p. 3). Consequently, the marginalisation of women in the fishery sector has negative impacts in communities and coastal management outcomes. Women face challenges in an attempt to enter and sustain entrepreneurship in the traditional fishing industry. For example, in Zambia more women than men stop fishing businesses because of lack of capital, other better business opportunities, and issues pertaining to assets and norms (Kleiber *et al.*, 2017, p. 740). In addition, traditional fisheries in the central part of Kerala have greater challenges for women to

pursue fishing entrepreneurship (Gopal, Edwin and Meenakumari, 2014). Furthermore, in West African countries such as Ghana, Niger, Benin and Gambia, women traditionally occupy low-paid jobs, such as unloading, drying and processing the fish. Whereas, men often perform responsibilities related to technology, finance for enterprise expansion, and transport. Therefore, it seems like the gender roles and social norms present cultural barriers to most women in fishery communities in Africa. Consequently, women are often encouraged to perform more domestic duties such as child rearing, marriage, and household maintenance (Farnworth *et al.*, 2015, p. 265). In addition, it is evident that the technological fishing production methods used by commercial companies lead to the exclusion of women from fishing activities. Therefore, in that process of transformation, women are still completely excluded from fishing operations which perpetuate gender inequality.

4.3.5 Ways to empower women in fisheries and aquaculture

Serious processes to deal with gender inequality in the fisheries sector have been strengthened by the Food and Agriculture Organization of the United Nations (FAO) when it adopted the Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication. It provides consensus principles and guidance to improve the management of small-scale fisheries (FAO, 2015). There are various ways to empower women in the fishery and aquaculture industry. These include the efficient implementation of the voluntary guidelines from FAO which were just mentioned. Empowerment also includes application of a long-term bottom-up process informing socio-economic policies. Moreover, yet another way is development of traditional fisherwomen through obtaining skills trainings in fishing cooperatives. Lawless, Cohen, Mangubhai, Kleiber and Morrison (2021, p. 3) regard gender equality as a principle that drives good environmental governance and sustainable development in the coastal countries. For example, food security for coastal countries is threatened by costs of gender inequality as it leads to reductions in agricultural productivity and causes economic losses and ineffectiveness of environmental management interventions.

The fourth principle of the voluntary guidelines from FAO focuses on gender equality and equity as vital to any development. It recognises the important role women play in small-scale fisheries and that equal rights and opportunities should be advocated for in the fisheries sector (Mangubhai and Lawless, 2020, p. 7). Thus, the promotion of gender equality is necessary to attain sustainable fisheries results.

To make sustainable positive changes in gender equality, a long-term bottom-up process requiring adequate funding is needed. Recognising the critical role played by women within fisheries can lead to mechanisms to promote and protect women's rights to participate in all aspects of marine,

coastal and inland water fisheries governance and management. Improved access of women to fish and fish markets can help navigate empowerment (Szymkowiak and Rhodes-Reese, 2020, p. 4). Effective participation of women in decision-making processes on fisheries trade, fisheries management, aquaculture development and investment planning should be ensured at local, regional and national levels. In conflict, women from fishing communities are confined to less visible or “behind the scenes” roles, they usually do not have control over income earned from fisheries’ activities and lack opportunities to hold managerial and decision-making posts (Social Development, 2012, p. 7).

In South Africa, the nine-person women’s fishing cooperative members sell fish to restaurants and manage all steps in the supply chain, from catch to product delivery. They receive training about all steps in the supply chain and have resource monitoring responsibilities and compliance duties in managing the fishery (Reef Resilience, 2016, p. 5). Capacity building and partnerships should be advocated for empowering women, focusing on formal and non-formal education literacy, accounting, soft and technical skills and general life skills and improving access to finance and health services. There is a need for fishing related assistance to open more avenues for women to enjoy the benefits of the fishing activities without dislodging the socio-cultural structures in these traditional fishing communities (Gopal, *et al.*, 2014, p.38).

4.4 Socio-Economic Factors

The semi-commercial fishing activities play a vital function in local economies. However, the activities have underrated economic value to the production and consumption of products and services of some of the world’s poorest nations (Rahman, Alam, Rahman, Mamun and Alam, 2020, p. 6). There is insufficient examination and control of these fishing activities. Traditional fishers continue to stumble to reach their potential as vehicles that facilitate economic success and social change. The theory of well-being advocates for a general strategy for analysing and controlling small scaled fisheries, and accommodates a variety of these fishing activities in the developing world (Brewer and Moon, 2015). There is a great need for policy amendments, development of legislation and scientific research to build resilience and reduce vulnerability of small-scale fishers (Rahman *et al.*, 2020). This could improve socio-economic conditions.

In a study conducted in Ghana by Bennett (2002), it was found that poverty in coastal areas in Ghana is slowly decreasing in spite of challenges faced by the government and coastal communities and recommended that Ghana require serious intervention in order to achieve the goal of sustainable livelihoods in traditional fisheries. There is misalignment of the disregarded traditional management system and the modern management system that mostly influences

national policy related to fishery management. There is also non-functionality of existing institutional arrangements due to political influences.

In a study conducted by Adhuri, Rachmawati, Sofyanto and Hamilton-Hart (2016), in Indonesia, examining the responses of traditional fisheries to a proposed fisheries management initiative by the Indonesian government and possible opportunities for upgrading the value chain in the fishery industry. Furthermore, it was found that the local communities strive to attain sustainability goals and the economy that is equitable and aligned with environmental, social and economic driven.

Another study conducted by Rogerson and Rogerson (2019), found that the South African government’s effort to transform the marine economy through the Operation Pakisa programme will contribute R177 billion to the South African GDP and the creation of one million jobs by 2033. The study indicated that these economic projections aim to unlock the economic potential of the country’s ocean economy although it does not explain Operation Pakisa’s intention to empower rural communities along coastal areas.

The social well-being of fisheries is measured by certain dimensions such as earnings, value of jobs to the community, security of workers, community healthcare status, the community education system status, viability of fisheries for future generations and economic flexibility of fish harvesters (Van Holt *et al.*, 2016, p. 667). These dimensions are shown in Figure 4-4 discussed below.

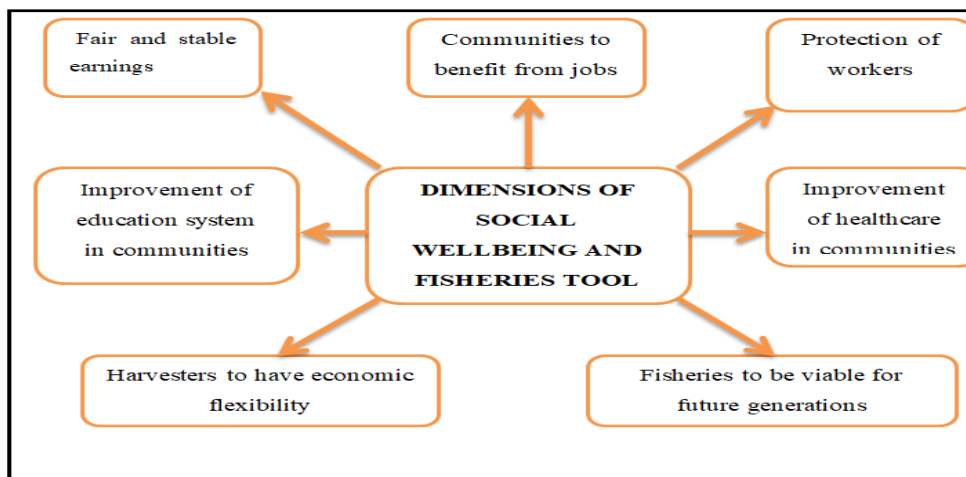


Figure 4-4: Dimensions of social well-being and fisheries tool

Source: Coulthard, Johnson and McGregor, 2011

The attributes shown in Figure 4-4 dimensions of social wellbeing. They are commonly viewed as unique and each dimension contributes to our own sense of wellness or quality of life. Furthermore, each attribute affects and overlaps the others (Britton and Coulthard, 2013, pp. 27-30). Each factor is discussed in the next sub-section.

4.4.1 Fair and stable earnings

Wages are a standard economic dimension of well-being. If individuals working in the fisheries industry are remunerated below the standard wage, it clearly means that social inequality is being promoted at the detriment of the human capital. If the human capital in the fishery sector's average earnings are lower than the standard, then the fisheries are not providing an acceptable living (Van Holt, et al., 2016, p. 668). The norm is that fishers are expected to get salaries/wages which are higher than the national minimum wage except in countries where wage standards are set by collective bargaining or in instances where minimum wage is not available. Contrary to this, most coastal fishing communities are poor and are living with unsatisfactory levels of poverty because their average monthly income is far below the poverty level, and this is a clear indicator that it is very difficult for them to live decent daily lives (Norizan, 2017, p. 23). In small-scale fisheries where fishers work independently or in small groups, landings-based data on stability or increase in price/unit actually paid to fishers for catches over a five-year period is a direct, accessible measure, that can be substituted as a minimum wage.

4.4.2 Communities to benefit from jobs

A relatively good measure for jobs benefiting the community is whether more than 50% of the harvesting and primary processor human capital is based in the fishery region in comparison to the outsourced or migrant workforce (McNulty, 2019, p. 1). It is assumed that the local human capital means that a lion's share of the fishery wealth and other benefits remain in a fishing community. Contrary to this, the workers in the fishing communities are poorer and more exploited than other land-based agriculture and food-producing communities and they are seen to be the 'outliers' and have lower human development indicators than the averages which prevail in their respective countries (Santhakumar, Kurien and Devi, 2018, p. 11). Most of them work for long hours under very strenuous conditions and are paid very low wages or salaries. Lowering local employment by processing fish in another country may negatively impact on local well-being by narrowing the national revenue base and decreasing political leverage for necessary social services. In addition, the low employment in many countries is perpetuated by declines in the rate of reef fish catches due to the degradation of coral reefs (Zamzami and Effendi, 2020, p. 3). That means the degradation of reef enhances ecological loss and economic decline which affect the livelihood of coastal communities. For instance, the Australian government encouraged the inclusion of social interventions in terms of improving local socio-economic and cultural dimensions of fishing communities (Busilacchi, Russ, Williams, Sutton and Begg, 2013, p. 53), indicating the hardship experienced by members of these communities.

South Africa's newly amended PSSF allocates collective commercial rights to small-scale fisheries through cooperatives, encouraging fishers to work together to pursue legal and economically viable livelihoods and reverse the fragmentation under the previous system of individual permits that excluded them from the formal fisheries sector (Reef Resilience, 2016, p. 3). The Indonesian policy initiatives, on the other hand, aimed to empower the local traditional fisheries. The Indonesian government presented possible opportunities for upgrading value chain in the fishery industry and present challenges for sustainable fisheries management. On the contrary, according to Rodrigues and Villasante (2016) the coastal rural population of Cape Verde is dependent on ocean resources for food security and livelihood. It is evident that most small-scale fisheries are excluded on the country's economic value chain which has a negative impact on employment creation for rural communities.

According to Rogerson and Rogerson (2019, p. 24) the South African government effort to transform marine economy through Operation Pakisa programme has been moving at a slow pace. Hence, the government made the commitment that by 2033 South Africa's oceans' economy should contribute R177 billion to the South African GDP and the creation of one million jobs. These economic projections aim to unlock the economic potential of the country's ocean economy. However, it is not clearly presented how the Operation Pakisa programme intends to empower rural communities along coastal areas. Therefore, Operation Pakisa seems to focus more on the high-level strategic planning and neglects its implications on the ground that might impact rural communities.

4.4.3 Protection of the workers

The best direct dimension of basic labour force protection is the availability and enforcement of a legitimate legal regime at the national level which encompass the rights to strike and freedom of collective action. The presence of grievance structures can be verified either through active fishing organisations which are common in small-scale fisheries or a formal structure with employers or local regulations that explain grievance mechanisms (Van Holt, et al., 2016, p.670). In contrast, the life of the workers aboard fishing vessels is very difficult and strenuous because they endure isolation, confinement, boredom, monotony, tension with workmates, long working hours, heavy and complex workloads, are deprived of a good sleep and all this is worsened by physically demanding work under very exploitative conditions (International Labour Organisation, 2016, p.9).

4.4.4 Improvement of healthcare in the community

Children are the most vulnerable in any population or community. The fourth goal of the SDGs of the United Nations advocates for the reduction of the under-five mortality rate by two thirds, between 1990 and 2015. In contrast, healthcare has remained on the periphery for most fishing communities in developing countries, and poor health has serious negative implications on these communities' social integrity, economic viability and environmental sustainability (Woodmead, Abernethy, Szaboova and Turner, 2018, p. 840). Furthermore, the effects of ill health are worsened by the self-employed nature of most people in the fishing communities who are paid on a catch share basis. Child mortality under five years old is one of these virtually universal measures regularly collected at the national level, and sometimes at regional and finer resolution (Van Holt, *et al.*, 2016, p.670). Since the under-five mortality rate may differ across areas of large fisheries that include many geographic regions, the evaluator is expected to take the highest under-five mortality rate of all regions associated with the fishery. Faced with the obstacle of this performance measure, global production networks may be encouraged to create new partnerships with public health and other agencies (Reef Resilience, 2016, p.3). Corporate Social Responsibility reports can be used to point out legitimate programmes to improve local health which are initiated or supported by the seafood industry.

4.4.5 Improvement of the education system in the community

This dimension focuses on children and the community rather than education levels among the fishery workers and this has its foundation on the second goal of the SDGs of attaining universal primary education. According to FAO (2016, p.13), more accessible and better oriented literacy and education programmes for fishing communities will improve their livelihoods while diversifying their income-generating activities. Nayak, Oliveira and Berkes, (2014, p. 5) claim that subsistence commercial fishing activities usually perpetuate poverty and deviation from economic activities. It promotes exclusion, exploitation and discrimination of marginalised communities from decision-making processes (Jerry and Raissi, 2012, p. 220). This is caused by factors such as poor service delivery, high levels of illiteracy, and absence of proper political leadership in fishing communities, which appear to have been embraced and normalised by these impoverished communities.

Fishing communities are often disadvantaged when it comes to education due to geographical and social marginalisation because education providers are usually reluctant to provide services tailored to mobile and migratory populations which include many fishing communities (FAO, 2009, p. 20). Such a scenario is a great set back to the fishing communities because literacy and education are crucial for fisheries management, environmental

conservation and livelihoods diversification. The fishing communities should be given appropriate education to deal with navigation, microfinance and use new information and digital technologies. The boys and girls of fishing communities may not have a conducive environment for learning in their homes due to the levels of poverty and are in most cases encouraged to participate in fishing at a relatively young age (Santhakumar, Kurien and Devi, 2018, p. 11).

4.4.6 Fisheries to be viable for future generations

In communities where fishery employment is seen as a potential source of sustenance, women and men accord worthiness to the fisheries. However, in most fisheries women play a critical role and are the majority of workers in seafood processing, but they are poorly remunerated and given a low status. According to Schuhbauer and Sumaila (2016, p. 70) fisheries are prone to uncertainty because of unpredictable changes in the environment, related institutions, economic and social conditions. To ensure productivity and viability of the fisheries resources for future generations all stakeholders should be actively involved in fisheries management and decision-making processes, and take part in programmes that may impact on fisheries resources such as climate change. In contrast, excess carbon dioxide in our atmosphere is changing the ocean in such a way that is negatively affecting fishing communities that rely on fishing activities for their livelihoods (Sustainable Fisheries, 2021, p.4). When the ocean waters and other fish habitats become warmer, fish are compelled to migrate to areas with ocean or habitats that have conducive temperatures for their survival. When fish migrate to deeper and cooler waters or towards the poles, it means disaster for future fishing generations.

4.4.7 Harvesters to have economic flexibility

The fact that fishers' freedom to sell their catch to whomever they choose is not being experienced because harvesters are locked into one buyer or loan type means there is no economic flexibility (Yildirim and Kaplan, 2020). Such practices may lead to unfair lending regimes and other exploitation by intermediaries leaving fishers more vulnerable to cope with economic and social challenges (Narayanakumar, 2012, p. 307). For fishers to attain economic flexibility they need to have access to a large number of loan types at good rates which do not exceeds government rate. This would mean that fishers would remain with some money to re-invest into their businesses.

According to Reef Resilience (2016, p. 2), traditional fishers in South Africa has been characterised by a system in which individual fishers are at the mercy of supply-chain middlemen and have no control over the prices they receive for their diminishing catches. Consequently, this could lead to authorities working hard to shorten the value chain so that fishers have greater

access to markets at better prices (Hamilton-Hart and Stringer, 2016, p. 168). This further argues that it was done by putting in place new legislation which gave commercial fishing rights and marine management responsibilities to small-scale fishers (Qasim, Qasim and Nazir, 2020, p. 183). To improve their incomes, fishers expanded their efforts by putting increased pressure on the area's overexploited marine resources. Based on the theories discussed in Chapter Three and Four, against the backdrop of the worldviews in Chapter Two, the next section introduces the meta-theoretical framework.

4.5 Meta-theoretical Framework

A meta-theoretical framework approaches a complex social phenomenon which requires two or more theories to fulfil an aim of the study (Fleetwood, 2008, p. 7). Meta-theory “is primarily the study of theory, including the development of overarching combinations of theory” (Mayo *et al.*, 2017). Of the theories earlier discussed, stakeholder theory, theories of well-being, ethnography theory and ecological theory are used to study governance, socio-economic, cultural and environmental management objectives respectively. In addition, the concept of policy implementation is part of the meta-theoretical framework. Figure 4-5 depicts the meta-theoretical framework.

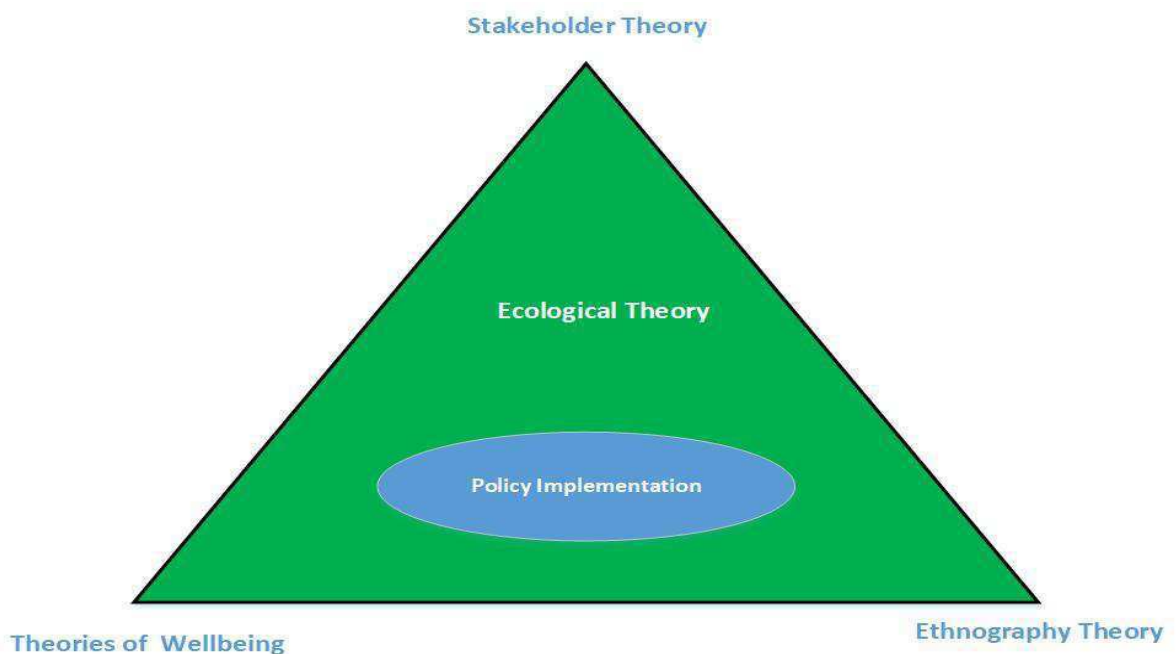


Figure 4-5 The meta-theoretical framework for this study

Sources: Hauck, M., 2008; Jentoft and Johnsen, 2015; Young, Foale and Bellwood, 2016; Palmer, Zedler and Falk, 2016 and Jentoft, McCay and Wilson, 2010

As Figure 4-5 shows, this study encompasses these perspectives and substantiate the MIT-D character of the study. The integration of these theories and the concept of policy implementation seek efficient policy framework, balanced socio-economic indicators, good governance, cultural values and environmental sustainability respectively. The idea is to capture and understand the experiences of traditional fishers and coastal communities to inductively develop theoretical propositions or pattern of meanings throughout the research process (Creswell, 2003, p. 9). Furthermore, both theoretical framework and the paradigmatic framework are aligned to the objectives of the study. The meta-theoretical framework is underpinned by the meta-paradigmatic framework of constructivism, interpretivism and phenomenology using an African epistemological lens.

4.6 Conclusion

In conclusion, Chapter 4 has provided a comprehensive examination of the intricate relationship between traditions, culture, and socio-economic factors in the context of traditional fisheries and rural coastal communities in South Africa. Through our exploration of cultural values, beliefs, and IKS, the chapter highlighted the profound influence of traditions on fishing practices, resource management strategies, and community resilience. In recognition of the importance of cultural heritage and indigenous wisdom, the study underscores the need to integrate traditional knowledge into contemporary fisheries management approaches, promoting sustainability and cultural preservation.

Furthermore, chapter's analysis of gender disparities within the traditional fishing industry has shed light on the systemic challenges faced by women, who continue to be marginalized and excluded from economic opportunities and decision-making roles. In illuminating these inequalities, the study advocate for gender-inclusive policies and initiatives that empower women and promote gender equity within the fishery sector.

Moreover, our examination of socio-economic factors has revealed the stark realities of economic exclusion and inequality experienced by traditional fishers and coastal communities. Despite their significant contributions to local livelihoods and community well-being, traditional fisheries are often side-lined in economic policies and development agendas, perpetuating cycles of poverty and marginalization. As such, we call for inclusive economic policies that prioritize the needs and aspirations of traditional fishers and coastal communities, fostering equitable and sustainable development.

Finally, the introduction of our meta-theoretical framework has provided a conceptual roadmap for our study, integrating diverse theoretical perspectives and paradigms to deepen our

understanding of traditional fisheries. Rooted in African epistemologies and guided by a multi-disciplinary approach, our framework reflects a commitment to holistic, community-centered research that transcends disciplinary boundaries. Through this framework, we aspire to generate insights and recommendations that contribute to the empowerment and upliftment of traditional fishers and coastal communities, promoting resilience, sustainability, and social justice.

5. CHAPTER FIVE: RESEARCH METHODOLOGY

5.1 Introduction

In this chapter, the researcher delineates the research methodology employed in this study, which serves as the foundation for the investigation. The methodology is carefully crafted to address the complex nuances of traditional fisheries and rural coastal communities, ensuring rigor, validity, and reliability in our findings. Building upon the interpretivist and constructivist philosophical orientations discussed in Chapter Two, the methodology embraces subjective interpretations and acknowledges the socially constructed nature of reality, providing a nuanced understanding of the research context.

To begin, the chapter elucidates research questions, which serve as guiding beacons, illuminating the path towards uncovering insights and generating knowledge. These research questions are intricately linked to our theoretical framework and guide the formulation of our research design, strategy, and instruments. Through a systematic exploration of the research questions, the study aims to uncover multifaceted perspectives and deepen our understanding of traditional fisheries and coastal communities.

Subsequently, the chapter expounds upon chosen research design, articulating the rationale behind our selection and detailing its alignment with our research objectives. The research strategy is carefully crafted to capture the richness and complexity of the study phenomenon, employing a combination of qualitative and quantitative approaches to triangulate data and enhance the robustness of findings.

Moreover, the chapter outlines our data collection methods and instruments, providing insights into how data was gathered and analysed to address research questions effectively. The chapter emphasizes the importance of data quality control measures, ensuring the reliability and validity of our findings. Through meticulous attention to detail and rigorous adherence to ethical guidelines, the study strives to uphold the integrity of our research process.

Furthermore, the study employed the DEJA (Define, Explain, Justify, and Apply) concept to underpin our research methodology, enhancing coherence and consistency across all components (Mthuli, Ruffin and Singh, 2021, p. 6). This approach enables us to define, explain, justify, and apply each methodological component, fostering a comprehensive and holistic understanding of our research approach.

Overall, this chapter serves as a roadmap for our research journey, providing a detailed overview of our methodology and laying the groundwork for the subsequent analysis and interpretation of

the findings. Through a robust and transparent methodology, the study aim to generate insights that contribute to the advancement of knowledge in the field of traditional fisheries and rural coastal communities.

5.2 Examining the Research Questions

The nature of the research questions and the phenomenon under investigation determines an appropriate research methodology (Denzil and Lincoln, 2005). Therefore, research methodology used for an investigation should be able to respond to the research questions. Using an African epistemological analysis of socio-economic challenges and opportunities of traditional fishing communities in KZN coastal areas, this study aims to offer informed recommendations to DAFF and also offer insights into how the traditional fishing industry can be improved to benefit the coastal communities. In this regard, the following questions steered and guided this study:

- What are the complexities driving socio-economic barriers and opportunities for traditional fisheries in KZN, South Africa?
- How can evidence-based knowledge co-created with study participants overcome barriers and advance opportunities for traditional fisheries in KZN, South Africa?
- In what ways can any gaps found in the implementation of PSSF in South Africa be filled to enhance the socio-economic benefits and sustainable livelihoods of the traditional fishery sector?
- How effective is the functionality of governance and institutional framework for the fishery industry in KZN, South Africa as it pertains to African ways of knowing?
- What evidence-based policy framework and interventions for environmental sustainability can be co-created with study participants to improve the operations of the traditional fisheries in KZN, South Africa?

Thus, the focus of the study is not to validate or invalidate a particular hypothesis but rather to generate adequate and efficient data to be analysed with the aim of achieving the research objectives and answering the research questions to address the research problem.

5.3 Research Design: Mixed Method

In alignment with the chosen philosophical stance of Interpretivism and Constructivism, this study adopts a Mixed Methods research design. This approach integrates both qualitative and quantitative methodologies to capture a comprehensive understanding of the socio-economic dynamics and intricacies surrounding traditional fisheries at uMkhanyakude, eThekweni and uGu

district municipalities. By employing a Mixed Methods design, the study seeks to leverage the strengths of both qualitative and quantitative data collection and analysis techniques, thereby enhancing the richness and depth of the research findings.

5.3.1 The mixed method design

Mixed method design is defined as an approach that combines both qualitative and quantitative methods within a single study to address research questions from multiple perspectives and to provide a more comprehensive understanding of the research problem (Dawadi, Shrestha and Giri, 2021, p. 25). The mixed method research design combines both qualitative and quantitative methods for use in a single research project, taking advantage of both their differences and strengths, as well as producing a more comprehensive knowledge base for responding to the research questions (Johnson and Onwuegbuzie, 2004, p.14 and Creswell, 2013, p. 23).

To explain mixed method in the context of the study, mixed method research allows researchers to gather both qualitative insights, such as participants' perceptions and lived experiences, and quantitative data, such as statistical analysis of policy implementation. To further expound selection of mixed method, it is important to recognise Creswell (2013) similar views and posits that mixed methods research design offers more comprehensive understanding of the phenomenon under investigation. It offers a great possibility for generating new ways of understanding the complexities and contexts of social experience, and enhances study capacities for social explanation and generalisation (Bazeley, 2018, p. 335). Therefore, this approach enables a richer exploration of the socio-economic issues affecting traditional fisheries by incorporating diverse perspectives and methodologies.

The use of mixed method research is justified in this study due to the complexity of the research questions and the multifaceted nature of traditional fishery issues. Qualitative methods provide depth and context to understanding participants' experiences and perceptions, while quantitative methods offer statistical analysis to assess policy implementation and its impact. By integrating both approaches, the study can generate more robust findings and insights. The use of the mixed methods approach in this study provided an opportunity to address both the research questions and a theoretical perspective at different levels. On the one hand, the quantitative component assisted the study in addressing the research questions pertinent to the SSFP implementation with surveys conducted to middle and senior management of DFFE and its stakeholders. On the other hand, the qualitative component assisted the study to explore the perceptions of the participants guided by the questions pertinent to socio-economic issues that are experienced by traditional fisheries.

In the application of mixed methods in the study, surveys were conducted with middle and senior management of the DFFE and stakeholders to gather quantitative data on policy implementation, such as the effectiveness of the SSFP. These surveys provided statistical insights into the extent to which policies were being implemented and their impact on traditional fisheries. Concurrently, qualitative in-depth interviews and focus groups were conducted with traditional fishers, traditional leadership and community members to explore their lived experiences and perceptions regarding socio-economic barriers and opportunities within the traditional fishery sector. These qualitative data enriched the understanding of the contextual factors influencing traditional fisheries, such as access to resources, socio-economic challenges, and the role of indigenous knowledge systems. By integrating quantitative and qualitative approaches, the study was able to capture a comprehensive view of the complex issues surrounding traditional fisheries, ultimately informing more effective policy interventions and development strategies.

5.3.2 Alignment of the meta-paradigmatic framework with the research design

As discussed in Chapter Two, the integration of constructivism, interpretivism, and hermeneutic phenomenological philosophies serves as the cornerstone of the study, enriched by an African epistemological lens. This integration establishes a robust paradigmatic foundation that shapes the study's worldview, ensuring that the subjective perspectives of the participants are accurately and comprehensively represented. By amalgamating these paradigms, the study achieves a nuanced understanding of the complex socio-economic, cultural, and environmental dynamics within the context of traditional fisheries in KZN. The strength for each paradigm supplements weaknesses for other paradigms of the study. Morrell-Scott (2018, p. 27) defines the hermeneutic phenomenological approach that is designed to understand social realities or people's experiences of social realities. Hermeneutic phenomenological design is a research design that focuses on finding meaning out of lived experiences of study participants (Churchill, 2018, p. 207). Experiences and reflections of study participants enable the researcher to interpret and understand deeper meanings or significance of the complex nature of a particular phenomenon as a human experience (Peat, Rodriguez and Smith, 2019, p. 7). Therefore, the study applied the three different data collection methods for this research, namely, individual in-depth interviews, group interviews and the POM to understand and capture lived experiences of traditional fishers and coastal communities. The qualitative component of the study was implemented applying a hermeneutic phenomenological strategy whereby the researcher conducted in-depth interviews and participatory observation with targeted traditional fishers, civil society, members of traditional leadership and coastal communities. The application of this design provides guidance to the study on finding solutions to socio-economic, socio-cultural and environmental issues affecting traditional fishers and coastal communities. As mentioned in Chapter Two, a

hermeneutic phenomenological design is aligned with African epistemologies as it is characterised by interpretation and understanding of lived experiences of South African traditional fishers and coastal communities. Furthermore, the design aims to identify patterns or relationships from data collected, and draw conclusions (Barsoum, 2022, p. 2).

5.4 Research Strategy

A research strategy is regarded as a comprehensive plan for conducting a research study which aims to guide a researcher in planning, implementing, and executing the plan (Hancock and Algozzine, 2017, p. 35). Since this study employed a mixed methods approach, guided by its research questions, aims and objectives into its African epistemological analysis of socio-economic challenges and opportunities of traditional fishing communities in KZN coastal areas, the study applied a non-experimental and hermeneutic phenomenological research strategy. This strategy assisted this study to evaluate the socio-economic challenges and opportunities of traditional fishing communities in KZN coastal areas through the African epistemological lens or perspective at different levels of knowledge interpretation and analysis

The quantitative component of the study employed a non-experimental design as a research strategy. Non-experimental research strategy is defined as a methodological approach that does not involve manipulation of variables or control over experimental conditions (Cresswell, 2013, p. 211). According to Radhakrishnan (2013, p. 25) a non-experimental research strategy design which assists the researcher to observe the phenomena as they occur naturally without introduction of any external variables. It is a research design that applies a set of decisions that make up the methods and procedures for collection and analysis of data. To explain this means the approach allowed for the gathering and quantification of diverse perspectives from identified organizations to assess the SSFP. The non-experimental design facilitated the collection of data from multiple sources, offering a comprehensive view of the implementation and effectiveness of the SSFP. Moreover, the study applied the non-experimental research design through descriptive and correlational expression by means of describing the assessment of the impact of PSSF on the development of traditional fisheries. It further describes a relationship between dependent and independent variables without any interference from the researcher. The relationships are operationalised in Section 5.5.5 and 5.6.5. The application of a non-experimental or survey research strategy was intended to help establish reliability and validity in the research to ensure that the findings of the study are either generalisable or transferable.

Conversely, the qualitative component of the study applied a hermeneutic phenomenological research strategy. Hermeneutic phenomenological research strategy is defined as an empirical approach which collect lived experiences and reflect on analysis of their meanings or activities (Suddick, Cross, Vuoskoski, Galvin and Stew, 2020, p. 16). This approach aimed to uncover the

intricate layers of meaning embedded in the experiences of traditional fishers, providing insights into their cultural, social, and economic contexts. To explain this means the hermeneutic phenomenological approach facilitated a rich exploration of the lived realities of traditional fishers, allowing for a more nuanced understanding of their perspectives and challenges.

The selection of the non-experimental design was justified by the need to systematically gather data from various stakeholders involved in the implementation of the SSFP, enabling a comprehensive assessment of its efficacy. This design also allowed for the quantification of data, providing empirical evidence to support findings and recommendations. On the other hand, the choice of hermeneutic phenomenological research strategy was justified by its suitability for exploring the subjective experiences and perspectives of traditional fishers, aligning with the study's aim to understand the lived realities of this marginalized community.

In application, the non-experimental design facilitated the administration of surveys to DFFE senior and middle management officials involved in fisheries management, assisted in generating quantitative data on the assessment of SSFP implementation. Meanwhile, the hermeneutic phenomenological approach guided in-depth interviews and participant observation sessions with traditional fishers, traditional leadership and community members, capturing their lived experiences and perspectives in their own words. Together, these research strategies complemented each other, providing a comprehensive understanding of the complex dynamics surrounding traditional fisheries in KZN, South Africa.

5.5 Quantitative Methods and Instruments

In the quantitative methods and instruments section, a detailed examination is provided on several crucial aspects of the quantitative research process expanding from what is discussed in Section 5.3. First and foremost, the section sheds light on the identification of the target population, delineating the specific demographic or group under investigation within the context of the study. This involves defining the relevant characteristics or criteria that determine inclusion in the population of interest.

Following the identification of the target population, the section elaborates on the sampling procedure and recruitment strategy employed to select participants for the study. This encompasses the methods utilized to select a representative subset of the target population, ensuring that the sample is adequately diverse and reflective of the broader population. The recruitment strategy delineates the approach taken to enlist participants and gather data, whether through random sampling, stratified sampling, or other methodologies tailored to the research objectives.

Additionally, the section addresses the determination of the appropriate sample size necessary to yield statistically significant results. This involves considerations such as the desired level of confidence, margin of error, and anticipated effect size, all of which influence the size and composition of the sample.

Furthermore, the section delves into the specifics of data collection and the instruments utilized for the quantitative component of the study. This encompasses the methodologies employed to gather data from the selected participants, whether through surveys, questionnaires, structured interviews, or other standardized instruments. The section also discusses the reliability and validity of these instruments, ensuring that they effectively capture the intended variables and produce reliable data.

Finally, the section outlines the operationalization of study variables for the quantitative component, elucidating how abstract concepts or constructs are translated into measurable and observable indicators. This involves defining each variable in precise and concrete terms, as well as outlining the metrics or scales used to quantify them. By operationalizing study variables, researchers ensure clarity and consistency in data collection and analysis, facilitating the generation of meaningful insights and conclusions from the quantitative data.

5.5.1 Target population

Dahabreh and Hernán (2019, p. 720) define a target population as an entire population, or group, that is of interest to the researcher for addressing the research problem, research questions and research objectives. A target population is the entire set, which is considered qualified for being sampled and for data analysis (Stratton, 2021, p. 373). The quantitative component of this study collected data from various divisions of (1) Department of Forestry, Fishery and Environmental Affairs (DFFE), (2) Department of Economic Development, Tourism and Environmental Affairs (EDTEA), (3) Department of Cooperative Governance and Traditional Affairs (Cogta), (4) Ezemvelo Wildlife and (5) Future Leaders of Change (FLC).

The selection of these organisations as the target population is justified because of their pivotal role in the governance and management of fisheries resources in South Africa, making it the key stakeholders in the implementation of policies such as the SSFP. As such, studying the perspectives and experiences of individuals within the DFFE provides valuable insights into the efficacy and challenges of policy implementation from an institutional standpoint. Furthermore, these DFFE serves as a focal point for interactions between government agencies, non-governmental organizations (NGOs), and local communities involved in fisheries management. As such, studying the DFFE allows for an examination of the dynamics and relationships shaping policy implementation within a broader socio-political context, shedding light on the interplay

between different actors and interests. Therefore, the selection of the DFFE as the target population is justified by its central role in fisheries governance, its diverse stakeholder composition, its position within broader socio-political dynamics, and its status as a source of specialized knowledge and expertise. By focusing on the DFFE, the study can generate valuable insights into the implementation of the Small-Scale Fisheries Policy in South Africa and contribute to a deeper understanding of policy processes and outcomes in the context of natural resource management.

The application of selecting these organizations as the target population of the quantitative study lies in their significant roles in implementing the SSFP across various governmental levels. Consequently, surveys were distributed to senior and middle management within these organizations, as indicated in Table 5-1, which outlines the total number of individuals comprising the target population.

Table 5-1: A detailed breakdown of the survey target population

Target Population						
Respondents	National Government	Provincial Government	uMkhanyakude District Municipality (North region)	eThekweni Metro (Central region)	uGu District Municipality (South region)	TOTAL
Senior Management	40	50	35	35	35	195
Middle Management	110	200	115	115	115	655
TOTAL	150	250	150	150	150	850

The target population for national government was 150 which comprised of 40 senior management and 110 middle management officials as presented in Table 5-1. The target population for provincial government was 250 which comprised of 50 senior management and 200 middle management officials. The target population for local government was 450 which consisted of 105 senior management and 345 middle management officials. The target population for senior and middle management in local government was equally spread to all 3 districts, to 35 senior officials per district and 115 middle management officials per district.

5.5.2 Sampling procedure and recruitment strategy

Probability sampling procedures were employed to sample government officials as participants. The study applied the stratified sampling for quantitative methods. Probability sampling defined as a sampling technique where each member of the population has a known chance of being selected for the sample, ensuring a fair representation of the entire population (Gronsbell, Liu,

Tian and Cai, 2020, p. 31). In this study, the researchers employed a specific probability sampling method known as stratified sampling for the quantitative component. Stratified sampling method is defined as a technique which divides a population into distinct subgroups or strata based on certain characteristics that are relevant to the research objectives (Arieska and Herdiani, 2018, p. 2).

To explain the selection of a stratified sampling, the researcher aimed to capture a diverse range of quantifiable perspectives, thus enhancing the validity and generalizability of the study findings. Additionally, stratified sampling allows for more precise estimates and comparisons within each subgroup, enabling a more nuanced analysis of the data. Overall, the selection of stratified sampling was driven by the need to obtain a comprehensive understanding of the issues surrounding the implementation of the SSFP across different organizational levels and contexts.

Justifying the selection of stratified sampling for this study hinges on the need to ensure representative sampling across various segments of the target population. By dividing the population into spheres of government, the researchers aimed to capture the diversity of quantifiable perspectives responsible for implementing the SSFP. This methodological approach allows for more accurate estimations and comparisons within each stratum, thereby enhancing the validity and reliability of the study findings. Moreover, by stratifying the sample, the researchers can address potential sources of bias and ensure that each subgroup is adequately represented, minimizing the risk of overlooking important insights or perspectives. Ultimately, the use of stratified sampling aligns with the study's overarching goal of obtaining a comprehensive understanding of the complexities surrounding the implementation of the SSFP within a context of national, provincial and local government.

Application of stratified sampling in this study involved first identifying key stratification variables such as traditional fisheries development, socio-economic opportunities, socio-economic barriers, functionality of governance, institutional sustainability and environmental sustainability, which were deemed critical for capturing the diverse perspectives within the target population of government officials. Subsequently, the researchers allocated proportional sample sizes to each stratum based on its relative importance and prevalence within the population. For instance, larger strata with more government officials were assigned a greater number of survey participants compared to smaller strata. Following this allocation, the researchers employed random sampling techniques within each stratum to select participants, ensuring that every individual within the target population had an equal chance of being included in the sample. This rigorous approach to sampling not only facilitated the collection of representative data but also enabled the researchers to analyse and compare findings across different strata, thereby enhancing the robustness and generalizability of the study results. Therefore, the application of stratified

sampling methodology was instrumental in achieving a nuanced understanding of the various factors influencing the implementation of the SSFP across different organizational contexts within the government.

The researcher sent recruitment flyers (Annexure 1) by email to the targeted population to request their participation in the study. The recruitment flyer clearly explained the purpose of the study, protocol summary, basic eligibility criteria and study site locations. As a recruitment strategy, the study made use of the emails to recruit participants as the targeted population had suitable resources. Moreover, this strategy was informed by the restriction imposed by the Covid-19 pandemic, which saw most of the workforce working remotely and out of office. This made personally administering surveys unrealistic. Therefore, the use of emails for survey distribution allowed for a broader reach and effective response turnout because they are non-threatening, non-intrusive, and participants are not put under much pressure. It was easy to compile a list of potential participants considering that all the organisations targeted by this study had adequate basic contact information online, including names, positions, and email addresses of their senior and middle managers.

However, this was a daunting task as it required the researcher to devote considerable amount of time, not only during the planning phase but also in executing and tracking the responses. In this regard, the researchers set aside more than three weeks gathering the list of potential participants, writing the emails, sending out initial emails and then final and revised emails and replying to participants. To judge how the potential participants would respond to the recruitment emails, the researcher first sent a smaller number of emails, and the response was poor. The poor response was attributed to potential lack of trust and authority to compel potential participants to participate in the study. This was deduced from the fact that the initial messages did not have a gatekeeper's letter; however, the revised messages had no other revision besides an inclusion of a gatekeeper's letter attached. This reasonably encouraged participation. Furthermore, the researcher kept a spreadsheet tracking all the potential, confirmed and responsive participants.

5.5.3 Sample Size

Sample size is defined as the number of subjects or units included in a research study. It is a crucial aspect of research methodology as it directly impacts the reliability and validity of study findings (Arieska and Herdiani, 2018, p. 4). It is a crucial component of research design as it directly impacts the accuracy and generalizability of study findings. In quantitative research, a larger sample size generally increases the reliability and statistical power of the study, allowing for more accurate estimation of population parameters and stronger inferential conclusions (Stratton, 2021, p. 373). Conversely, a smaller sample size may compromise the validity and generalizability of study findings, as it may not adequately represent the diversity and variability

within the population (Dawadi, Shrestha and Giri, 2021). Therefore, careful consideration of sample size is essential to ensure that research findings are both valid and reliable.

To explain this, it is important to acknowledge sample size as a critical aspect of research design as it directly influences the reliability and validity of study findings (Dahabreh and Hernán (2019, p. 722)). In this study, the selection of sample size was driven by the need to achieve a balance between precision and practical constraints. Several factors were considered in determining the sample size, including the research objectives, the level of confidence desired in the study results, the anticipated effect size, and the available resources such as time and budget. By carefully considering these factors, the researchers aimed to ensure that the sample size was sufficient to yield statistically significant results while also being feasible within the constraints of the study.

In justifying the sample size, researcher balanced the need for statistical power and precision with practical constraints such as time, budget, and available resources. A larger sample size generally increases the precision of estimates and enhances the statistical power of the study, allowing for more robust and reliable conclusions to be drawn (Lakens, 2022, p. 2). Additionally, a larger sample size can help mitigate the effects of sampling error and increase the generalizability of study findings to the broader population (Serdar, Cihan, Yücel and Serdar, 2021, p. 28). However, increasing the sample size also incurs higher costs and may require more time and resources for data collection and analysis. Conversely, a smaller sample size may be sufficient for exploratory studies or when resources are limited, but it may result in less precise estimates and limited generalizability of findings (Dawadi, Shrestha and Giri, 2021). Therefore, the selected sample size should strike a balance between statistical rigor and practical considerations to ensure that the study findings are both meaningful and applicable to the research context.

In applying the selection of sample size for the quantitative component of the study, the researcher employed a systematic approach to ensure statistical rigor and reliability of the findings. By adhering to established guidelines proposed by Adam (2020) and Krejcie and Morgan (1970), the researcher maximized the variance and produced the maximum sample size feasible within the constraints of the study. This approach involved utilizing a formula that considers factors such as population size, margin of error, and standard deviation to calculate the optimal sample size. By following this methodological framework, the study aimed to obtain a representative sample that would enable meaningful analysis and interpretation of the socio-economic challenges and opportunities faced by traditional fishing communities in the specified districts. The formula utilized for determining the sample size is $S = (z^2 * d * (1 - d)) / e^2 / 1 + (z^2 * d * (1 - d)) / e^2$, where S represents the sample size, P denotes the population size, z signifies the z-score, e indicates the margin of error, and d represents the standard deviation.

As a result, the researcher conducted a total of 125 surveys with government officials from the national, provincial, and local spheres of government. This sample was divided into three subgroups, comprising 25 officials nationally, 25 officials provincially, and 75 officials locally, as illustrated in Table 5-2.

By employing the recommended formula and ensuring representation from various levels of government, the study aimed to obtain a diverse and comprehensive perspective on the implementation of policies and programs affecting traditional fishing communities in KZN. This approach enabled the researcher to capture a broad range of insights and experiences, thereby enhancing the validity and reliability of the quantitative data collected.

Table 5-2: A breakdown of the survey respondents

Surveys						
Government sphere	DAFF (National)	DAFF (Provincial)	uMkhanyakude (Local)	eThekwini (Local)	uGu (Local)	TOTAL
Respondents	25	25	25	25	25	125

The sample population for local level is further equally subdivided and spread into three district municipalities, namely, uMkhanyakude, eThekwini, and uGu districts as presented in Table 5-2. Therefore, the study surveyed 25 local officials per district for each of the three district municipalities. The fishery sector comprises an organisational structure that has more role players at the local sphere of government. Consequently, the local sphere of government consists of more fishery officials compared to the national and provincial spheres of government. The surveys were administered through emails.

5.5.4 Data collection and instruments for quantitative component

The data-collection instruments for this study necessitated the use of surveys to gather information from the targeted sampling population. These surveys served as essential tools for capturing quantitative data on various socio-economic aspects pertinent to the research objectives. Through structured surveys, the study aimed to systematically collect insights from government officials.

5.5.4.1 Quantitative data collection methods

Quantitative data collection methods are defined as a gathering numerical data that can be analyzed statistically to test hypotheses or gain insights into the research topic (Boeren, 2018, p. 63). These methods often utilize tools such as online surveys and questionnaires with multiple-choice questions, making them convenient for collecting large amounts of data efficiently (Fernando and Touriano, 2018, p. 286). The alignment of data collection instruments with the research questions and objectives enhances the content validity of the quantitative study. By

deriving variables from the constructs, the study ensures that the data collected accurately reflects the intended concepts, thereby increasing the credibility and relevance of the findings.

To further explain quantitative data collection methods, it involves systematic approaches to gathering numerical information that can be analysed using statistical techniques. These methods aim to quantify phenomena, allowing researchers to measure variables and test hypotheses objectively (Arieska and Herdiani, 2018, p. 4). However, quantitative data collection for this study employs structured instruments such as surveys, which provide standardized responses that can be easily analysed and compared. By employing precise measurement tools, researchers can gather data efficiently and systematically, ensuring consistency and reliability in the results.

Selection of quantitative data collection methods is justified because it provides a systematic and objective means of gathering numerical information about the phenomena under investigation (Lakens, D., 2022). The use of structured instruments such as surveys allow for the collection of standardized data, facilitating rigorous analysis and comparison across different groups or variables (Serdar, Cihan, Yücel and Serdar, 2021, p. 28).

The application of quantitative data collection methods in this study involved the administration of structured instruments, namely surveys and questionnaires, to gather numerical data from the target population. These instruments were carefully designed to align with the research questions and objectives, ensuring that the data collected would be relevant and informative for addressing the study's aims. The study gathered the quantitative data from various divisions of DFFE, EDTEA, COGTA, Ezemvelo Wildlife and FLC, using surveys (Annexure 2). There were 150 surveys that were distributed to the sampling population using the emailing system to leverage the targeted number of respondents. Annexure 2 was used as the primary data collection instrument to source the quantitative data. There were 125 surveys that were returned by the targeted respondents.

While a pilot study was not feasible due to constraints, alternative measures were implemented to uphold the validity and reliability of the survey instrument. Notably, thorough pre-testing of the survey questions with a small sample of participants was conducted to identify any ambiguities, inconsistencies, or issues with comprehension.

5.5.4.2 Surveys

The surveys is defined as a structured instruments used in research to gather data by presenting a series of questions to participants. These questions are typically designed to collect specific information relevant to the research objectives and are administered in a consistent manner to ensure reliability and validity (Mazhar, Anjum, Anwar and Khan, 2021, p. 7). Surveys can be

conducted through various methods such as online platforms, paper-based forms, or face-to-face interviews, depending on the preferences and accessibility of the participants (Monday, 2020, p. 17). The data collected from surveys are often quantitative in nature, consisting of numerical responses that can be analysed statistically to draw conclusions and make inferences about the research topic.

To explain, this means surveys were chosen as the primary data collection method for this quantitative component of the study due to their versatility, efficiency, and ability to gather quantitative data from a large and diverse sample size (Arieska and Herdiani, 2018, p. 4). Surveys allowed for standardized data collection, ensuring consistency in the questions asked and the format of responses across all participants (Boeren, 2018, p. 63). This consistency enhances the reliability of the data collected and facilitates the comparison of responses across different groups or time points.

In the application of surveys, as outlined by Phellas et al. (2011), offer various administration methods, including telephonic, email, and postal, to collect data from diverse respondents. In this study, surveys were specifically designed and distributed via email to gather information on the implementation of the PSSF and related fishery policies. Surveys were chosen for their ability to reach a broad population, ensure confidentiality, and reduce interviewer bias, in line with O'Leary (2014). The estimated time for completing the surveys was approximately 15-20 minutes per respondent. Additionally, amidst the COVID-19 pandemic, email surveys complied with university and national regulations, allowing for remote data collection. The inclusion of gatekeeper letters and weekly reminders further enhanced response rates and data accuracy. The structure and wording of the surveys were carefully crafted to be brief and unambiguous, following Phellas *et al.*'s (2011) recommendation, ensuring clarity and minimizing misinterpretations in respondents' answers. Moreover, the surveys incorporated a five-point Likert scale to capture nuanced opinions and attitudes, aligning with Bishop and Herron's (2015) assertion that such scales provide insight into respondents' sentiments towards policy aspects under investigation. No significant challenges were encountered during the administration of the survey.

5.5.5 Operationalisation of study variables for quantitative component

Operationalisation of study variables essentially means definition of observable and measurable to validate components of a given construct or behaviour (Dwivedi and Weerawardena, 2018, p. 34). Edmonds and Gudmestad (2018, p. 8) define operationalisation of variables as the study variables which can be measured or expressed quantitatively or qualitatively. According to Tariq (2015, p. 3) operationalisation of study variables intends to combine and provide the methods of reasoning, logic, and ethics to conduct research. The study should be able to test a theoretical

framework by applying variables to conduct any study to obtain results. The study variables should be selected in relation to the theoretical framework supporting the research.

According to Mrabet and Ellouze (2014, p. 60) the quantitative part of research is characterised by dependent and independent variables. On the one hand, traditional fisheries development is a dependent variable which was tested using different independent variables. Consequently, the research measured the outcome from the influence independent variables which caused changes in the value of a dependent variable. On the other hand, an independent variable is characterised by a value which does not change due to the impact of any other variable. Sinclair, Taylor and Hobbs (2013, p. 18) define an independent variable as a variable that a study manipulates or changes, which is assumed to have direct effect on the dependent variable. Whereas, a dependent variable is the variable that is being tested and measured in a study, and is 'dependent' on the independent variable (Micoulaud-Franchi, Quiles, Fond, Cermolacce and Vion-Dury, 2014, p. 6). Therefore, the research derived both dependent and independent variables from the meta-theoretical framework of the study. These variables are aligned to the strategic pillars of the study, that is, stakeholder, ethnography, ecological restoration theories and theory of well-being.

In addition, a researcher manipulates or changes the independent variable to measure its impact on dependant variable (Simovic, Milic-Askrabic, Vuleta, Ibric and Stupar, 1999, p. 120). Furthermore, a researcher operationalises the study variables to enhance construct validity to ensure identification of conceptual abstraction in the study. Therefore, traditional fisheries development is presented to be a dependent variable because the rationale of the study leans along transformation or betterment of traditional fisheries and coastal communities in KZN. In addition, variables such as the socio-economic opportunities, socio-economic barriers, evidence-based knowledge, functionality of governance, institutional sustainability and environmental sustainability were presented as independent variables as the study intended to test and manipulate these variables assuming that they have a direct effect on the dependent variable. Therefore, the study is centred around traditional fisheries development as a dependent variable. The study aims to measure the influence of independent variables such as socio-economic barriers, socio-economic opportunities, environmental sustainability on traditional fisheries development.

Moreover, the study variables were operationalised using a univariate linear regression in Section 6.4. Univariate analysis is defined as a statistical analysis carried out on only one study variable to summarise or describe the variable (Sandilands, 2014, p. 1). This statistical analysis involves only one dependent variable in relation to factors as independent variables. In the univariate linear regression, each study variable was examined using statistics to describe influence of factors contained in each study variable. Subsequently, the multivariate linear regression analysis was

applied to analyse the relationship and influence of the independent variables to the dependent variable of the study. Table 5-3 below presents the independent and dependent variables used for quantitative part of the study.

Table 5-3: The independent and dependent variables in the survey

Dependent variable and its operationalisation	Independent variable	Type of variable	Operationalisation of independent variables
<p>Traditional fisheries development: the study intends to measure observation of the development of traditional fisheries as dependent variable on the basis of inclusion of traditional fishers and coastal communities in economic activities and accessibility of resources to fulfil their socio-economic and socio-cultural desires.</p> <p>Inclusion of traditional fishers and coastal communities in governmental and economic activities in accessibility to resources. (Dummy variable)</p>	Socio-economic opportunities	Dummy variable	The socio-economic opportunities were expressed in the survey as accessibility of job opportunities, financial, educational and physical resources.
	Socio-economic barriers	Dummy variable	The socio-economic barriers were expressed as the impediments of the development of traditional fisheries
	Functionality of governance	Dummy variable	Functionality of governance as an ability of government to be transparent and inclusive of traditional fishers and coastal communities in the decision-making processes.
	Institutional sustainability	Dummy variable	Institutional sustainability as the ability of government, traditional fishers, coastal communities and other stakeholders to conserve natural environment.
	Environmental sustainability	Dummy variable	Defines environmental sustainability as the ability of government, traditional fishers, coastal communities and other stakeholders to conserve natural environment.

The study constructs presented in Table 5-3 embody data collection instruments for qualitative study (Annexures 4, 5 and 6). Therefore, the study developed indicators for measuring these constructs which are conceptualised at the theoretical level by combining indicators at the empirical level representing a given construct or variable (Bryman, 2015, p.152). As a result, the construct validity was strengthened to ensure identification of the causes, effects, and settings are represented in the study. These constructs or variables were measured through the Likert scale which is a multiple indicator, commonly used in social research for investigating attitudes (Bryman, 2015, p. 154). It used the Likert scale items as predictor variables in regression, that is, 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree) and 5 (strongly agree). The rationale of the study expressed the overall challenges for traditional fisheries as the exclusion of traditional fishers and coastal communities from engaging in economic activities and accessing resources to improve the efficiency of their operations and their competitiveness in the South African ocean economy.

5.6 Qualitative Methods and Instruments

In the qualitative methods and instruments section, the study delves into several key aspects, beginning with the identification of the target population. This entails defining the specific group or individuals from whom qualitative data will be gathered, ensuring alignment with the research objectives and questions. Following this, the sampling procedure and recruitment strategy are outlined, elucidating how participants will be selected and recruited to partake in the study. This involves detailing the criteria for inclusion, such as demographic characteristics or professional backgrounds, and the methods for reaching out to potential participants, whether through purposive sampling, snowball sampling, or other techniques.

Moreover, the section addresses the determination of sample size for the qualitative component, considering factors such as the richness of data needed, the scope of the research, and practical constraints. This decision is crucial for ensuring the depth and breadth of insights obtained from the qualitative data collection process. Additionally, the section discusses the data collection methods and instruments employed in gathering qualitative data. This encompasses techniques such as in-depth interviews and focus groups.

Furthermore, the operationalization of study variables for the qualitative component is explored, elucidating how abstract concepts or constructs identified in the research framework are translated into observable and measurable phenomena during data collection and analysis. This involves defining the key constructs, determining indicators or markers of these constructs, and outlining how they will be identified or assessed in the qualitative data. **Target Population**

The qualitative methods and instruments section of the study builds upon the foundation laid out in the previously defined target population, as outlined in section 5.5. This critical aspect of research methodology is revisited to underscore its importance in guiding the selection of participants for the qualitative data collection process.

Justifying the target population for the qualitative component of the study is paramount to ensuring the relevance and effectiveness of the research endeavour. The selection of the target population, as previously defined, is justified by its direct alignment with the research objectives and the specific focus of the qualitative inquiry. By targeting individuals who possess first-hand experience and intimate knowledge of the socio-economic challenges and opportunities facing traditional fishers in the uMkhanyakude, eThekweni, and uGu district municipalities, the study aims to capture rich and nuanced perspectives that can provide deeper insights into the phenomenon under investigation. Additionally, the chosen target population comprises key stakeholders and community members whose voices are integral to understanding the intricacies of traditional fishing practices and their socio-economic implications

Application of the selection of the target population for the qualitative component of the study is vital for ensuring the appropriateness and effectiveness of the research approach. As outlined in Section 5.5, the target population consists of individuals directly involved in traditional fishing activities in the uMkhanyakude, eThekweni, and uGu district municipalities. The qualitative phase of the study collected data through administering in-depth interviews on its target population, which included traditional fishers, civil society members in the community and *Izinduna* at uMkhanyakude, eThekweni and uGu district municipalities. In the context of the study, traditional fishers are members of the community within the jurisdiction of traditional authority that are actively involved in various small-scale, low-technology and low-capital fishing practices undertaken in the ocean. According to Statistics South Africa (2019) the combined population for communities under traditional authority within uMkhanyakude, eThekweni and uGu district municipalities is estimated to be one (1) million. *izinduna* are traditional leaders that serve under overarching traditional authorities called *Amakhosi*. *Izinduna* are mainly responsible for overseeing the affairs of communities in which they are constituents themselves. According to COGTA's 2019 database there are approximately 250 *Izinduna* that are serving within traditional leadership areas along coastal areas of KZN. However, within the study areas of focus, there were 60 *Izinduna* from which a sample size was induced.

The study had an unknown target population for active traditional fishers situated within uMkhanyakude, eThekweni and uGu district municipalities. Therefore, the study relied on the information provided by traditional leadership regarding active traditional fishers within the study area. Civil society members of the community are within the jurisdiction of traditional authorities and those that have knowledge about and interest in traditional fishers were selected. The target population for traditional fishers and civil society members in the area was too broad and unorganised for a certain determination, therefore it remained unknown. One *Induna* from each district municipality offered to be part of the study and agreed to identify targeted traditional fishers and civil society members. Therefore, these *Izinduna* are co-producing knowledge along with traditional fishers and community members with interest in traditional fisheries. These are people who understand dynamic interactions in their respective communities.

5.6.1 Sampling Procedure and Recruitment Strategy

The sampling procedure and recruitment strategy refers to the methodological approach employed to select participants or interviewees for a study. In this context, the non-probability sampling procedure is defined as selection of individuals for interviews based on criteria other than random selection (Stratton, 2021, p. 373). Unlike probability sampling, where every member of the population has a known chance of being selected, non-probability sampling relies on the researcher's judgment or specific characteristics of the population of interest (Gronsbell, Liu, Tian

and Cai, 2020, p. 33). The recruitment strategy outlines how participants are identified, approached, and invited to participate in the study.

To explain, this involved contacting potential participants directly, using referrals from existing contacts. The non-probability sampling procedure was used to select interviewees for the study. Non-probability sampling entails sampling procedures that seek knowledge holders (Acharya, Prakash, Saxena and Nigam, 2013, p. 12). In this regard, the study used the purposive sampling technique. Purposive sampling technique denotes that the researcher uses his discretion to purposively choose the study participants based on the depth of the participants' insight and knowledge of the subject matter under investigation (Plomp, 2013). The researcher posted recruitment flyers (Annexure 3) to various strategic locations within the studied communities. The recruitment flyer clearly explained the purpose of the study, protocol summary, basic eligibility criteria and study site locations. Therefore, the sample population that participated in this study was recruited through strategically placed flyers in accessible locations within the targeted communities. The flyers specified knowledge about the traditional fishery sector as one of the fundamental inclusion criteria.

As an extension of the purposive sampling technique, the researcher employed snowball sampling. According to Creswell (2018), snowball sampling is a recruitment technique in which research participants are asked to assist researchers in identifying other potential subjects. In the context of this study, this included receiving referrals from the participating *izinduna* and being informed by other participants as to who else in the community is knowledgeable about traditional fisheries. To protect the individual's privacy and guide against unethical practices, the recruitment protocol articulated that there shall be no incentives or compensation offered for referrals.

5.6.2 Sample Size

Sample size in a research study refers to the number of participants or cases included in the research sample as discussed in section 5.5. In the context of the qualitative study, the sample size was predetermined to involve a total of 36 in-depth interviews conducted across three district municipalities: uMkhanyakude, eThekweni, and uGu. Each district municipality was intended to contribute 12 study participants, comprising 4 traditional fishers, 4 civil society representatives, and 4 traditional leaders. This sample size was determined based on several factors, including the scope of the research, the diversity of perspectives sought, and the logistical feasibility of conducting in-depth interviews within the designated areas.

The justification for this sample size lies in its ability to provide a comprehensive understanding of the phenomenon under investigation by capturing a range of perspectives from key stakeholders involved in traditional fisheries governance. Additionally, the selected sample size aligns with the resources available for data collection and analysis, ensuring the research remains manageable and within the constraints of the study's timeframe and budget.

Therefore, the application of this sample size ensures the qualitative study can effectively explore the research questions and objectives across the selected district municipalities, yielding rich and insightful data from diverse participant groups. The following Table 5-4 projects the planned in-depth interviews as presented in the research proposal.

Table 5-4: Proposed in-depth individual interviews

Respondents	uMkhanyakude District Municipality (North region)	eThekweni Metro (Central region)	uGu District Municipality (South region)	TOTAL
Traditional fishers	4	4	4	12
Civil society	4	4	4	12
Izinduna	4	4	4	12
TOTAL	12	12	12	36

However, each study participant from the traditional fishers and civil society categories came with friends and family who are also highly active in the fishery industry. Group interviews were not originally proposed. Rather, this occurred in the field and the researcher did not wish to turn away unexpected participants. Therefore, group interviews were conducted in the three district municipalities to accommodate different inputs from the group of study participants. Using an African epistemological lens from a methodological standpoint, the researcher recognised that the participants were organising themselves into ‘talking circles’ which is a type of data collection method used in indigenous research methodologies (Chilisa and Tsheko, p. 223). Therefore, the study conducted 14 in-depth group interviews disaggregated into 62 individuals for traditional fishers and civil society combined, and 21 individual in-depth interviews for *izinduna*. The following Tables, 5-5 and 5-6, depict the actual undertaken in-depth group interviews (or talking circles) and in-depth individual interviews respectively.

Table 5-5: Actual group interviews (or talking circles) conducted

Respondents	uMkhanyakude District Municipality (North region)	eThekweni Metro (Central region)	uGu District Municipality (South region)	TOTAL
Traditional fisheries	1 group X 4 participants 1 group X 6 participants	1 group X 5 participants 1 group X 6 participants 1 group X 6 participants	1 group X 3 participants 1 group X 3 participants 1 group X 5 participants	8 groups (38 people)
Civil society	1 group X 2 participants 1 group X 3 participants	1 group X 7 participants 1 group X 3 participants	1 group X 5 participants 1 group X 4 participants	6 groups (24 people)
Total	4 groups	5 groups	5 groups	14 groups (of 62 people)

Table 5-6: Actual in-depth individual interviews conducted

Respondents	uMkhanyakude District Municipality (North region)	eThekweni Metro (Central region)	uGu District Municipality (South region)	TOTAL
Traditional fisheries	2	1	1	4
Civil society	1	2	2	5
Izinduna	4	4	4	12
Total	7	7	7	21

Considering Tables 5-5 and 5-6 together, 83 individuals participated in either individual or group in-depth interviews.

5.6.3 Data collection methods and instruments for qualitative component

During fieldwork, qualitative data was gathered through immersive interviews and participatory focus group discussions with diverse stakeholders, including traditional fishers, community members, and representatives from traditional leadership. These interactions provided a platform for participants to share personal narratives, perspectives, and reflections on the complexities of traditional fishing livelihoods in KZN. For instance, during individual interviews with traditional fishers, researchers engaged participants in in-depth conversations about their daily experiences, challenges, and aspirations related to fishing practices, economic sustenance, and community well-being. These dialogues allowed for a nuanced exploration of the socio-economic landscape, uncovering hidden nuances and contextual factors that influence the lives of traditional fishers.

According to O’Leary (2014) and Cohen (2013), research instruments are fundamentally used to extract ideas, feelings, attitudes, knowledge, and behaviours of a defined population. In this regard, this study used interview schedules (Annexures 4, 5 and 6) as part of its research instruments to collect data. An interview schedule is defined as a list of structured questions

prepared to serve as a guide for a researcher in collecting information or data about a specific topic or issue, (Barrett and Twycross, 2018, p. 64). Therefore, the study utilised the interview schedule to collect data from the traditional fishers, civil society and Izinduna in three district municipalities, namely, uMkhanyakude, eThekweni, and uGu.

5.6.3.1 Primary data collection methods and instruments

Primary data collection methods refer to the process of gathering first-hand information directly from the source for research purposes (Phellas et al., 2011). In this study, the primary data collection methods employed were individual in-depth interviews and group interviews. The in-depth individual interviews are typically defined as “a face-to-face conversation between a researcher and a participant involving a transfer of information to the interviewer” (Creswell, 2012 p. 282). Individual in-depth interviews involve one-on-one interactions between the researcher and the participant, allowing for detailed exploration of their perspectives, experiences, and insights related to the research topic (Boslaugh, 2007, p. 2). On the other hand, group interviews involve multiple participants engaging in a discussion facilitated by the researcher, allowing for the exchange of ideas, experiences, and perspectives among participants (Chang and Hsu, 2006, p. 69). These methods were selected to provide rich and nuanced data that capture the complexities of the research topic from both individual and collective viewpoints.

The justification for using these methods lies in their ability to yield comprehensive insights, facilitate participant engagement and interaction, and capture diverse perspectives within the study population. Additionally, individual in-depth interviews allow for a deeper exploration of personal experiences and perceptions, while group interviews enable the exploration of shared experiences and dynamics within a group context.

Therefore, the application of individual in-depth interviews and group interviews in this study ensures the collection of robust primary data that address the research objectives effectively. Semi-structured interviews were prepared for data collection. Semi-structured interviews are defined as pre-set open-ended questions, and they are extensively utilised to extract in-depth information and knowledge from individuals or a group (Jamshed, 2014). The questions given to the respondents related to the topics that this study had set out to cover with each respondent. The interviews were further conducted face-to-face with an intention to maximise the advantages that emanate from face-to-face interviews such as:

- The ease of unpacking complex questions, if necessary.
- Extended scope to ask open-ended questions without the daunting task of writing the responses which might put off respondents.

- Being able to control the context and the environment in which the interview takes place for accurate responses.

A total of 21 individual and 14 group interviews (collectively 62 individuals) were conducted. Annexures 4, 5 and 6 were used as primary data collection instruments to source the qualitative data for traditional fishers, traditional leaders and civil society respectively. The interviews generally took 30-45 minutes. For maximum use of the interview time, the question schedule was reviewed by the researcher time and time again beforehand to systematically keep the interview focused on the various topics needed to be explored. The question schedule comprised of the core research questions as well as related sub-questions which were constantly improved through trial testing of the interview schedule. For effective and efficient data capture of the interview responses, notes and recording of responses were employed. Writing notes and recording throughout data collection and analysis is one way of reflecting upon the researcher's engagement with the data (Partridge, 2021, p. 14). The researcher requested permission from the study participants to audio record the interviews, and consent forms to participate in the research were signed by all the respondents. In this regard, the interview notes and recordings allowed the researcher to focus on the content of the respondents. Furthermore, the verbatim transcript was generated from the recordings of the interview to keep an accurate record of the responses. This ensured that the study is non-judgmental and that the study provided an enabling environment for the participants to express and reflect on their realities without any influence from the interviewer.

a) In-depth individual interviews

In-depth individual interviews are a qualitative research method aimed at conducting detailed and intensive interviews with a limited number of participants to delve deeply into their perspectives, experiences, and insights regarding a specific topic or phenomenon. Rutakumwa et al. (2020, p. 568) define this method as a means of exploring and understanding the viewpoints of respondents through open-ended, discovery-oriented questioning. This approach allows researchers to gather rich and detailed data that capture the nuances of participants' thoughts, feelings, and experiences. The justification for employing in-depth interviews lies in their ability to provide comprehensive and detailed insights into the environmental, socio-economic, and socio-cultural dynamics affecting traditional fisheries and coastal communities. By allowing participants to express themselves freely and openly, this method facilitates the collection of authentic and in-depth data that accurately represent the lived experiences of the participants. Furthermore, the use of audio recording and consent forms ensures the credibility and accuracy of the data collected, as well as the ethical treatment of participants' contributions. Therefore, in-

depth interviews serve as a valuable data collection technique in this study, enabling the research to achieve its objectives effectively and enhance the validity of the findings.

b) In-depth group interviews

In-depth group interviews involve gathering qualitative data through planned discussions conducted by a moderator or researcher with a group of study participants. Gill and Baillie (2018, p. 670) define this method as a means of facilitating interactive discussions among participants to explore their perspectives and experiences collectively. Staller (2021, p. 899) asserts that group interviews are particularly useful for understanding social phenomena and capturing diverse viewpoints within a social context. Justification for employing group interviews lies in their ability to elicit rich and nuanced data by leveraging the collective insights and interactions among participants. In this study, group interviews were conducted with traditional fishers who voluntarily formed or joined discussion groups, with each group comprising approximately seven members. These discussions were aimed at exploring the participants' considerations and ideas regarding traditional fisheries within their communities. By engaging participants in group discussions, the study sought to gather comprehensive insights and validate findings through consensus and shared experiences. Additionally, group interviews served to enhance the credibility and accuracy of the data collected by providing multiple perspectives and enabling researchers to verify information across participants. Therefore, the application of group interviews in this study facilitated a deeper understanding of traditional fisheries and ensured that findings resonated with the experiences of the participants and communities involved.

5.6.3.2 Secondary data collection methods and instruments

According to Garcia and Mayorga (2018) secondary data is data collected through desktop research, using already existing data. This existing data is then analysed to increase the overall effectiveness of research. In this study secondary data includes government published reports readily available in public on relevant government websites. Some government and non-government agencies privately keep their data that is deemed sensitive to ensure data security. However, that secured data can be accessed on request if in compliance with organisational procedures and only to be used for research purposes.

Boslaugh (2007, p. 2) confirms secondary data as the use of existing research data to find answers to questions that are different from the original work. It is widely used by researchers undertaking analysis of quantitative data, and has begun to be applied to qualitative data. Secondary data analysis may be based on the published data or it may be based on the original data (Church, 2002, p. 32). It also includes data that has been previously gathered and is under consideration to

be reused for new studies (Martins, Da Cunha and Serra, 2018). There are many advantages to undertaking secondary, rather than primary, analysis (Devine, 2003, p. 285).

The study utilised the secondary data extracted from different sources such as journal articles, Google scholar, Research Gate, JSTOR, Scopus, CORE, Annual Performance Plans, Strategic Plan documents, Statistic South Africa data, State of the Nation and Province address documents and other relevant government policy documents. These data sources are publicly available and easily accessible from various credible internet platforms. It is a Constitutional Right, under Section 36, to access any information that is held by the State to foster a culture of transparency and accountability in both public and private bodies. Therefore, there was no special permission required to access and use secondary data required by this study.

5.6.4 Operationalisation of study constructs for qualitative component

According to Maurović, Liebenberg and Ferić (2020, p. 337) operationalisation of variables refers to converting abstract concepts into measurable observations. The qualitative data collection instrument was designed and informed by the dependent and independent variables or concepts. Bryman (2015, p. 151) advises that to provide a measure of concepts (concepts being categories of organised ideas as well as observations), the researcher has to ensure that an indicator or indicators are representative of that concept. The study used a series of questions to operationalise concepts or constructs such as cultural values, poverty, unemployment and functionality of government institutions as independent variables.

Table 5-7: Shows the study constructs for qualitative component

STUDY CONSTRUCTS	DEFINITION	SECTION
Socio-economic opportunities	Accessibility of job opportunities, financial, educational and physical resources.	Section C and D of Annexure 4, 5 and 6.
Socio-economic barriers	the impediments to the development of traditional fisheries.	Section C and D of Annexure 4, 5 and 6.
Evidence-based knowledge co-created	the incorporation of IKS in problem-solving strategies for local communities as part of global knowledge.	Section D of Annexure 4, 5 and 6.
Functionality of governance regarding African ways of knowing	ability of government to be transparent and inclusive of traditional fishers and coastal communities in decision-making processes.	Section E of Annexure 4, 5 and 6.

Functionality of institutional framework	An ability for government to create an enabling environment and recognise IKS to inform customs, and norms, that shape socioeconomic for traditional fishers in the implementation of SSFP.	Section E of Annexure 4, 5 and 6.
Environmental sustainability	an ability for government, traditional fishers, coastal communities and other stakeholders to maintain socio-ecological balance and conserve natural coastal resources along KZN.	Section F of Annexure 4, 5 and 6.

The study constructs presented in Table 5-3 embody data collection instruments for qualitative study (Annexure 4, 5 and 6). The study intends to capture, observe, understand and interpret experiences for traditional fishers to socially construct realities in the theoretical proposition of the study.

5.7 Inclusion and Exclusion Criteria

Inclusion and exclusion criteria are fundamental components of research studies that define the characteristics of participants eligible for inclusion and those ineligible for participation. Patino and Ferreira (2018, p. 84) define inclusion criteria as essential attributes and traits of the target population that researchers use to address the research question. These criteria encompass various factors such as demographics, expertise, knowledge, geographical location, and clinical characteristics that are pertinent to the study's objectives. Conversely, exclusion criteria delineate characteristics that render individual's ineligible for participation in the research study (Huls et al., 2018, p. 206). Excluded participants are those who do not meet the specified inclusion criteria and are therefore excluded to ensure data accuracy, completeness, and mitigate biases.

To further explain, the inclusion criteria involves identifying and including individuals who meet the predetermined criteria for participation in the study. Conversely, exclusion criteria are employed to disqualify individuals who fail to meet the specified criteria from participating in the study. These criteria serve to enhance the validity and reliability of research findings by ensuring that participants possess relevant characteristics aligned with the research objectives. Thus, the study employed inclusion and exclusion criteria to delineate the parameters for participant selection and ensure the integrity of the research process.

Justifying the use of inclusion and exclusion criteria, the researcher carefully selected participants who possess the necessary attributes and characteristics relevant to the research objectives,

thereby enhancing the quality of the data collected (Patino & Ferreira, 2018; Huls et al., 2018). Inclusion criteria enable researchers to target specific demographics, expertise levels, or other relevant traits essential for addressing the research questions effectively. Conversely, exclusion criteria serve to exclude individuals who do not meet the specified criteria to prevent potential biases or inaccuracies in the data collected. By clearly defining both inclusion and exclusion criteria, researcher ensured that the selected participants accurately represented the target population and that the data collected is comprehensive and reliable. Therefore, the systematic application of these criteria strengthens the overall rigor and credibility of the research study.

5.7.1 Inclusion and exclusion criteria for quantitative component

Application of inclusion and exclusion criteria for the quantitative component of the study involved a meticulous selection process aimed at ensuring the relevance and expertise of the participants. Specifically, the study included middle to senior management government officials who possessed substantial experience and involvement in the fishery sector at the national, provincial, and local government levels. By targeting individuals with extensive expertise in fisheries management, policy implementation, and governance, the study sought to capture insights and perspectives that are informed by practical experience and deep knowledge of the subject matter. This strategic inclusion criterion enabled the research to gather valuable data from participants who are well-positioned to provide informed opinions and insights regarding the implementation of fishery policies, including the PSSF.

Conversely, the study applied exclusion criteria to screen out government officials who lacked relevant experience or expertise in traditional fisheries. By excluding individuals with limited or no background in the fishery sector, the research aimed to ensure that the participants selected for the study possessed the necessary qualifications and insights to contribute meaningfully to the data collection process. This exclusion criterion helped to maintain the quality and credibility of the data collected by eliminating the potential for responses from individuals who may not have the requisite knowledge or understanding of traditional fisheries issues. Consequently, the systematic application of both inclusion and exclusion criteria facilitated the selection of a participant sample that was well-equipped to provide valuable insights and perspectives on the research topic, thereby enhancing the robustness and reliability of the study's findings.

5.7.2 Inclusion and exclusion criteria for qualitative component

Application of inclusion and exclusion criteria for the qualitative component of the study involved a deliberate selection process aimed at ensuring the representation of individuals with pertinent knowledge and expertise. Participants were included based on their knowledge, expertise, and

geographical proximity to the study area, ensuring that their perspectives were contextually relevant and specific to the traditional fisheries under investigation. Traditional fishers and traditional leadership within the jurisdiction of the study area were purposively sampled to participate, while those residing outside the boundaries of the study area were excluded. This strategic approach to participant selection aimed to capture insights and perspectives that were deeply rooted in the local context, thereby facilitating a more accurate and nuanced understanding of traditional fisheries practices and challenges. Furthermore, the study included civil society representatives who demonstrated a genuine interest and extensive knowledge in traditional fisheries, ensuring diverse perspectives and expertise in the qualitative data collection process.

Conversely, community members without a significant interest or in-depth knowledge of traditional fisheries were excluded from participation to maintain the relevance and depth of the data collected. By carefully selecting participants based on their relevance and expertise, the study aimed to gather rich qualitative data that reflected the varied perspectives and experiences within the community, thereby enhancing the comprehensiveness and validity of the qualitative findings. This systematic application of both inclusion and exclusion criteria ensured that the qualitative component of the study captured a comprehensive range of insights and perspectives, contributing to a more nuanced understanding of traditional fisheries dynamics and challenges.

5.8 Data Quality Control

Data quality control considers conditions of data based on factors such as accuracy, completeness, consistency and reliability. Furthermore, it is measured differently in quantitative and qualitative research.

5.8.1 Data quality control for the quantitative component

In this research endeavour investigating the socio-economic challenges and opportunities of traditional fishing communities in KZN, rigorous measures were implemented to uphold the validity of the findings. The study implemented validity and reliability in the quantitative component to ensure the quality and accuracy of data collected is maintained.

5.8.1.1 Validity

On the one hand, according to Heffner (2016, p. 832), “Validity can be defined as the extent to which differences in observed scale scores reflect true differences between objects on the characteristics being measured”. Moreover, according to Burns (1999, p. 160), validity can be defined as “an essential criterion for evaluating the quality and acceptability of research”. These definitions posit that validity stresses the quality of data on which the conclusions drawn by researchers are based to reflect true characteristics of objects being measured and producing

quality and acceptable research. By extension, this also stresses the quality of different data collection instruments that researchers rely on to generate quality and acceptable data (Fraenkel and Wallen, 2003).

On the other hand, regarding qualitative research, validity is defined by the study's trustworthiness, utility and dependability (Zohrabi, 2013). This is fundamentally premised on the assertions that reality in qualitative research is "holistic, multidimensional and ever-changing" (Merriam, 1998, p. 202). Therefore, it is imperative for the researcher to ensure that research instruments and collected data are validated in different phases of the research from data collection through to data analysis and interpretation (Zohrabi, 2013). Therefore, Zohrabi (2013) posits that validity stresses the believability and truthfulness of generated data and research instruments used in evaluating what the research purports to evaluate. For the purpose of this study, the following steps were applied in ensuring validity of the research instruments and data.

a) Content Validity

According to Salkind (2010, p.3) and Zohrabi (2013, p.15), the essence of content validity is to assess the quality of instruments in generating appropriate data from which different elements, skills and behaviours can be adequately and effectively measured. The content validity assesses if survey instruments adequately cover the domain that is related to the construct. In ensuring the validity of the research instruments, an in-depth survey of literature was carried out to detect the study constructs which were accommodated in the data collection tools. Henceforth, the constructs or variables of the research informed the meta-theoretical framework of the study which is aligned to the aim and objectives of the study.

b) Construct validity

Construct validity is defined by Flake, Davidson, Wong and Pek (2022, pp. 6-8) as a representation of the correspondence between a construct's conceptual definition of a variable and the operational procedure to measure or manipulate that construct. The construct validity aims to establish its relationship to other variables with which it is theoretically associated. It is also designed to measure whether study variables or constructs correlate positively, negatively, or not at all with a series of other measures. Therefore, this study applies construct validity through operationalisation of study variables to clearly reflect and cover the domain related to the constructs. It also applies operationalisation of study variables through linking concepts with study variables.

5.8.1.2 Potential generalisability of findings from the quantitative component

According to Devault (2019) and Burns (1999), external validity refers to the study findings being generalisable or transferable when applied to a similar situation and context. Nunan (1999, p. 17) puts emphasis on the research design and asks, “Is the research design such that we can generalize beyond the subjects under investigation to a wider population?” For the quantitative phase, the study used a stratified random sampling procedure due to the nature of how the fishery sector is organised. These subgroups of the population were targeted based on their commonly shared characteristics and specific and relevant knowledge of the PSSF and other fishery-related policies to ensure relativity of data, its transferability and thus the high probability of external validity.

5.8.1.3 Reliability of quantitative data

Heale and Twycross (2015, p. 66) state that the reliability of quantitative data refers to the accuracy of a research instrument, if used consistently in the same situation on repeated occasions, to determine the same results. Reliability measures consistency and is usually estimated using internal consistency, whereby it applies correlation between different results of a test, or instrument. A strong positive correlation between the results of the measuring instrument indicates a high level of study reliability. Therefore, reliability of the measuring instrument is an essential consideration for the results of the study to be healthy (Sürücü and Maslakçı, 2020, p. 2707). Furthermore, it is regarded as a degree to which a test is free from measurement errors, which means the more measurement errors occur the less reliable the test (Taherdoost, 2016, p. 33). Therefore, the study applied the regression analysis as a reliable method to measure relationships of the constructs or variables and their impacts in the study. It allowed the study to confidently determine which factors matter most, which factors can be ignored, and how these factors influence each other.

5.8.2 Data quality control for the qualitative component

The study implemented trustworthiness which is characterised by credibility, dependability, confirmability and transferability in the qualitative component to ensure the quality and accuracy of data collected is maintained. For trustworthiness and authenticity of the results, credibility, transferability, confirmability and dependability were checked to ensure that the study questions are addressed (Bales, Higson-Smith and Sithole, 2013, p. 261). The trustworthiness of the qualitative research component is characterised by quality, authenticity and truthfulness of the findings. Therefore, the study will compare responses given by respondents to determine the trustworthiness of the study and make sure that answers given by participants demonstrates transferability of the results.

5.8.2.1 Credibility

As explained by Kyngäs, Kääriäinen and Elo (2020, p. 42) credibility reveals whether or not the research findings represent a conceptual interpretation of the raw data of the study. Consequently, this examines if readers of the research believe what the study is reporting. It complements the study by ensuring that readers believe the presentation of findings and takes steps to demonstrate credibility in research reports (Kyngäs, 2020, p. 13). The study considers the credibility of the research by recognising experiences and preconceptions of the studied phenomenon (Connelly, 2016, p. 235). Furthermore, the credibility is enhanced by ensuring that the study participants are aligned to the research question and that data saturation is reached during data collection. The study strengthens the credibility by developing example interview questions to present potential interview questions to a group and then evaluate their responses to these questions (Graneheim, Lindgren and Lundman, 2017, p. 31). Multiple techniques of data collection, namely, surveys, participatory observations, individual and group interviews were applied. The researcher ensured that documents and records are safely and properly kept. Furthermore, the research included theoretical triangulation which uses multiple methods or data sources in qualitative research to develop a comprehensive understanding of phenomena (Carter *et al.*, 2014, p. 545). The researcher also applied the participant or respondent validation, a technique for exploring the credibility of results and verification of data accuracy and resonance with their experiences.

5.8.2.2 Dependability

According to Bryman, (2015, p. 385) dependability is defined as consistency and reliability of the research findings and the degree to which research procedures are documented. That enables an external person to follow, audit and critique the research process. It also entails a quality assessment of the integrated processes of data collection, data analysis, and theory generation to create stability of data over time (Guest, MacQueen and Namey, 2012, p. 107). The researcher ensured that the electronic files, field notes, transcripts and pictures are maintained and secured. This study applies dependability by demonstrating that the data analysis was conducted in a precise, consistent, and exhaustive manner through recording and disclosing the methods of data analysis.

5.8.2.3 Confirmability

According to Anney (2014, p. 273) confirmability refers to the degree to which the research findings could be confirmed by other researchers through their interpretations of the study findings. Kyngäs, Kääriäinen and Elo (2020, p. 42) indicate that confirmability determines how well the study findings are aligned and supported by the raw data to confirm the connection between the data and the results. It affirms the level of confidence of the study findings based on the narratives of the study participants with less influence of the researcher's views (Connelly,

2016, p. 235). The study applied the matrix analysis method to find meaningful patterns and to categorise the raw data. The study processed oral texts to find meaningful patterns by identifying excerpts from transcripts. Confirmability was applied based on categories with words and sentences captured from data collection instruments.

5.8.2.4 Transferability for qualitative component

Transferability describes the degree to which research findings will be applicable to other fields and situations, times, and populations (Kyngäs, 2020, p. 13). The qualitative study can be enhanced through transferability by describing the research context and the assumptions that were central to the research and deducing generalisations (Connelly, 2016, p. 235). It enables readers or other researchers to make connections between elements of a study and their own experience. According to Jahan (2020, p. 7) and Paoletti, Bisbey, Zajac, Waller and Salas (2021, p. 3) this difference is presented by the fact that quantitative study analyses data in numerical form to make it easier to achieve identical results. Whereas, in a qualitative study, data is presented in the narrative and subjective form (Paoletti *et al.*, 2021, p. 3). In this regard, the study gave an explicit description of the participants' characteristics and sampling techniques and procedures. Noble and Haela (2019) posit that it is unattainable for a researcher to prove with certainty that findings and outcomes based on the interpretation of data are transferable, but it is possible to establish reasonable probability. The use of nonprobability sampling, namely purposive sampling, ensures that collected data is specific and relevant to the context in which it was collected (Devault, 2019). Accordingly, to ensure transferability this study made use of purposive sampling, which denotes that the researcher uses his discretion to purposively choose the study participants based on the depth of the participants' insight and knowledge of the subject matter under investigation (Plomp, 2013, p. 5). The social situations and conditions of the study, this being conducted within the academic context, were explicitly explained. The conceptualisation section of this study explained the fundamental terms, constructs, definitions, units of analysis and underlying assumptions that characterise the study's enquiry. Furthermore, both qualitative and quantitative methods of data collection, analyses and interpretation were adequately defined with the emphasis on the data collection instruments (Annexures 3, 4 and 5) as well as relevant data description and interpretation techniques. Therefore, the study demonstrates transferability in qualitative research through intensive use of thick description, which involves providing adequate details on the site, the study participants, methodology and procedures applied for data collection.

5.9 Triangulation Framework

According to Carter *et al.*, (2014, p. 545) triangulation is defined as a "use of multiple methods or data sources in qualitative research to develop a comprehensive understanding of phenomena". The importance of a triangulation framework is to demonstrate that the midpoint method gives

reviewed results. Triangulation refers to the utilisation of two or more approaches to pursue research question investigation to enhance confidence in the ensuing findings (Bryman, 2004, p. 1). A triangulation exercise was conducted to yield convergent or divergent findings, to conclude the well-balanced research findings which are deemed trustworthy. Furthermore, triangulation was conducted to provide converging and diverging evidence that enhances the credibility of the study by reducing potential biases that might exist in a single study (Bowen, 2009, p. 30). It was also implemented as a qualitative research strategy to test credibility, dependability and confirmability of the study through the convergence or divergence of information from different sources (Carter *et al.*, 2014, p. 545). Noble and Haela (2019, p. 3) state that triangulation of data enhances the study's internal validity and reliability through its ability to replicate results and enhancing the believability of the study. Triangulation is characterised by the combination of theories, methods, observers or paradigms in a research study, which assists in the elimination or reduction of possible biases emanating from a single method or a single observer (Moon, 2019, p. 103).

Specifically, Denzin (2012, p. 82) advances the concept of triangulation by categorising it into four forms, that is 1) data triangulation, which entails gathering data through several sampling strategies, so that slices of data at different times and social situations, as well as on a variety of people, are gathered; 2) investigator triangulation, which refers to the use of more than one researcher in the field to gather and interpret data; 3) methodological triangulation, which refers to the use of more than one method for gathering data 4) theoretical triangulation, which refers to the use of more than one theoretical position in interpreting data. Moreover, Vaivio and Sirén (2010, p. 131) explains a fifth form of triangulation as paradigmatic triangulation which refers to use of more than one research paradigms in to obtain the wholistic worldview of the study.

Of these five forms of triangulation, this study implemented four different types of triangulation. These are 1) qualitative multi-mode qualitative data triangulation, 2) theoretical triangulation, 3) triangulation of the mixed-method approach, 4) paradigmatic triangulation to help answer the research questions and achieve the research objectives. Firstly, a qualitative multi-mode data triangulation is defined as an analysis tool that compares and contrasts outcomes of data used in multiple modes of the qualitative method (Marx, Rihoux and Ragin 2014, p. 119). The qualitative approach comprises in-depth interviews as primary data. Secondary data consists of documentary evidence, including policies. The qualitative multi-mode triangulation is applied in Section 8.2.

Secondly, triangulation of mixed-methods is defined as an analysis tool that compares and contrasts the results of quantitative and qualitative methods. The quantitative method comprises primary data with linear regression analysis. Whereas, the qualitative method consists of methodological results from in-depth interviews, as well as documentary evidence. The use of

the mixed-methods provided the study with the opportunity to use concurrent transformative strategy to examine the socio-economic challenges and opportunities of traditional fishing communities in KZN coastal areas, among other research objectives. The triangulation of multi-methods is applied in Section 8.3.

Third, theoretical triangulation means application of multiple theories when examining a situation or phenomenon. The combination of multiple theories yields a more complete picture of complex phenomena as each theory is characterised by its unique strengths and weaknesses. (Modell, 2015, p. 1139). Therefore, theoretical triangulation aims to analyse a phenomenon through integration of one or more theories in relation to study constructs to gain better understanding of a research question. This is analysed in Section 8.4.

Fourth and finally, paradigmatic triangulation is a philosophical framework that is linked to research based on beliefs and understandings of the worldview underpinning the study (Khaldi, 2017, p. 15). Brannen (2017, p. 3) defines paradigmatic triangulation as a concept of integration of paradigms or worldviews to compensate for the weaknesses of one method with the strengths of another to understand the phenomena. The paradigmatic triangulation is applied in Section 8.5.

5.10 Data Analysis

Data analysis is the systematic process of inspecting, cleaning, transforming, and interpreting data to extract meaningful insights and draw conclusions (Barrett and Twycross, 2018, p. 66). It involves applying various statistical and computational techniques to examine patterns, trends, and relationships within the data. In this study, data analysis encompasses both quantitative methods, focusing on numerical data derived from surveys, and qualitative methods, which delve into the rich narratives and perspectives obtained through interviews. Through rigorous data analysis, researchers can uncover key findings, identify emerging themes, and provide valuable insights into the research questions and objectives.

5.10.1 Quantitative data analysis

The study used three different statistical techniques offered by respective statistical software platforms to analyse, present and report the quantitative data. The IBM SPSS, Stata 17 and Microsoft Excel are the three software's that were used to analyse, present and report the quantitative data. The data from surveys was transferred to SPSS, Stata 17 and Microsoft Excel for data cleaning or refining. The study utilised these three softwares to provide data analysis for univariate, multivariate statistics and numeral outcome predictions. Each of these softwares assisted the study with analysis of data by conducting different statistical tests such as Analysis of Variance (ANOVA), T test as well as regression analysis for analysing diverse data sets and

inter-relating the relationship between the dependent and independent variables. Regression analysis is a statistical tool for the investigation of relationships between two or more variables, (Sykes, 1993, pp. 2).

The study applied the univariate and multivariate linear regression analysis using statistical technique to determine relationships between a dependent variable and various independent variables as presented in Table 5-3. The study applied the univariate linear regression to operationalise the study variables to be used in the multivariate linear regression analysis as discussed in Section 5.5.5. Multivariate linear regression measures the degree to which the various independent variables and a dependent variable are linearly related to each other. In addition, it predicts the behaviour of the response variable (independent variable) based on its corresponding predictor variables (dependant variable). Changes in the independent variables are associated with changes in the dependent variable at the population level and probably worthwhile to be added to regression model (Sykes, 1993, p. 3). Moreover, the outcome of the multivariate linear regression analysis was applied in the mixed-method triangulation for each objective of the study as presented in Figure 5-2.

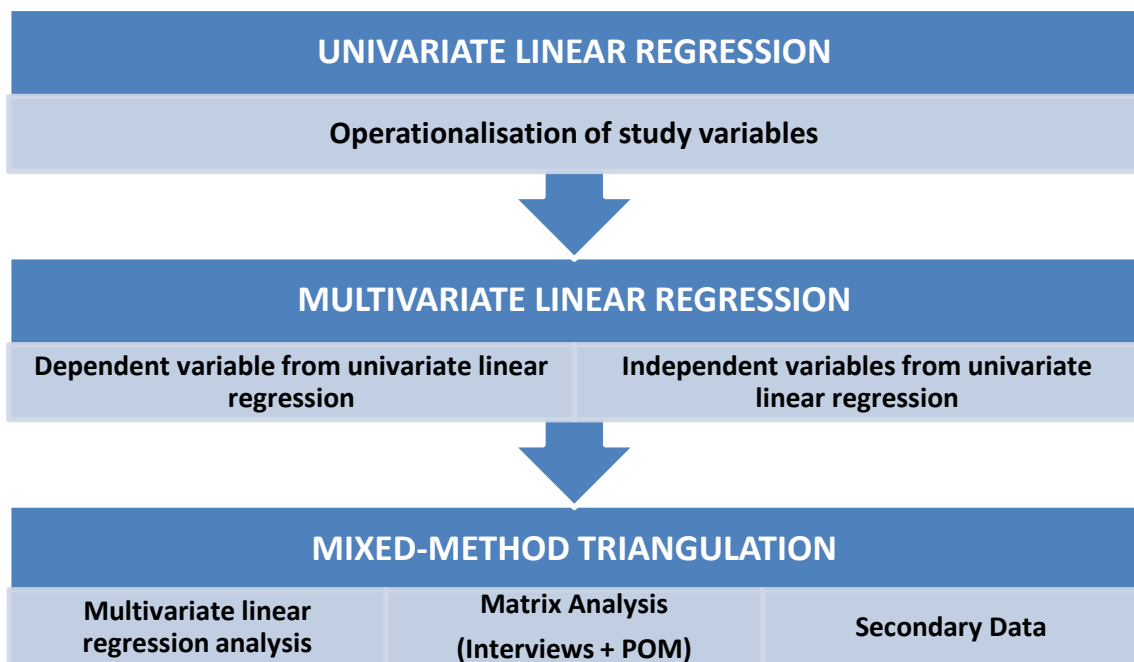


Figure 5-1: Application of univariate and multivariate linear regression

The study implemented a multiple or multivariable logistic regression using multiple predictors as categorical variables to predict correlation between variables as presented in Figure 5-2. The study implemented both univariate and multivariate logistic regression using multiple predictors as categorical variables to predict correlation between variables as indicated on Table 5-8.

Table 5-8: Linear model analysis used for the study

General Model Analysis	Linear	Number of Dependent Variables	Number of Independent Variables	Scale(s) of Measurement for Dependent Variable(s)	Scale(s) of Measurement for Independent Variable(s)
Univariate Regression	Linear	1	1	Nominal	Interval
Multivariate Regression	Linear	1	≥ 2	Nominal	Interval

The quantitative component of this research is characterised by nominal variables which are described by two or more categorical variables. The study implemented univariate and multivariate regression for independent variables which are measured on a nominal scale. However, the study recognised nominal and ordinal independent variables are broadly known as categorical independent variables. These categorical independent variables cannot be directly applied into a multiple regression analysis. Hence, they required data transformation whereby dummy variables were created to ensure all independent variables were compactible to univariate and multivariate regression analysis. Consequently, these dummy variables were applied as an alternative standard to the variance and covariance techniques in the univariate and multivariate linear regression. Therefore, this study transformed or dummy coded nominal variables with five categories from 1 to 5. (1= strongly disagree; 2 = disagree; 3 = neutral; 4 = agree, and 5 = strongly agree). According to Mustafa and Islam (2022, p. 6) dummy coding is a commonly used method for converting a categorical input variable into continuous variable by duplicating a variable which represents one level of a categorical outcome. The study's dummy variables recorded the values from 1 to 5, and new variables were generated as a dummy with an attempt to investigate if there is any correlation between dependant and independent variables. As a result, if the estimation presents a significant coefficient indicated that there is a strong correlation between dependant and independent variables of the study. Furthermore, if the estimation output presents insignificant coefficient for dummy variables indicated that there is no correlation between dependant and independent variable of the study.

Regression analysis was applied to examine the relationship between two variables of interest using the statistical method. It aimed to identify variables which have an impact on the subject matter. It also enables the researcher to perform a regression calculation which allows the study to confidently determine which factors matter most, and which factors can be rejected (Desboulets, 2018, p. 45). It further determines how these factors or variables influence each

other. Furthermore, univariate and multivariate regression analysis was applied to strengthen the reliability of the quantitative study.

A significant level (P-value) less than 0.05 (typically ≤ 0.05) is statistically significant and indicates strong evidence against the null hypothesis (Shrestha, 2019, p. 1). It means that changes in the independent variable are associated with changes in the dependent variable at the population level. Therefore, that variable is statistically significant and probably a worthwhile addition to the study regression model. Instances where the P-value is greater than the significance level (typically > 0.05) translate to insufficient evidence in the sample to conclude that variables are correlated or associated with each other. Therefore, this study applies SPSS and Microsoft Excel software for quantitative data analysis to ensure four fundamental types of validity, namely, statistical conclusion validity, internal validity, construct validity, and external validity of the study (Fabrigar, Wegener and Petty, 2020, p. 2). The operationalisation of study variables to clearly reflect and cover the domain related to the constructs in the research surveys enables univariate and multivariate regression analysis to be conducted.

5.10.2 Qualitative data analysis

Qualitative data analysis is an interpretive process and expression of lived experience in writing with a possibility for interpretation (Frechette, Bitzas, Aubry, Kilpatrick and Lavoie-Tremblay, 2020, p. 9). The qualitative data analysis aims to understand the essences and meanings of human experiences guided by African epistemologies through transcendental hermeneutic phenomenological research methodology to sustain a sense of neutrality and methodological trustworthiness (Aguas, 2022, p. 1). This study analyses the qualitative data applying four different approaches, namely, content, matrix, thematic and document analysis. Useful related terminology is provided in Table 5-9.

Table 5-9: Terms and definitions used in qualitative data analysis

Term	Definition
Code	A short (typically 1-3 words) label that describes a unit of meaning/condensed unit of meaning. (See Table 7-7 in subsection 7.4)
Category	An organisation of several codes that are related in either content or context. In the case of a large number of codes, subcategories may serve as a useful intermediate grouping.
Theme	An organisation of two or more categories that represent an underlying meaning. Themes describe behaviours, experiences, or emotions that occur throughout several categories.

Source: Kleinheksel, Rockich-Winston, Tawfik and Wyatt, 2020, p. 128

The research uses these three terms interchangeably and provides explanations about meaning and relationships in the matrix analysis as indicated in Table 5-9.

5.10.2.1 Content analysis

According to Elo and Kyngäs (2008, p. 108) content analysis is the process in which a researcher interprets the meaning or usage of written or visual data. Armat, Assarroudi, Rad, Sharifi and Heydari (2018, p. 220) explain that these interpretations are organised into subcategories or subthemes using simple language to answer superficial questions of perception of a phenomenon. Kleinheksel, Rockich, Tawfik and Wyatt (2020, p. 127) define content analysis as a method designed to identify recorded forms of communication, label codes, group similar codes and describe related categories with themes. This type of analysis interprets data by creating a framework to organise the pieces in a way that can be used to describe or explain a phenomenon. Furthermore, it is particularly beneficial in dissecting unanalysed textual data by recording counts of observed frequency of coded excerpts (Hsieh and Shannon, 2005, p. 1278). This study applies the content to enhance trustworthiness of the study which is comprised of the concepts of credibility, transferability, dependability, and confirmability, and researchers can take steps in their work to demonstrate that they are trustworthy.

The individual in-depth interviews, group interviews from the uMkhanyakude (Dukuduku), eThekweni Metro (Umgababa), and uGu (Mthwalume) communities were analysed through content analysis whereby all responses to a single question were presented in separate documents. The responses were colour coded and presented in a single document in which the same colours represented similar responses. The responses that were different were transferred to data matrices which are discussed next.

5.10.2.2 Matrix analysis

According to Groenland (2018, p. 4) the matrix method (MM) (Ruffin, 2019b) is a useful method for qualitative data analysis which is mostly utilised in business research and applied research. The MM is based on the coding and interpretation of transcripts, which may originate from in-depth interviews or focus groups (Nelson, 2019, p. 36). The purpose of matrix analysis is to find meaningful patterns of excerpts by categorising the raw data (Averill, 2002, p. 856). A matrix coding query is applied through identification of the frequency with which different subgroups discusses topics or experiences about each of those subgroups (Bazeley, 2019, p. 932). The matrix analysis enhances trustworthiness in a qualitative inquiry by supporting the arguments of the inquiry's findings (Hays and McKibben, 2021, p. 180). This is especially important when using inductive content analysis as categories are created from the raw data without a theory-based

categorisation matrix (Nowell, Norris, White and Moules (2017, p. 446). The study processed oral texts with similar excerpts from group and individual in-depth interviews to find meaningful patterns, based on categories. The data collected was presented in the form of words and sentences which made it easy for the study to classify and interpret data. The MM of interpretation enables the study to draw conclusions and attempt to answer the research questions (Averill, 2002, p. 858). Furthermore, it aims to find confirmation of the structure and contents of the meta-theoretical framework of the study based on the current academic knowledge (Groenland, 2018, p. 4). The study implemented Ruffin's Guideline on Matrix Development for Qualitative Research Data Analysis (Ruffin, 2019b) which enabled the researcher to create a set of categories following six predetermined phases.

a) Phase 1: Creating the raw matrix

Firstly, this method assumes the logic and consistency of the research design by aligning the meta-theoretical framework with research questions. Secondly, the colour coded excerpts from questions were transferred into matrices and a number of subgroups were created. The subgroups were created using a cross-table where the rows stand for the topics of the study (i.e., the questions asked), and the columns represent the subgroups as selected for the study (the respondents). The approach enables the researcher to draw the matrix (and subsequent matrices) with an aim to visualise the possible patterns from the data (Ruffin, 2019b, p. 3).

b) Phase 2: Filling the matrix

The matrix (or cross-table) is utilised to provide short summaries of responses from a specific group of study participants about a certain topic or theme. This includes catchwords, short sentences, and symbols and personal observations of the analyst at the time of the in-depth interview engagement. The study uses this procedure to transfer all that was captured during the interview to the matrix (Ruffin, 2019b, p. 5).

c) Phase 3: Creating the categorised matrix

This phase of matrix analysis uncovers categories that were concealed in the raw matrix. The researcher links the contents of the cells of the raw matrix to the related theme (Ruffin, 2019a, p. 6). Thus, it involves identifying, analysing and reporting patterns or themes within the data set to produce insightful findings. (Nowell *et al.*, 2017, p. 446).

d) Phase 4: Creating the tally matrix

In this phase of matrix analysis, the study uncovers meaningful patterns to create images of relative dominance of the contents of categories. That process is determined by counts of

responses answering to category or subcategory. The researcher further reduces the data by paraphrasing the responses from study participants. This enables the researcher to recognise dominant responses, and set them apart from the overall responses (Ruffin, 2019b, p. 8).

e) Phase 5: Organising subcategories to categories

The researcher now interprets data to establish multiple groups that require grouping together. Therefore, the researcher combines subcategories to form main groups which may influence the themes of the study (Ruffin, 2019b, p. 10).

f) Phase 6: Designing matrices

The researcher designs matrices by linking main categories with subcategories and coded excerpts to establish possible emerging themes for a study (Ruffin, 2019b, p. 11). Therefore, the study presents an overarching explanatory excerpt which provides an overall understanding of the ways partial outcomes are coherently connected. Furthermore, it connects more with a meta-theoretical framework and the objectives of the study to contribute to the existing body of academic knowledge. The matrix analysis enhances trustworthiness in a qualitative inquiry by supporting arguments of the inquiry's findings (Hays and McKibben, 2021, p. 180).

5.10.2.3 Emerging thematic analysis

Sundler, Lindberg, Nilsson and Palmér (2019, p. 745) define thematic analysis as shared meaning-based patterns emerging from data matrices. Thematic analysis is understood to reflect patterns with shared meaning organised around a core concept of the study (Braun and Clarke, 2021, p. 330). Thematic analysis is a method for analysing qualitative data by identify and reporting repeated patterns (Braun and Clarke, 2019, p. 590). Narrative analysis of qualitative data was employed to interpret texts that have a storied form (Ruffin, 2019b, p. 12). It was also employed to enhance the dependability of the qualitative study. The narrative analysis was categorised on the basis of the narrative content with the thematic structure to present the story. Therefore, it aims to uncover the underlying thoughts embedded in stories and the larger culture that creates the narratives (Stokes, 2003, p. 237).

5.10.2.4 Document analysis

According to Bowen (2009, p. 27) a document analysis is a systematic technique of reviewing or evaluating printed and electronic documents. Researchers review prior literature as part of a study and incorporate documentary material such as newspapers, historical society documents and reports from organisational or institutional files (Wood, Sebar and Vecchio, 2020, p. 460). In addition, it complements other research methods, and it can also be used as a stand-alone method

(Bowen, 2009, p. 30). The study implemented a document analysis to combine its assessment with other qualitative research methods in a form of triangulation (Casey and Wong, 2020, p. 2). The study analysed global, continental, regional and local policy documents to produce the policy framework of the study. The policy framework of the study was used as additional supporting evidence for arguments of the study. The convenience of using existing material produced by public or private institutions can make the use of such documents seem relatively straightforward. Hence, document analysis is used to combine methodologies in the study of the same phenomenon to enable the researcher to draw upon multiple sources of evidence.

5.11 Ethical Considerations

Ethical considerations are paramount in research, guiding the conduct of researchers to ensure the protection and well-being of all involved parties. De Vos et al. (2005, p. 57) defines ethics as a framework of moral principles proposed by individuals or groups and widely accepted, offering guidelines for correct conduct towards subjects, sponsors, colleagues, and others involved in the research process. Similarly, Flick (2015, p. 3) describes ethical considerations as a set of guidelines and principles that researchers adhere to when conducting research, aimed at safeguarding the participants and upholding ethical standards throughout the study. In alignment with these principles, the present study obtained Ethical Clearance from the UKZN's Research Office through official channels, ensuring compliance with the university's ethical standards. This clearance process involved submitting necessary documents, detailed in Table 5-10, which are annexed to this thesis.

Table 5-10 Documents for Ethical Considerations

Documents attached to ethical clearance application	Annexures to this thesis
Recruitment Flyer (English version)	Annexure 1
Recruitment Flyer (IsiZulu version)	Annexure 2
Survey for government officials	Annexure 3
Interview schedule for fishermen and fisherwomen	Annexure 4
Interview schedule for traditional leadership	Annexure 5
Interview schedule for civil society	Annexure 6
Informed consent letter (English version)	Annexure 7
Informed consent letter (IsiZulu version)	Annexure 8
Gatekeepers letter for EDTEA	Annexure 9

Gatekeepers letter for COGTA	Annexure 10
Gatekeepers letter for KZN Ezemvelo Wildlife	Annexure 11
Gatekeepers letter for Future Leaders of Change	Annexure 12
Ethical Clearance Letter	Annexure 13

The application of ethical considerations in this study was meticulous and comprehensive, ensuring the protection and well-being of all participants involved. The letter of consent, highlighted in Table 5-10, described the study aims and objectives. The researcher wrote letters to the participants and distributed recruitment flyers (Annexures 1 and 2) highlighting what the research was about and how the interviews and surveys would be conducted the venues (virtual or face-to-face), time and the estimated duration. Informed consent was obtained from each participant, highlighting the study's aims, procedures, potential risks, and their right to withdraw at any point. Consent letters were provided in both English and Zulu (Annexures 7 and 8), and participants were given detailed explanations before signing. Additionally, participants were assured of their voluntary participation, with no obligation or penalty for withdrawal. Throughout the research process, measures were taken to minimize emotional and psychological distress, with interview questions structured to limit agitation.

Furthermore, the confidentiality, privacy, and anonymity of participants were rigorously upheld. Participants were assigned code names to protect their identities, and all identifying information was removed from the final report to ensure anonymity. Confidentiality was maintained by restricting access to participant information to only essential personnel, such as the researcher and supervisor, who were bound by confidentiality agreements. Privacy was respected throughout the study, ensuring that participants' personal information was handled with utmost care and sensitivity.

Ultimately, ethical clearance referenced as “HSSREC/00003605/2021” (Annexure 13) was officially granted by the University of KwaZulu-Natal, providing official recognition and validation of the study's ethical protocols. Upon completion of the study, participants will be provided with the findings through email or other convenient channels, and the raw data will be securely stored and eventually destroyed after a stipulated period, safeguarding participants' privacy and confidentiality even after the conclusion of the research.

5.12 Limitations of the Study

Limitations are defined as constraints that cannot be controlled by the study based on the research methodology and design (Miles, 2019, p. 2). Limitations of any particular study concern potential

weaknesses that are usually out of the researcher's control, and are closely associated with the chosen research design, statistical model constraints, funding constraints, or other factors (Theofanidis and Fountouki, 2018, p. 156). The limitations of a study are characterised by shortcomings of the research due to constraints on research design, methodology, materials, and other elements (Moore, McKee and McCoughlin, 2015, p. 24). Even though the limitations of the study address the potential weaknesses of a study, they strengthen the study by identifying potential study gaps before other researchers or reviewers find them (Lundströmer, Karlsson and Berlin, 2020, p. 500).

Firstly, a key limitation was the use of surveys as a data collection tool to source data from government officials regarding interrogation of the implementation of the PSSF. Consequently, the study is limited to the quantitative data for the assessment of the implementation of the PSSF. Henceforth, the study excludes the officials' subjectivities of the implementation of the PSSF as the in-depth interviews were only conducted with traditional fishers, Izinduna and civil societies of the study area.

Secondly, whilst in the field, when the researcher was faced with proposed individual interviews being overtaken by group interviews, the research originally thought that this was a matter outside of his control and therefore a limitation. However, upon reflection, the researcher recognised that African ways of knowing and being, as lived by the fishers, was coming to the forefront given the manner in which the fishers and civil society members organised themselves into 'talking circles'. Hence, this was not a limitation but an example of the utility of an African epistemological lens. It was more time consuming, but the resulting data was worth it.

Lastly, the influence of COVID-19 was outside the control of the researcher. According to WHO (2020), COVID-19 is a human respiratory infectious disease caused by a strain of coronavirus. Then Minister of Health, Dr Zweli Mkhize, speculated that COVID-19 would be affecting communities for maybe one year or two years (ENCA, 2020). Consequently, the study conducted a few in-depth interviews with the sampling population telephonically to comply with COVID regulations. However, the National State of Disaster was lifted as from 05th of April 2022 which enabled public and private gatherings of a prescribed number of persons, with strict adherence to all health protocols and social distancing measures. Therefore, the next round of in-depth interview sessions were conducted under COVID-19 Alert level 1 which permitted the researcher to conduct physical data collection.

5.13 Delimitation of the Study

The delimitation of the study concerns the parameters that the researchers decide to set as the boundaries or limits of their work so that the study's aims and objectives do not become

impossible to achieve (Theofanidis and Fountouki, 2018, p. 157). In this respect, it can be argued that delimitations are in the researcher's control. Delimitations are also defined as primarily concerned with the scope and parameters of the study. Delimitations prevent a study from claiming its findings are generalisable to the whole population. (Miles, 2019, p. 3).

The research acknowledges the rationale of the study that is derived from the context of South African coastal communities where the country's traditional fisheries sector continues to be marginalised from rights of access, use of resources and governance institutions (Sowman *et al.*, 2014, p. 31). The study is delimited to KZN coastal district municipalities and excludes other KZN district municipalities and coastal district municipalities from other South African provinces. The study intends to deeply engage on issues facing traditional fisheries within the KZN coastal district municipalities. Hence, the research is focusing on the traditional fisheries along the three coastal areas of KZN, namely, uMkhanyakude, eThekweni Metro and uGu. Budgetary and time constraints require this delimitation.

The study acknowledges that there are various government entities that occupy the space in the governance of traditional fisheries in South Africa. These government entities have unique roles in the implementation of the PSSF as they could bring valuable contributions to the study. Therefore, the study is delimited to accessing DFFE, EDTEA and Ezemvelo KZN Wildlife to capture the government's perspective on policy implementation of PSSF. These organisations were selected based on their roles and impacts they have in the governance of the fisheries sector in KZN province.

The delimitation of this study explicitly excludes the prioritization of community life, hustle, and fishing within the milieu of community economic strategies. The focus of the study remains on specific aspects related to traditional fisheries governance and policy implementation, rather than broader considerations of community economic strategies. This delimitation ensures that the research stays focused on its defined objectives and scope, avoiding potential complexities and diverging topics beyond the intended scope of investigation.

Furthermore, the study recognises the impact of different policies on the governance of the fisheries sector in South Africa. The country is characterised by various legislations, policies, programmes and plans implemented across different sectors influencing the governance of traditional fisheries. The study was delimited to the implementation of the SSFP because of its influence on traditional fisheries. That means that other fishery-related policies were excluded from interrogation for the purpose of the study. Furthermore, the study is not focusing on the policy analysis, but it evaluates the implementation of the PSSF to identify gaps and determine if new recommendations are required. Therefore, this research is delimited to the SSFP policy

framework of the study. However, the study discusses global, continental and regional policies that govern the fisheries sector. This is to help develop a new policy from work from empirical evidence of this study. In terms of delimitation of South African spheres of government, there is a focus on intergovernmental relations as they pertain to the SSFP and traditional fisheries.

The study focuses exclusively on traditional fisheries as they are most marginalised group in the marine economy according to many studies worldwide. The study does not imply that small scale, subsistence and commercial fisheries do not face any challenges within the space of the marine economy.

5.14 Conclusion

In conclusion, the methodology chapter of this study provides a comprehensive overview of the research approach, design, and procedures adopted to address the research questions and objectives. By drawing upon a mixed-methods research design, combining both quantitative and qualitative methodologies, this study aimed to capture a holistic understanding of the socio-economic challenges and opportunities faced by traditional fishing communities in KZN.

The sampling procedures for both the quantitative and qualitative components were carefully delineated, ensuring the representation of relevant stakeholders while maintaining feasibility within budgetary and time constraints. The recruitment strategies employed, including purposive sampling and snowball sampling, facilitated the selection of knowledgeable participants with first-hand experience in traditional fisheries, thereby enhancing the credibility and depth of the data collected.

Data collection instruments, such as surveys, in-depth interviews, and group interviews, were meticulously designed to capture a range of perspectives and insights from government officials, traditional fishers, community members, and other relevant stakeholders. Ethical considerations were paramount throughout the research process, with informed consent obtained from all participants and measures taken to ensure confidentiality, privacy, and anonymity.

Furthermore, the application of various techniques to enhance the validity, dependability, confirmability, and transferability of the study findings underscored the rigor and robustness of the research methodology. By triangulating data sources, employing member checking, and adhering to established ethical guidelines, this study sought to minimize bias and ensure the trustworthiness of its findings.

Despite the careful planning and execution of the research methodology, several limitations were acknowledged, including constraints inherent in the use of surveys, unexpected challenges in data collection, and the influence of external factors such as the COVID-19 pandemic. However, these

limitations were addressed transparently, and strategies were implemented to mitigate their impact on the study's validity and reliability.

In summary, the methodology chapter lays a solid foundation for the subsequent analysis and interpretation of findings. By employing a rigorous and transparent research approach, this study endeavours to contribute meaningful insights into the socio-economic dynamics of traditional fishing communities in KZN, ultimately informing policy and practice aimed at improving the livelihoods and well-being of these communities.

6. CHAPTER SIX: DATA PRESENTATION, INTERPRETATION AND ANALYSIS FOR QUANTITATIVE COMPONENT

6.1 Introduction

This chapter presents regression analysis as one of the reliable techniques to identify variables which have an impact on this study. The regression analysis measures the relationship between independent and dependent variables of the study. Traditional fisheries development serves as the dependent variable, representing the overarching outcome that we seek to understand and elucidate. On the other hand, socio-economic barriers, socio-economic opportunities, evidence-based knowledge, socio-economic benefits, functionality of governance, institutional framework, and environmental compliance are identified as independent variables, each potentially influencing the trajectory of traditional fisheries development. Through regression analysis, we seek to quantify the relationships between these variables, discerning patterns and trends that may inform policy interventions and strategic initiatives aimed at fostering sustainable development in traditional fisheries and coastal communities. By examining the strength and direction of these relationships, we gain valuable insights into the underlying dynamics shaping the landscape of traditional fisheries development.

Furthermore, this chapter presents the culmination of data analysis efforts, unveiling the results in a comprehensive and systematic manner. The findings are meticulously organized and interpreted in accordance with the objectives of the study, ensuring clarity and coherence in the presentation of results. Survey data are presented through tables and graphical representations, offering a visual depiction of key findings.

6.2 Data Presentation

The data for each variable was analysed in terms of frequency totals. However, data for Demographic Information (Section A) used numerical ranges to show the distribution of each variable in relation to the total sample. The percentage was calculated as it highlights the distribution of each variable in relation to the total sample. Percentage –pie charts are provided to demonstrate the proportion of responses for each type of categorical data for greater clarity. Section B, C, D and E used the five-point Likert scale followed by content analysis in which the responses were given categories based on themes from the interview transcript.

6.3 Demographic Information

This section presents the findings in graphical form and information pertaining to age, gender, sphere of government in which the respondents' organisation performs its functions, level of management of the respondent in his/her organisation, number of years the respondent has been

involved in the fishery sector, number of years the respondent has been working specifically with traditional fisheries and whether or not they have been involved in traditional fisheries.

6.3.1 Age grouping of participants

Table 6-1 and Figure 6-1 below, show the distribution of participants by age groups. A total of 8% (10) of the participants were in the category of 20 < 25 years of age, 11% (14) of the participants in the category of 25 < 30 years, 14% (17) of the participants in the category of 30 < 35 years, 15% (19) of the participants in the category of 35 < 40 years, 22% (28) of the participants in the category of 40 < 45 years, 16% (20) of the participants in the category of 45 < 50 years and 14% (17) of the participants in the category of 50 years and older. The significance of this data is that the distribution of the participants by age group seems to be fair to all age groups in terms of the target population.

Table 6-1: Age grouping of participants

	Age Grouping	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	20 < 25 years	10	8.0	8.0	8.0
	25 < 30 years	14	11.0	11.0	19.0
	30 < 35 years	17	14.0	14.0	33.0
	35 < 40 years	19	15.0	15.0	48.0
	40 < 45 years	28	22.0	22.0	70.0
	45 < 50 years	20	16.0	16.0	86.0
	50 years & older	17	14.0	14.0	100.0
	TOTAL	125	100.0	100.0	

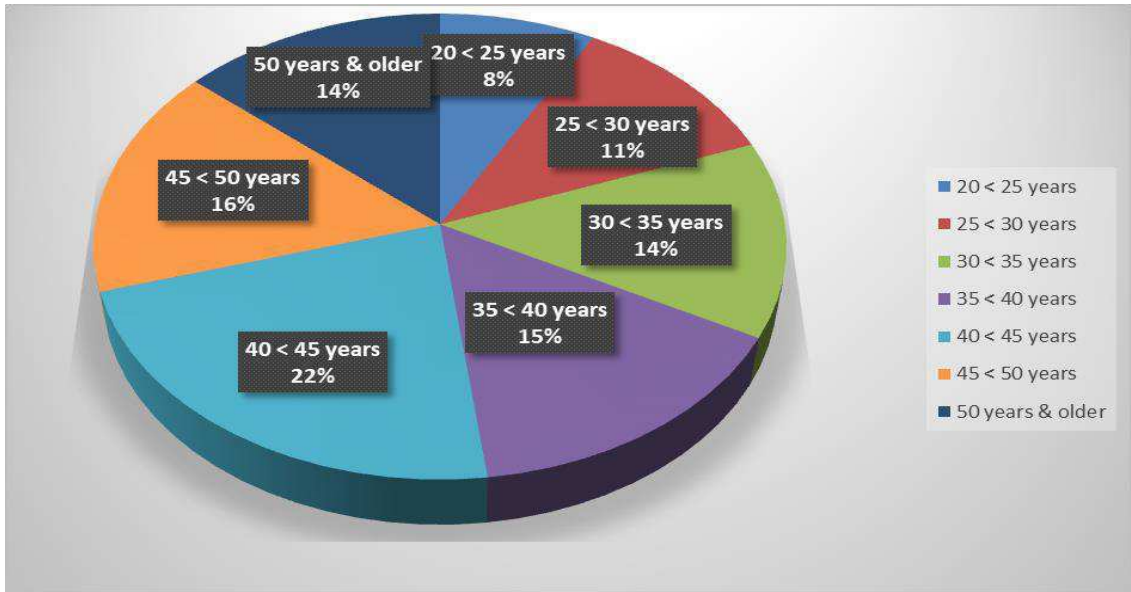


Figure 6-1: Distribution of age grouping of participants

6.3.2 Gender composition of participants

As shown in Table 6-2 and Figure 6-2 below there are 58% (73) male and 42% (52) female participants who responded to the survey. The significance of this data is that there is an equal balance of gender representation in this research study.

Table 6-2: Gender composition of study participants

	Gender	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Female	52	42.0	42.0	42.0
	Male	73	58.0	58.0	100.0
	Total	125	100.0	100.0	

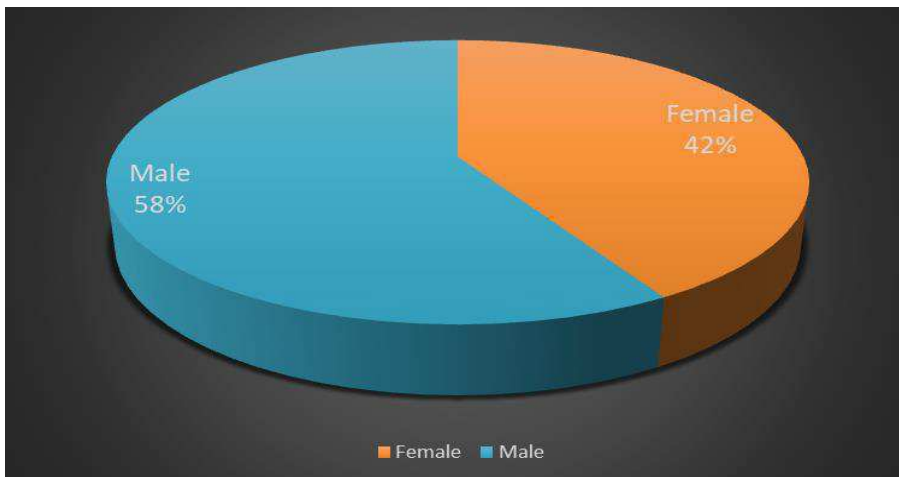


Figure 6-2: Distribution of gender of study participants

6.3.3 Participants’ sphere of operation in government

As shown in Table 6-3 and Figure 6-3 below, 24% (30) of the respondents work in organisations that perform their functions at national government level, 28% (35) at provincial level and 48% (60) of the respondents whose organisations perform their functions at local government level. The significance of this data is that there was a relative balance of respondents involved in the study from various organisations which performed functions in various spheres of government.

Table 6-3: Composition of participants based on sphere of operation in government

	Area of Operation	Frequency	Percentage	Valid Percentage	Cumulative Frequency
Valid	National Government	30	24.0	24%	24%
	Provincial Government	35	28.0	28%	52%
	Local Government	60	48.0	48%	100%
	TOTAL	125	100	100%	

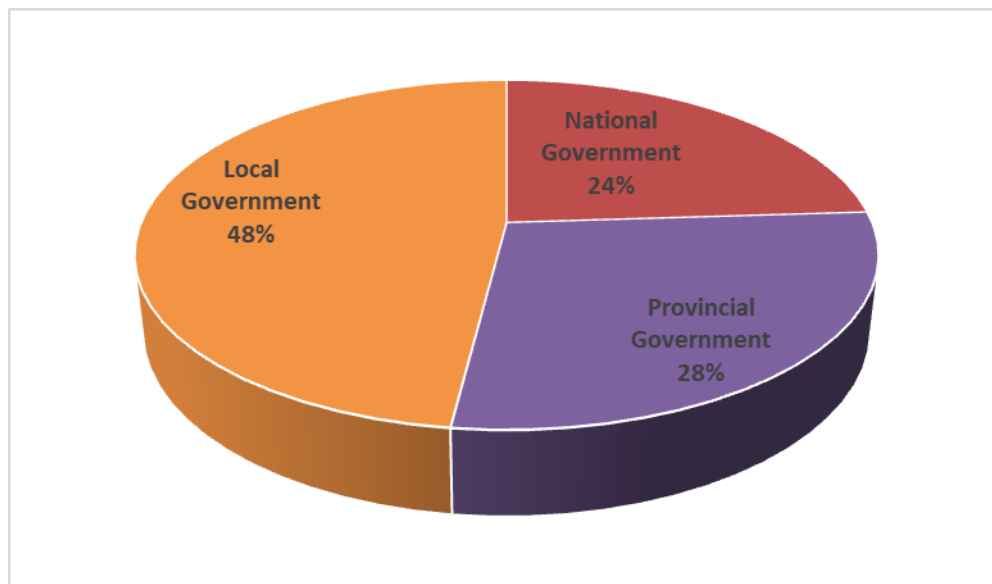


Figure 6-3: Distribution of participants based on sphere of operation in government

6.3.4 Participants’ level of management

As shown in Table 6-4 and Figure 6-4 below, 60% (75) of the respondents are middle managers in their organisations, 28% (35) senior managers and 12% (15) of the respondents are executive

managers. The significance of this data is that there is a relative balance of respondents from various echelons of organisations that were involved in the study.

Table 6-4: Composition of participants based on level of management

	Level of Management	Frequency	Percentage	Valid Percentage	Cumulative Frequency
Valid	Middle Management	75	60.0	60.0	60.0
	Senior Management	35	28.0	28.0	88.0
	Executive Management	15	12.0	12.0	100.0
	TOTAL	125	100	100	

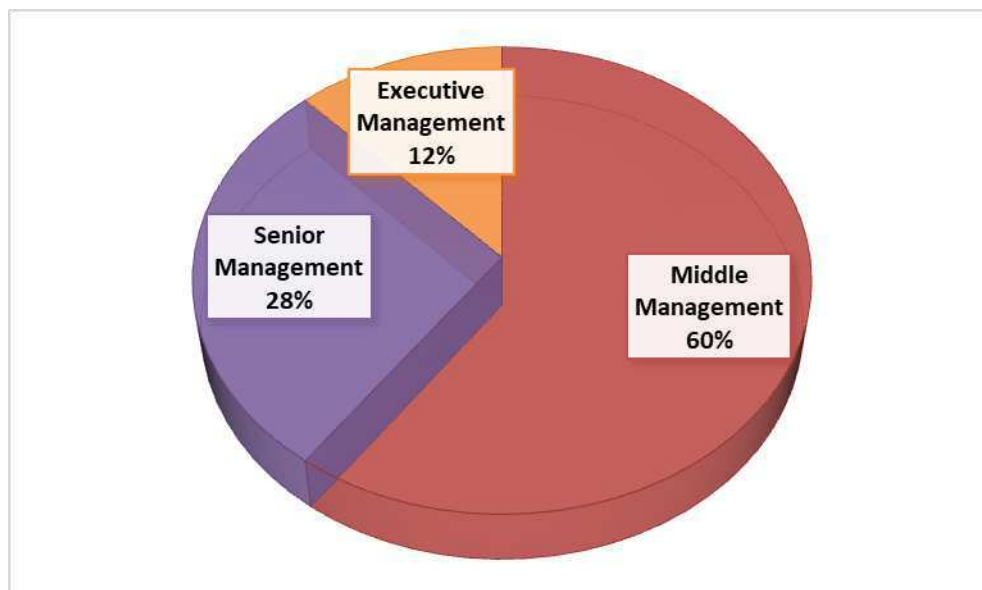


Figure 6-4: Distribution of participants based on level of management

6.3.5 Duration of involvement in the fishery Sector

Table 6-5 and Figure 6-5 below, show the distribution of the duration of participants' involvement in the fishery sector in years. A total of 7% (9) of the participants have been involved in the fishery sector for a duration of 1 < 4 years, 9% (11) involved in the fishery sector for a duration of 4 < 8 years, 26% (32) involved for a duration of 8 < 12 years, 18% (23) for a duration of 12 < 16 years, 22% (27) for a duration of 16 < 20 years, 13% (16) for a duration of 20 < 25 years and 5% (7) of the participants for a duration of 25 years and over. The significance of this data is that the distribution of the participants by number of years they have been involved in the fishery sector appears to be fair to all categories in terms of the target population.

Table 6-5: Duration of respondents' involvement in the fishery sector

	During Grouping	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	1 < 4 years	9	7.0	7.0	7.0
	4 < 8 years	11	9.0	9.0	16.0
	8 < 12 years	32	26.0	26.0	42.0
	12 < 16 years	23	18.0	18.0	60.0
	16 < 20 years	27	22.0	22.0	82.0
	20 < 25 years	16	13.0	13.0	95.0
	25 years & over	7	5.0	5.0	100.0
	TOTAL	125	100.0	100.0	

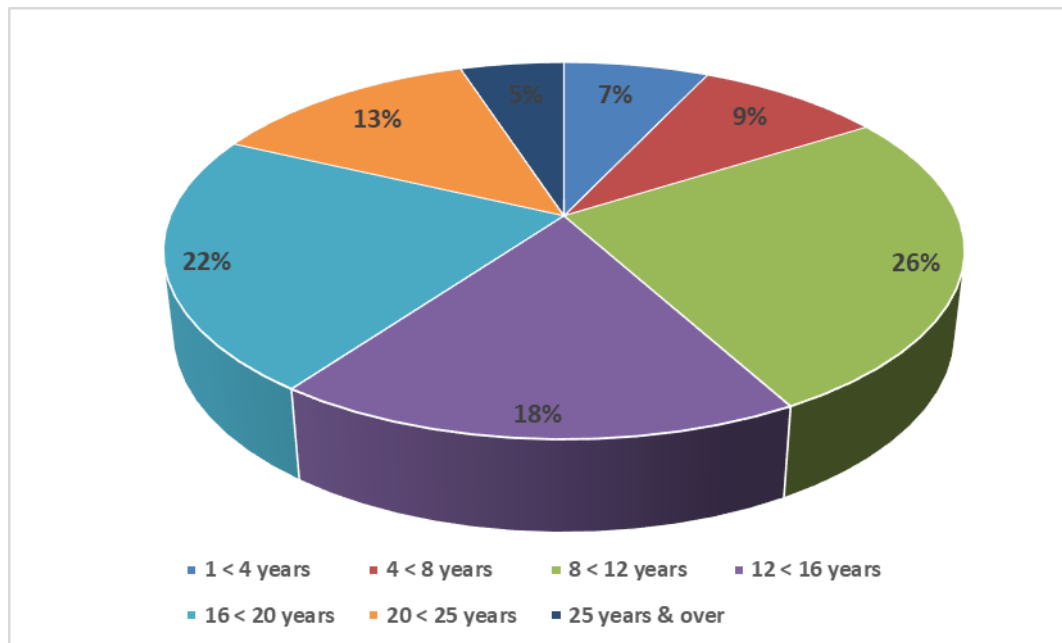


Figure 6-5: Distribution of the duration of respondents' involvement in the fishery sector

6.3.6 Duration of respondents' working specifically with traditional fishers

Table 6-6 and Figure 6-6 below show the distribution of the duration of participants working specifically with traditional fishers in years. A total of 8% (9) of the participants have worked specifically with traditional fishers for a duration of 1 < 4 years, 10% (11) of the participants have worked specifically with traditional fishers for a duration of 4 < 8 years, 29% (32) for a duration of 8 < 12 years, 23% (25) for a duration of 12 < 16 years, 18% (20) for a duration of 16 < 20 years, 6% (7) for a duration of 20 < 25 years and 6% (6) of the participants worked specifically with traditional fishers for a duration of 25 years and over. The significance of this data is that

the distribution of the participants by number of years they have specifically worked with traditional fishers appears to be fair to all categories in terms of the target population.

Table 6-6: Duration of respondents working specifically with traditional fishers

	Duration Grouping	Frequency	Percentage	Valid Percentage	Cumulative Percent
Valid	1 < 4 years	9	8.0	8.0	8.0
	4 < 8 years	11	10.0	10.0	18.0
	8 < 12 years	32	29.0	29.0	47.0
	12 < 16 years	25	23.0	23.0	70.0
	16 < 20 years	20	18.0	18.0	88.0
	20 < 25 years	7	6.0	6.0	94.0
	25 years & over	6	6.0	6.0	100.0
	TOTAL	110	100.0	100.0	

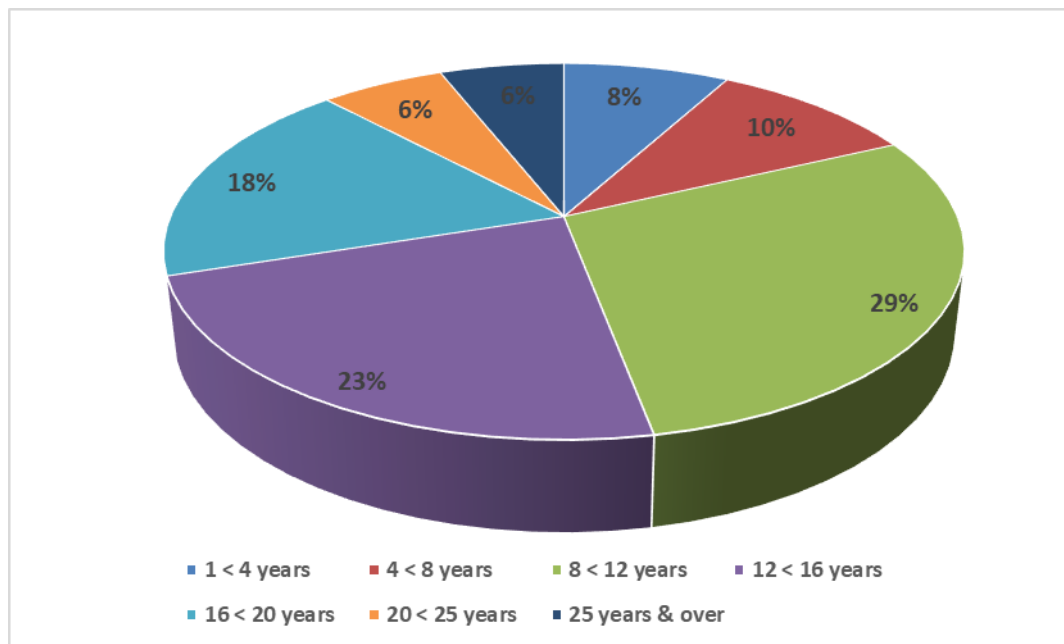


Figure 6-6 Distribution of respondents by duration of working specifically with traditional fishers

6.3.7 Participants involved/not involved in traditional fisheries

As shown in Table 6-7 and Figure 6-7 below, there were 88% (110) affirmative responses and 12% (15) negative responses from the participants in this research study. The significance of this

data is that it was clear that most of the respondents in the study have been involved in traditional fisheries.

Table 6-7: Composition of participants involved/not involved in traditional fisheries

	Response	Frequency	Percentage	Valid Percentage	Cumulative Percent
Valid	Yes	110	88.0	88.0	88.0
	No	15	12.0	12.0	100.0
	Total	125	100.0	100.0	

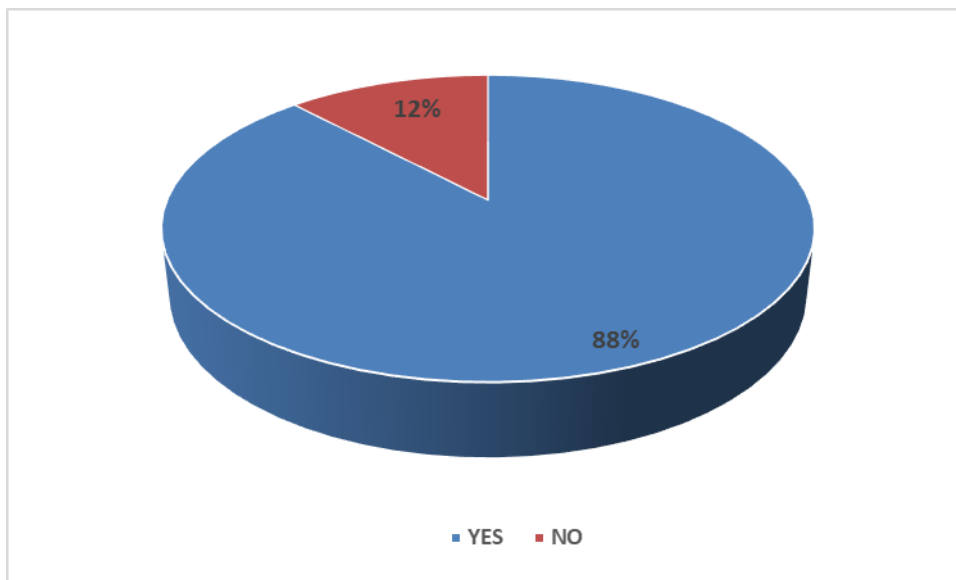


Figure 6-7: Distribution of respondents involved/not involved in traditional fisheries

6.4 Regression analyses for key variable in the study

The study used three different statistical techniques offered by respective statistical software platforms to analyse, present and report the quantitative data. The IBM SPSS, Stata 17 and Microsoft Excel are the three software's that were used to analyse, present and report the quantitative data. These three softwares differ in terms of application of standard procedures for univariate and multivariate linear regression. The univariate linear regression analysis was applied to operationalise study variables as explained in Section 5.5. Subsequently, these variables were used in the multivariate linear regression analysis to assess impacts of independent variables to a dependent variable.

However, the standard procedures for each software yielded similar results for both univariate and multivariate linear regression. The univariate linear regression for socioeconomic barriers

was used as an example for the parallel application of these three different techniques from respective software. The researcher applied these softwares for the first univariate linear regression analysis and opted to implement IBM SPSS in the remaining tests. The researcher applied the IBM SPSS in all test because the software has comprehensible and simple data presentation of results.

6.4.1 Socio-economic barriers using a univariate linear regression

The responses of senior and middle management officials from the respective national, provincial and local government were incorporated in to univariate linear regression model to predict the relationship between socio-economic barriers and its predictors or factors. Furthermore, the application of these three procedures enhanced the criterion validity whereby the test outcomes indicated similar correlation of dependant and independent variables of the study. Therefore, the data quality affirms validity, transferability and reliability of the study enhanced by accuracy, completeness, consistency of the data. The below table 6-8, 6-9 and 6-10 presents a socioeconomic barriers univariate linear regression data analysis that was conducted using IBM SPSS.

Table 6-8: Socioeconomic barriers univariate regression analysis (Model Summary)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.927 ^a	.860	.853	.11534

a. Predictors: (Constant), High employment rate for TF (SB), Lack of market power (SB), Lack of financial power (SB), No fishing rights (SB), Poverty to coastal communities (SB), Historical legacies (SB)

Table 6-9 Socioeconomic barriers univariate regression analysis (ANOVA)

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.630	6	1.605	120.652	<.005
	Residual	1.570	118	.013		
	Total	11.200	124			

a. Dependent Variable: Socioeconomic Barriers (SB)

b. Predictors: (Constant), High employment rate for TF (SB), Lack of market power (SB), Lack of financial power (SB), No fishing rights (SB), Poverty to coastal communities (SB), Historical legacies (SB)

Table 6-10: Socioeconomic barriers univariate regression analysis (Coefficients)

		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	6.224	.165		37.692	<.005
	Historical legacies (SB)	-.318	.081	-.306	-3.921	<.005
	No fishing rights (SB)	-.010	.041	-.013	-.247	.805
	Lack of market power (SB)	.008	.013	.021	.608	.544
	Lack of financial power (SB)	-.044	.035	-.045	-1.280	.203
	Poverty to coastal communities (SB)	-.627	.077	-.577	-8.151	<.005
	High employment rate for TF (SB)	-.081	.042	-.093	-1.943	.050
	Low levels of education (SB)	. ^b	.	.	.	.000
	Women exclusion from fisheries (SB)	. ^b	.	.	.	.000

a. Dependent Variable: Socioeconomic Barriers (SB)

b. Predictors in the Model: (Constant), High employment rate for TF (SB), Lack of market power (SB), Lack of financial power (SB), No fishing rights (SB), Poverty to coastal communities (SB), Historical legacies (SB)

The below figure 6-8 presents a socioeconomic barriers univariate linear regression data analysis that was conducted using Stata 17. The regression analysis was conducted using the similar data as one used from the IBM SPSS in table 6-8 to comparatively analyse results from three different softwares.

Source	SS	df	MS	Number of obs	=	125
				F(6, 118)	=	120.65
Model	9.63024326	6	1.60504054	Prob > F	=	0.0000
Residual	1.56975674	118	.013303023	R-squared	=	0.8598
				Adj R-squared	=	0.8527
Total	11.2	124	.090322581	Root MSE	=	.11534

Socioeconomic barriers	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
Low_levels_of_education	0	(omitted)				
Women_exclusion_from_fisheries	0	(omitted)				
Historical_migration	-.3181296	.0811318	-3.92	0.005	-.4787927	-.1574666
No_fishing_boats	-.0100665	.040679	-0.25	0.805	-.090622	.0704891
Lack_of_maritime_skills	.0078358	.0128826	0.61	0.544	-.0176751	.0333468
Lack_of_financial_skills	-.0441716	.0345078	-1.28	0.203	-.1125065	.0241632
Poverty_to_income_ratio	-.6266972	.0768842	-8.15	0.005	-.7789489	-.4744456
High_employment	-.0809296	.0416585	-1.94	0.050	-.1634247	.0015655
_cons	6.22363	.1651173	37.69	0.000	5.896653	6.550607

Note: Women_exclusion_from_fisheries omitted because of collinearity.

Note: Low levels of education omitted because of collinearity

Figure 6-8: Socioeconomic barriers univariate regression analysis (Stata 17)

The below figure 6-9 presents a socioeconomic barriers univariate linear regression data analysis that was conducted using Microsoft Excel. The regression analysis was conducted using the similar data as one used from the IBM SPSS in table 6-8 to comparatively analyse results from three different softwares.

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0,927277277							
R Square	0,859843148							
Adjusted R Square	0,835767376							
Standard Error	0,115338732							
Observations	125							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	8	9,630243262	1,203780408	120,6523148	1,5225E-52			
Residual	118	1,569756738	0,013303023					
Total	126	11,2						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	6,223630094	0,165117252	37,69218549	1,20516E-67	5,896652981	6,550607206	5,89665298	6,550607206
<i>Low levels of educatic</i>	0	0	65535	#NUM!	0	0	0	0
<i>Women_exclusion fra</i>	0	0	65535	#NUM!	0	0	0	0
<i>Historical legacies</i>	-0,318129632	0,0811318	-3,92114601	0,0051222	-0,478792683	-0,157466581	-0,47879268	-0,157466581
<i>No_fishing_rights</i>	-0,010066466	0,040679014	-0,247460913	0,804981602	-0,090621989	0,070489057	-0,09062199	0,070489057
<i>Lack_of_market_pow</i>	0,007835812	0,012882551	0,608250011	0,544190674	-0,017675146	0,033346769	-0,01767515	0,033346769
<i>Lack_of_financial_po</i>	-0,044171648	0,03450782	-1,280047464	0,20303921	-0,112506526	0,024163231	-0,11250653	0,024163231
<i>Poverty_to_coastal_c</i>	-0,626697232	0,076884217	-8,151181869	0,005988664	-0,778948912	-0,474445551	-0,77894891	-0,474445551
<i>High_employment_ra</i>	-0,080929609	0,041658469	-1,942692824	0,050011669	-0,163424719	0,001565501	-0,16342472	0,001565501

Figure 6-9 Socioeconomic barriers univariate regression analysis (Microsoft Excel)

The P-value less than 0.05, indicates that there are significant statistical results and confidence level presented by univariate regression for socioeconomic barriers factors. The R-value represents the correlation between the socioeconomic barriers and its factors is greater than 0.5 which shows that the model is effective enough to determine the relationship. The multiple R-a correlation coefficient value of 0.927 means that there is a strong positive relationship between socio-economic barriers and other independent variables. The R-Square value of 0.860 means that 86% of the values fit the regression analysis model. Therefore, 86% of the socioeconomic factors greatly influences the socioeconomic barrier variable.

Furthermore, the P-value or Sig value of 95% confidence interval or 5% level of the significance level was chosen for the study. Thus, the P-value was determined to be less than 0.05 which means the results were significant. Therefore, the results confirm that there is strong univariate correlation between socioeconomic barrier socioeconomic factors. This suggests most of the factors that contribute to socio-economic factors needs to be addressed so as to increase the development of traditional fisheries.

In traditional fisheries, sector co-management has been able to break economic barriers to empower coastal communities in many countries with some positive outcomes over the past few decades (Islam, Kar, Kundu, Mondal and Khan, 2018, p.105). These findings support the claims that social, cultural, and economic barriers limit the development of traditional fisheries justified by absence of property rights, lack of infrastructure and inaccessibility of fishing licenses (Standing, 2008, p.19). Therefore, this analysis affirms that resolving socioeconomic barriers

could have a significant impact in the development of traditional fisheries as it creates economic opportunities through co-management resource and sharing of responsibilities between local coastal communities and government (Pascoe, Cannard Dowling, Dichmont, Breen, Roberts, Pears and Leigh, 2019, p.4).

From the univariant regression model, the P-value less than 0.05 for impact of historical legacies, high poverty rate, high unemployment rate and marginalisation of women, indicates significant statistical results and confidence level presented by the strong correlation with socioeconomic barrier variable. Hence, changes in the independent variables influences changes of the dependent variable at the population level and probably worthwhile to be added to regression model. Therefore, that means there is strong correlation of the impacts of socio-economic barriers with the predictors (independent variables) for the development of traditional fishers.

6.4.2 Socioeconomic opportunities using a univariate linear regression

The responses of senior and middle management officials from the respective national, provincial and local government were incorporated in to univariate linear regression model to predict the relationship between socio-economic opportunities and its predictors or factors. The below figure 6-11, 6-12 and 6-13 presents a socioeconomic opportunities univariate linear regression data analysis that was conducted using IBM SPSS.

Table 6-11: Socioeconomic opportunities univariate regression analysis (Model Summary)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.901 ^a	.813	.805	.12767

a. Predictors: (Constant), Job opportunities (SO), Global market for TF (SO), Accessibility of fishing licenses (SO), Sufficient budget (SO), Gov to remedy gender inequalities (SO)

Table 6-12: Socioeconomic opportunities univariate regression analysis (Anova)

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.412	5	1.682	103.216	<.005
	Residual	1.940	119	.016		
	Total	10.352	124			

a. Dependent Variable: Socioeconomic Opportunities (SO)

b. Predictors: (Constant), Job opportunities (SO), Global market for TF (SO), Accessibility of fishing licenses (SO), Sufficient budget (SO), Gov to remedy gender inequalities (SO)

Table 6-13: Socioeconomic opportunities univariate regression analysis (Coefficients)

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	5.441	.158		34.429	<,001
	Gov to remedy social inequalities (SO)	-.469	.084	-.523	-5.572	<,001
	Global market for TF (SO)	-.057	.052	-.073	-1.107	.271
	Sufficient budget (SO)	-.199	.063	-.221	-3.140	.002
	Accessibility of fishing licenses (SO)	-.031	.056	-.037	-.555	.580
	Job opportunities (SO)	-.100	.071	-.118	-1.416	.159

a. Dependent Variable: Socioeconomic Opportunities (SO)

The R-value represents the correlation between the socioeconomic opportunities (dependant variable) and its factors (independent variables) is greater than 0.5 which shows that the model is effective enough to determine the relationship. The multiple R-a correlation coefficient value of 0.901 means that there is a strong positive relationship between socio-economic barriers and its factors. The R-Square value of 0.901 means that 90.1% of the values fit the regression analysis model. Therefore, 90.1% of the factors greatly influences the socioeconomic barrier variable.

These findings concur with assertion that rural development through fisheries can reduce poverty rate and hunger by providing food security coastal rural communities (Isaacs, Hara and Raakjær, 2007, p.305). Therefore, this analysis affirms that traditional fisheries play a significant role in rural development as it creates economic opportunities, sustained growth of the rural economy and improve well-being of rural men, women and children in South Africa (Hauck and Sowman, 2001, p.178).

From the multivariant regression model, the results show that the Adjusted R Square (Adj R2) = 80.5% variance of the impact of socio-economic opportunities to the development of traditional fisheries. That means the regression model accounts more of the variance, whereby the data points are close to the regression line. Looking at the unique individual contributions of the predictor, the results shows that socio-economic opportunities have a strong correlation with factors of the variable. The P-value less than 0.05, indicates that there are significant statistical results and

confidence level presented by univariate regression for socioeconomic opportunity variables. The p-value less than 0.05, indicates the significant statistical results and confidence level which confirms changes in independent variables greatly influences changes in dependent variable at the population level and probably worthwhile to be added to regression model. Therefore, that means there is strong correlation of socioeconomic opportunities with budget availability and government’s ability to address gender inequality.

6.4.3 Governance Functionality using a univariate linear regression

The responses of senior and middle management officials from the respective national, provincial and local government were factored in to the univariate linear regression model to predict the relationship between functionality of governance systems and the predictors (independent variables). The p-value greater than 0.05, indicates that there are insignificant statistical results and confidence level presented by variables. The below figure 6-14, 6-15 and 6-16 presents a governance functionality univariate linear regression data analysis that was conducted using IBM SPSS.

Table 6-14: Governance functionality univariate regression analysis (Model Summary)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.291 ^a	.084	.013	.40331

a. Predictors: (Constant), No transparency in gov (GF), Poor management corruption (GF), Gov_promotes TF (GF), Gov programs for economic dev (GF), Poor compliance (GF), Conflict of social economic enviro (GF), Lack of accountability (GF), Inclusivity of SSFP to TF (GF), Gov educational programs (GF)

Table 6-15: Governance functionality univariate regression analysis (Anova)

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.726	9	.192	1.179	.315 ^b
	Residual	18.706	115	.163		
	Total	20.432	124			

a. Dependent Variable: Governance Functionality (GF)

b. Predictors: (Constant), No transparency in gov (GF), Poor management corruption (GF), Gov_promotes TF (GF), Gov programs for economic dev (GF), Poor compliance (GF), Conflict of social economic enviro (GF), Lack of accountability (GF), Inclusivity of SSFP to TF (GF), Gov educational programs (GF)

Table 6-16: Governance functionality univariate regression analysis (Coefficients)

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.824	.341		11.223	<.001
	Inclusivity of SSFP to TF (GF)	.073	.049	.147	1.511	.134
	Poor management corruption (GF)	.009	.037	.022	.240	.811
	Poor compliance (GF)	-.014	.043	-.030	-.320	.750
	Conflict of social economic enviro (GF)	.092	.072	.119	1.292	.199
	Gov_promotes TF (GF)	-.041	.042	-.090	-.992	.323
	Gov programs for economic dev (GF)	.015	.044	.031	.336	.738
	Gov educational programs (GF)	-.077	.056	-.140	-1.356	.178
	Lack of accountability (GF)	.093	.047	.203	1.974	.050
	No transparency in gov (GF)	-.016	.032	-.044	-.482	.631
	Government forums (GF)	. ^b	.	.	.	.000

a. Dependent Variable: Governance Functionality (GF)

b. Predictors in the Model: (Constant), No transparency in gov (GF), Poor management corruption (GF), Gov_promotes TF (GF), Gov programs for economic dev (GF), Poor compliance (GF), Conflict of social economic enviro (GF), Lack of accountability (GF), Inclusivity of SSFP to TF (GF), Gov educational programs (GF)

From univariate regression model, multiple R— a correlation value of 0.291 means there is weak relationship between the functionality of governance and predictors or factors (independent variables). Therefore, most of the factors that affect functionality of governance have minimal influence in the development of traditional fisheries. Furthermore, the R square value of 0.013 means that 1.3% of the values (% average responses) fit the regression analysis model. Therefore, the predictors do not influence the governance functionality variable. Moreover, the P-value also suggests that any changes on the predictors has a minimal influence on functionality of governance systems. These statistical findings assert that traditional fisheries governance should expand to involve more role players to co-manage resources to benefit small-scale fishing communities (Steenbergen, Fabinyi, Barclay, Song, Cohen, Eriksson and Mills, 2019, p.799). Furthermore, the scope of governance functionality is required to be expanded as it has the

minimal influence in the development of traditional fisheries. Therefore, the governance functionality predictors have no correlation with the development of traditional fisheries. Consequently, efficiency and functional governance has a minimal significant role in the development of traditional fisheries and coastal rural communities. However, the results also indicated that there are two independent variables that have major influence in the efficiency and functional governance. Accountability and functional governance forums variables have a strong correlation with governance functionality as their p-value is 0.050 and 0.00 respectively. Henceforth, accountability in the fishery sector and functionality of governance forums could play a critical role in the development of traditional fisheries.

6.4.4 Indigenous Knowledge Systems using a univariate linear regression

The responses of senior and middle management officials from the respective national, provincial and local government were incorporated in to univariate linear regression model to predict the relationship between IKS and its predictors or factors. The below figure 6-17, 6-18 and 6-19 presents an IKS univariate linear regression data analysis that was conducted using IBM SPSS.

Table 6-17: IKS univariate regression analysis (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.189 ^a	.036	-.005	.28964

a. Predictors: (Constant), Traditional leadership (IKS), African ways of knowing (IKS), Protection of IKS (IKS), IKS forums (IKS), IKS research (IKS)

Table 6-18 IKS univariate regression analysis (Anova)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.369	5	.074	.880	.497 ^b
	Residual	9.983	119	.084		
	Total	10.352	124			

a. Dependent Variable: Indigenous Knowledge Systems (IKS)

b. Predictors: (Constant), Traditional leadership (IKS), African ways of knowing (IKS), Protection of IKS (IKS), IKS forums (IKS), IKS research (IKS)

Table 6-19: IKS univariate regression analysis (Coefficients)

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.800	.163		11.059	<.001
	African ways of knowing (IKS)	.036	.037	.089	.969	.334
	Protection of IKS (IKS)	.029	.057	.045	.499	.619
	IKS forums (IKS)	.037	.027	.127	1.354	.178
	IKS research (IKS)	-.006	.029	-.018	-.191	.849
	Traditional leadership (IKS)	-.040	.030	-.125	-1.336	.184

a. Dependent Variable: Indigenous Knowledge Systems (IKS)

From univariate regression model, multiple R– a correlation value of 0.189 means there is weak relationship between the IKS and predictors or factors (independent variables). Therefore, most of the factors that affect IKS have minimal influence in the development of traditional fisheries. Furthermore, the R square value of 0.036 means that 3.6% of the values (% average responses) fit the regression analysis model. Therefore, the predictors or factors do not influence the IKS. Moreover, the P-value also suggests that any changes on the predictors has a minimal influence on the IKS. Moreover, the p-value in the univariate regression suggests that any changes on IKS promotion, application of African ways of knowing and co-management of fisheries could have a minimal influence in the development of traditional fisheries.

6.4.5 Environmental Sustainability using a univariate linear regression

The responses of senior and middle management officials from the respective national, provincial and local government were incorporated in to univariate linear regression model to predict the relationship between environmental sustainability variable and its predictors or predictors or factors. The below figure 6-20, 6-21 and 6-22 presents an environmental sustainability univariate linear regression data analysis that was conducted using IBM SPSS.

Table 6-20 Environmental sustainability univariate regression analysis (Model Summary)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.921 ^a	.849	.842	.11476

a. Predictors: (Constant), SSFP protects enviro IKS (ES), Conserv. of enviro by SSFP (ES), SSFP aligned to nat prov enviro policies (ES), Enviro goals by SSFP (ES), Management of biophysical enviro (ES)

Table 6-21: Environmental sustainability univariate regression analysis (Anova)

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.785	5	1.757	133.408	<,001 ^b
	Residual	1.567	119	.013		
	Total	10.352	124			

a. Dependent Variable: Environmental Sustainability (ES)

b. Predictors: (Constant), SSFP protects enviro IKS (ES), Conserv of enviro by SSFP (ES), SSFP aligned to nat prov enviro policies (ES), Enviro goals by SSFP (ES), Management of biophysical enviro (ES)

Table 6-22: Environmental sustainability univariate regression analysis (Coefficients)

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.507	.139		39.563	<,001
	Management of biophysical environment (ES)	-.192	.065	-.220	-2.934	.004
	Conservation of environment by SSFP (ES)	-.196	.051	-.232	-3.813	<,001
	Enviro goals by SSFP (ES)	-.237	.060	-.273	-3.947	<,001
	SSFP aligned to National, Provincial environmental policies (ES)	-.192	.065	-.220	-2.934	.004
	SSFP protects enviro IKS (ES)	-.055	.041	-.075	-1.342	.182

a. Dependent Variable: Environmental Sustainability (ES)

The statistically significant independent variables in the regression model provide valuable insights into their impact on the dependent variable, traditional fishery development, as indicated by their t-values and significance levels (sig).

Firstly, the management of the biophysical environment (ES) demonstrates a negative t-value of -2.934, with a significant level of 0.004. This suggests that effective management of the

biophysical environment has a significant negative influence on traditional fishery development. It implies that inadequate management practices or degradation of the biophysical environment may hinder the growth and sustainability of traditional fisheries.

Similarly, the conservation of the environment by the Small-Scale Fisheries Policy (SSFP) (ES) and the alignment of SSFP with national and provincial environmental policies (ES) exhibit negative t-values of -3.813 and -3.947, respectively, both with highly significant levels (<0.001). These findings indicate that initiatives aimed at conserving the environment and aligning fishery policies with broader environmental policies have a significant negative impact on traditional fishery development. It suggests that while environmental conservation efforts are crucial, they may impose constraints or regulations that affect traditional fishing practices and livelihoods.

Conversely, the environmental goals set by the SSFP (ES) show a negative t-value of -2.934, with a significant level of 0.004. This implies that SSFP's environmental goals have a significant negative influence on traditional fishery development. It suggests that the objectives outlined in the SSFP may not fully align with the needs or priorities of traditional fishers, leading to potential conflicts or challenges in achieving sustainable fishery development.

Lastly, the SSFP's role in protecting environmental Indigenous Knowledge Systems (IKS) (ES) exhibits a non-significant t-value of -1.342, with a significance level of 0.182. Although not statistically significant, this finding suggests that the SSFP may have a relatively weaker influence on the protection of environmental IKS compared to other factors examined in the regression model.

Overall, the results highlight the complex interplay between environmental management policies, conservation efforts, and traditional fishery development. Policymakers and stakeholders need to carefully balance environmental conservation goals with the socio-economic needs and cultural practices of traditional fishers to ensure sustainable development in the fishing sector.

6.4.6 Traditional fishery development using a multivariate linear regression

The responses of senior and middle management officials from the respective national, provincial and local government were factored in to multivariate linear regression model to predict the relationship between traditional fisheries development and the main predictors (independent variables) of the study. The P-value less than 0.05, indicates that there are significant statistical results and confidence level presented by the relationship of traditional fisheries development variable with socioeconomic barriers, socioeconomic opportunities, governance functionality, IKS and environmental sustainability variables. The below figure 6-23, 6-24 and 6-25 presents a

traditional fishery development multivariate linear regression data analysis that was conducted using IBM SPSS.

Table 6-23: Traditional fishery development multivariate regression analysis (Model Summary)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.914 ^a	.836	.832	.14495

a. Predictors: (Constant), Environmental Sustainability (ES), Governance in Fisheries (GF), Socioeconomic Barriers (SB)

Table 6-24 Traditional fishery development multivariate regression analysis (ANOVA)

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.946	3	4.315	205.379	<.001 ^b
	Residual	2.542	121	.021		
	Total	15.488	124			

a. Dependent Variable: Traditional Fishery Development (TFD)

b. Predictors: (Constant), Environmental Sustainability (ES), Governance in Fisheries (GF), Socioeconomic Barriers (SB)

Table 6-25: Traditional fishery development multivariate regression analysis (Coefficients)

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.106	.877		-.121	.904
	Socioeconomic Barriers (SB)	.683	.151	.581	4.519	<.001
	Governance in Fisheries (GF)	.349	.042	.400	8.231	<.001
	Environmental Sustainability (ES)	.226	.051	.221	3.171	.046
	Socioeconomic Opportunities (SO)	. ^b	.	.	.	.000

Indigenous Knowledge Systems (IKS)	.b000
------------------------------------	----	---	---	---	------

a. Dependent Variable: Traditional Fishery Development (TFD)

b. Predictors in the Model: (Constant), Environmental Sustainability (ES), Governance in Fisheries (GF), Socioeconomic Barriers (SB)

The multivariate regression model yielded a significant correlation value of 0.914, indicating a strong positive relationship between the traditional fishery development variable and its predictors. This implies that all predictors have a considerable impact on traditional fisheries development and should be carefully considered in any interventions or policy initiatives. Furthermore, the high R-square value of 0.836 indicates that approximately 83.6% of the variance in traditional fisheries development can be explained by the predictors included in the regression model. This highlights the substantial influence of the independent variables on the dependent variable, underlining their importance in shaping the trajectory of traditional fisheries development.

Moreover, the low p-values associated with the predictors suggest that even minor changes in these variables can lead to significant changes in traditional fishery development. This underscores the sensitivity of traditional fisheries to various socio-economic factors and governance issues within the province of KZN. The results indicate that addressing socio-economic barriers and enhancing governance functionality are crucial steps toward promoting traditional fishery development in the region. Additionally, integrating African ways of knowing into government policies and programs can help preserve traditional practices and lifestyles among coastal communities, thereby contributing to the sustainability of the fishing sector.

Furthermore, the findings support the assertion by Gray and Hatchard (2007) that effective environmental stewardship requires a holistic approach that incorporates the perspectives of diverse stakeholders, including local communities and epistemic communities advocating for nature conservationism and sustainable development in the fishing sector. By aligning policies and governance mechanisms with these principles, policymakers can facilitate the preservation of marine ecosystems while promoting the socio-economic well-being of traditional fishers. Overall, the regression results provide valuable insights into the factors influencing traditional fishery development and offer guidance for policy formulation and implementation in the province of KZN.

6.5 Conclusion

The demographic information of the research respondents showed that the views of both males and females were fairly involved in the study and that the views of all age groups in the community over the age of 20 were also given attention. Furthermore, the views of respondents, pertaining to traditional fisheries, from organisations operating in national, provincial and local government spheres were also sought, including those from various levels of management. The univariate linear regression aimed to analyse and understand the distribution of values for each independent variable of the study.

From the socio-economic barriers univariate linear regression, historical legacies, poverty and unemployment rate have greater influence as main factors contributing to socioeconomic challenges for traditional fishery development. Historical legacies of South Africa still have the negative impacts on the development of the fishery sector as it excludes traditional fishers from economic participation. In effect, policies from the apartheid government perpetuated segregation whereby rural coastal communities were forcibly removed from their homes and traditional fishing grounds (Kalina, Mbereko, Maharaj and Botes, 2019, p. 365). As a result, traditional fishers were unable to participate to ocean economy as they were not allowed to sell their catch. For this reason, Kleinschmidt, Sauer and Britz (2003, p. 26) claims that the reform under the post-apartheid government has not influenced fishery policies to favour traditional fisheries.

From the socioeconomic opportunities' univariate linear regression, government initiatives to remedy social inequalities as one of the influential variables for traditional fishery development. Therefore, government's focus on strengthening contribution of women's participation in the fisheries sector could unlock ocean economy for traditional fisheries and rural communities at large. Structural conditions of social inequality still remain deeply rooted in South Africa's society and many traditional fishers remain marginalized in the democratic South Africa. Furthermore, availability of budget to carry out the mandate of transforming traditional fisheries is also one of the influential variables which is strong correlated to traditional fishery development. Henceforth, government's ability to eliminate bottlenecks partly depends in ease participation and redress constraints on access to funding in traditional fisheries. Furthermore, the quantitative findings present KZN as one of the emerging markets rooted in the transitional challenge of opening economies through policy interventions (Onyiriuba, Okoro and Ibe, 2020, p. 563).

Lack of accountability is the only one among the variables that is strongly correlated to governance functionality. The rest of the variables have insignificant relationship with governance functionality. This affirms claims that the integration of bottom-up accountability and co-management which recognises roles by traditional leadership, government agencies, local

communities and other stakeholder can develop traditional fisheries (Isaacs, Hara, Dennis, Rouhani, Mannarino and Jaffer, 2022, p. 10).

From the environmental sustainability univariate linear regression majority of variables influence traditional fishery development. Hence there is a strong correlation of environmental sustainability with conservation of environment by SSFP, SSFP aligned to national and provincial environmental policies, environmental goals by SSFP (ES) and management of biophysical environment variables. This affirms that environmental sustainability enhances cultural, spiritual, cultural, social and economic systems based customary laws that apply in traditional fisheries and rural coastal communities. Furthermore, it is evident that there a strong relationship between traditional fishers with natural environment which promotes protection of marine biodiversity from generation to generation through their indigenous knowledge and cultural practices.

7. CHAPTER SEVEN: DATA PRESENTATION, INTERPRETATION AND ANALYSIS FOR QUALITATIVE COMPONENT

7.1 Introduction

In this pivotal chapter, the researcher embarks on a comprehensive exploration of the qualitative component of the study, shedding light on the rich tapestry of insights gleaned from in-depth interviews methodologies. This chapter begins by presenting demographic information, capturing essential characteristics such as age, gender, designation in the community, years of involvement in traditional fishing, educational attainment, and employment status, rendered graphically for enhanced clarity and accessibility.

Building upon this foundational understanding, the researcher delves into the heart of the analysis, unveiling the findings derived from matrix analysis. Through a meticulous process of coding and interpretation, the researcher distills key themes and patterns embedded within the transcripts of in-depth interviews, offering a nuanced understanding of the lived experiences and perspectives of study participants. These insights serve as a window into the complex realities shaping traditional fisheries and coastal communities, illuminating the multifaceted challenges and opportunities encountered on the ground. Ultimately, this chapter serves as a testament to the transformative power of qualitative inquiry, offering profound insights and perspectives that enrich our understanding of traditional fisheries and coastal communities in profound ways.

7.2 Demographics

7.2.1 Age grouping of participants

As shown in Table 7-1 and Figure 7-1, a total of 38.9% (14) of the participants are in the category of 20 - 29 years of age, 13.9% (5) of the participants in the category of 30 - 39 years, 27.8% (10) of the participants in the category of 40 - 49 years, and 19.4% (7) of the participants in the category of 50 years and older. The significance of this data is that the distribution of the participants by age groups seems to be fair to all age groups in terms of the target population.

Table 7-1: Age grouping statistics

	Age Grouping	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20 - 29 years	14	38.9%	38.9%	38.9
	30-39 years	5	13.9%	13.9%	52.8
	40 – 49 years	10	27.8%	27.8%	80.6
	50 years & above	7	19.4%	19.4%	100.0
	TOTAL	36	100	100	

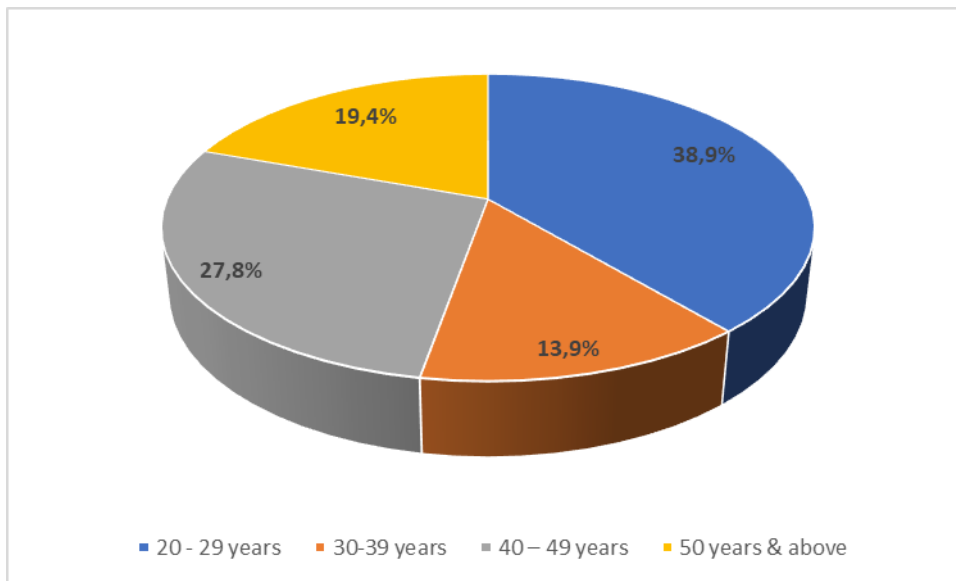


Figure 7-1: Distribution of participants by age

7.2.2 Gender composition of participants

As shown in Table 7-2 and Figure 7-2 below there were 13.9% (5) females and 86.1% (31) males that participated in this research study. The significance of this data is that there is an equal balance of gender represented within this research study.

Table 7-2: Gender composition statistics

	Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	5	13.9%	13.9%	13.9
	Male	31	86.1%	86.1%	100.0
	Total	36	100.0	100.0	

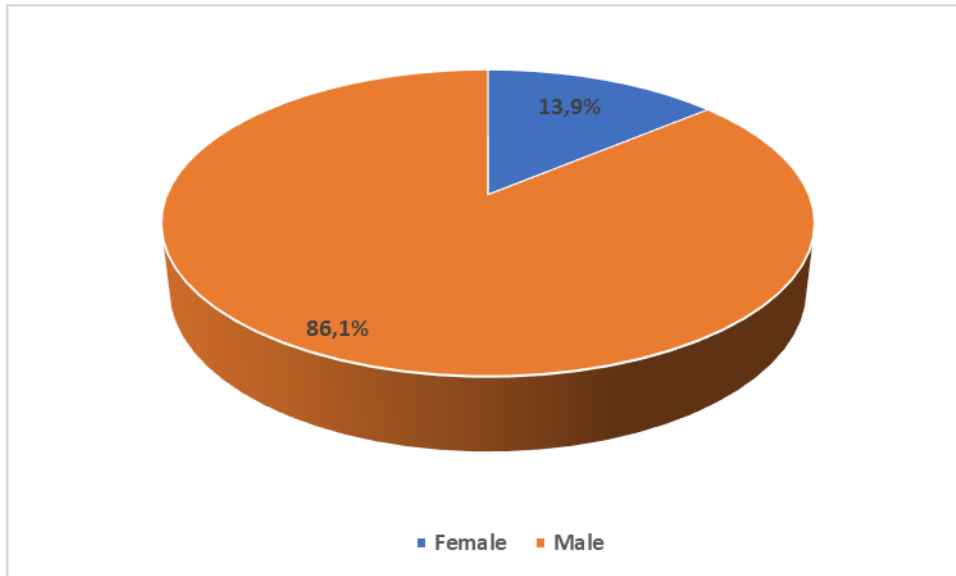


Figure 7-2: Distribution of participants by gender

7.2.3 Duration of involvement in traditional fishing

As shown in Table 7-3 and Figure 7-3 below, a total of 33.3% (12) of the participants were in the category of 1 - 5 years' involvement in the traditional fishing sector, 27.8% (10) of the participants in the category of 6 - 10 years, 22.2% (8) of the participants in the category of 11 - 15 years, and 16.7% (6) of the participants in the category of 16 years and above. The significance of this data is that the distribution of the participants by number of years they have been involved in traditional fishing seems to be proportionally fair to all duration categories in terms of the target population.

Table 7-3: Duration of involvement in traditional fishing

	Duration Grouping	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 - 5 years	12	33.3%	33.3%	33.3%
	6 - 10 years	10	27.8%	27.8%	61.1%
	11 – 15 years	8	22.2%	22.2%	83.3%
	16 years & above	6	16.7%	16.7%	100.0
	TOTAL	36	100	100	

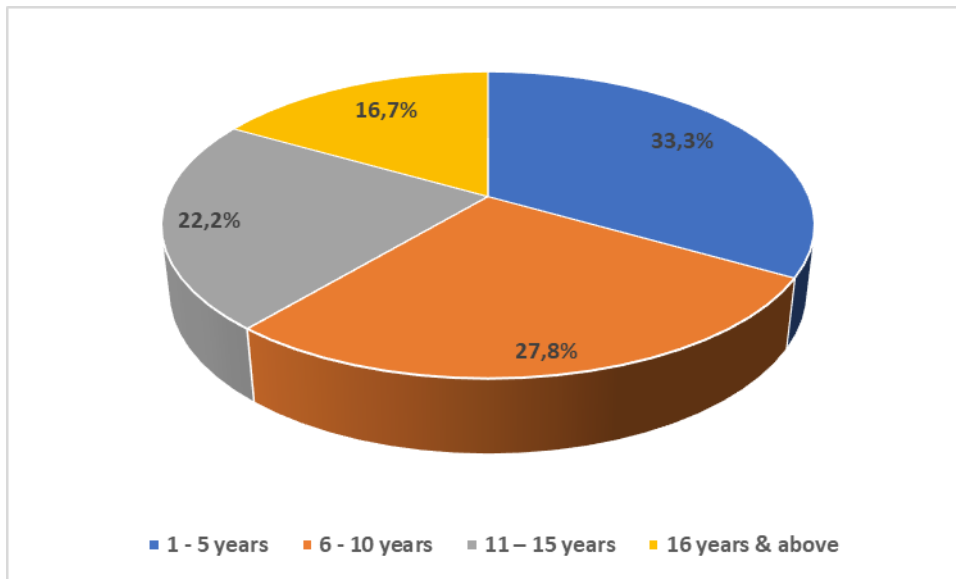


Figure 7-3: Distribution of participants by duration of involvement in traditional fishing

7.2.4 Participants' highest level of education

Table 7-4 and Figure 7-4 below show the distribution of participants by their highest level of education. A total of 0% (0) of the participants hold a degree, 0% (0) of the participants hold a diploma, 11.1% (4) of the participants have training certificates, 22.2% (8) have a secondary level of education, 38.9% (14) have a primary level of education and 27.8% (10) of the participants have no formal education. The significance of this data is that the distribution of the participants by their highest level of education seems to be proportional to all duration categories in terms of the target population.

Table 7-4: Statistics of participants' highest level of education

	Highest Level of Education	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Degree	0	0	0	0
	Diploma	0	0	0	0
	Training Certificate	4	11.1%	11.1%	11.1%
	Secondary Education	8	22.2%	22.2%	33.3%
	Primary Education	14	38.9%	38.9%	72.2%
	No Formal Education	10	27.8%	27.8%	100.0
	TOTAL		36	100	100

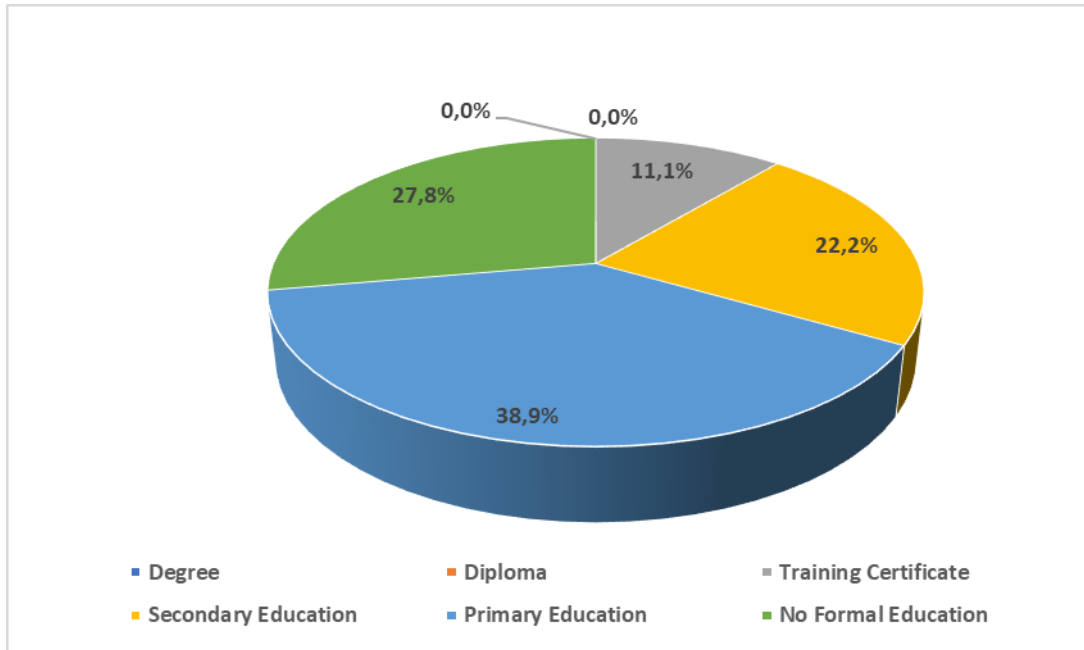


Figure 7-4: Distribution of participants based on level of education

7.2.5 Participants' employment status

As shown in Table 7-5 and Figure 7-5 below, 30.6% (11) of the participants in this component of the study are self-employed, 11.1% (4) are employed and 58.3% (21) of the respondents are unemployed. The significance of this data is that there is a relative balance of respondents from various employment statuses.

Table 7-5: Statistics of participants' employment status

	Employment Status	Frequency	Percent	Valid Percent	Cumulative Frequency
Valid	Self-employed	11	30.6%	30.6%	30.6%
	Employed	4	11.1%	11.1%	41.7%
	Unemployed	21	58.3%	58.3%	100.0
	TOTAL	25	100	100	

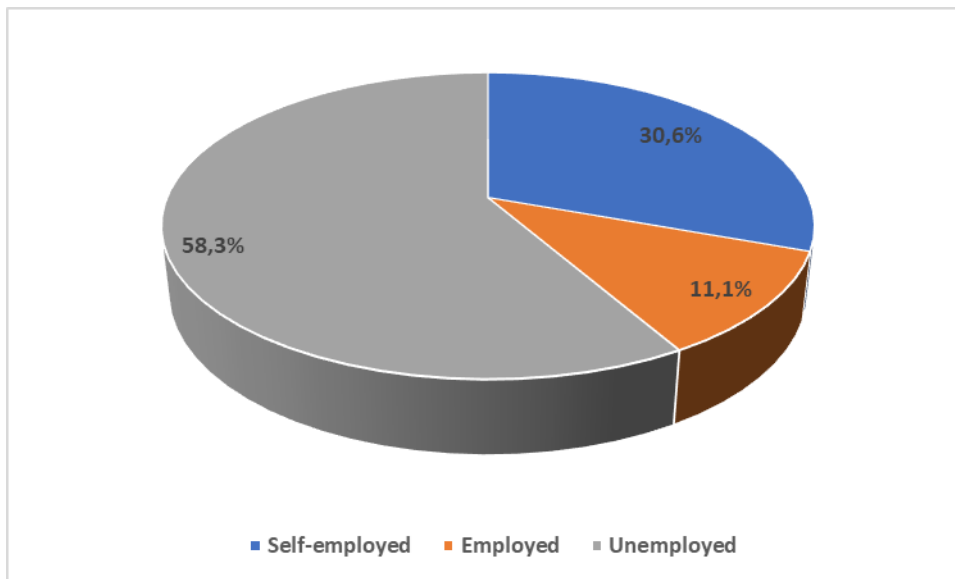


Figure 7-5: Distribution of participants based on employment status

7.3 Organisation of Secondary Data Presentation and Analysis

The study uses secondary data to source and substantiate findings from the qualitative analysis in an attempt to answer the research questions. Therefore, the secondary data is integrated with findings from the qualitative analysis to create substantial arguments and claims in relation to the primary data (Yin, 2009, p. 103). Three elements related to analysis of documents or secondary data are presented in Table 7-6 below. The first column shows sources of documents. The list of documentary sources is presented in the second column. The third column presents their relevance to the study.

Table 7-6: Organisation of secondary data presentation

Application of documents	Documents examined	Application to the study
Documents provide the context of the study from global, continental, regional and local perspective	Code of Conduct for Responsible Fisheries (FAO,1995).	Documents provide the constructs which give evidence for the meta-theoretical framework of the study.
	Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa (AUC, 2014).	
	Regional Aquaculture Strategy and Action Plan (SADC, 2016).	
	White Paper of Marine Fisheries Policy for South Africa (RSA, 1997).	
	Marine Living Resources Act for South Africa (1998).	

Application of documents	Documents examined	Application to the study
	Policy for the Small-Scale Fisheries (RSA, 2012).	
	Oceans Economy Master Plan (DFFE, 2020).	
National development is the highest priority of the government. Government will unlock all constraints to ensure that economic growth is enhanced, inclusive and sustainable over the plan period and beyond to generate employment and reduce poverty.	National Development Plan (2011)	Presents government perspective regarding strategies to resolve socio-economic challenges of the country.
The PGDS is a strategic document which gives direction to addressing critical developmental issues in KZN.	Provincial Growth and Development Strategy (2016)	Presents government perspective regarding strategies to resolve socio-economic challenges of the province of KZN.
Proposed government initiatives to explore ocean economic opportunities in the fishery sector.	DFFE Strategic Plan (RSA, 2019/20-2023/24)	Expression of coastal communities with regards to OEMP
Document details DFFE present situation and outlines the future plans for traditional fishers.	DFFE Annual Performance Plan (APP) for 2020/2021 DFFE Annual Performance Plan for 2021/2022 DFFE Annual Performance Plan for 2022/2023	Assessing if the current and future plans are aligned with realities for traditional fishers.

7.4 Presentation and Analysis of the Qualitative Data

This section organises primary data using matrix data from in-depth interviews sourced from uMkhanyakude (Dukuduku), eThekweni Metro (Umgababa) and uGu (Mthwalume) communities.

Firstly, the primary data is presented in matrices which are used to draw findings and conclusions from the information collected in the in-depth interviews. The purpose of MM presentation is to find meaningful patterns in the data. Groenland (2018, p. 3) affirms that matrix analysis aims to find the organising principle that creates meaningful patterns that are based on categories. The study matrices are presented based on the coding and interpretation of transcripts, which originate from in-depth interviews responding to the research questions aligned to the objectives of the

study. This section clearly presents the break-down of the sample size of the qualitative component of this study. Each study participant is coded according to district of origin using a DC number and their category which identifies if a participant is traditional fisher (TF), civil society (CS), Induna (IND) and # as assigned identity number. Table 7.7 below presents the codes that are used in the MM.

Table 7-7: Participant codes for qualitative data

uMkhanyakude District communities	
Codes	Meaning
4X DC27-TF-#	Traditional fisher from uMkhanyakude District
4X DC27-CS-#	Civil society from uMkhanyakude District
4X DC27-IND-#	Induna from uMkhanyakude District
eThekwini communities	
4X ETH-TF-#	Traditional fisher from eThekwini Metro
4X ETH-CS-#	Civil society from eThekwini Metro
4X ETH-IZI-#	Induna from eThekwini Metro
uGu District communities	
4X DC21-TF-1	Traditional fisher from uGu District
4X DC21-CS-1	Civil society from uGu District
4X DC21-IND-1	Induna from uGu District

7.4.1 The socio-economic opportunities and barriers for traditional fisheries in KZN, South Africa.

The overall expression of coastal communities regarding socio-economic opportunities and barriers for traditional fishers identifies fishing as the major mechanism for poverty alleviation.

7.4.1.1 Socio-economic opportunities

Earning a livelihood through traditional fishing designates a set of activities involving securing food, medicine, shelter and clothing. The findings present that more government interventions in the fishery sector are required to fight unemployment and poverty in the country. AUC (2014, p.17) claims that approximately 200 million Africans rely on fish as an affordable source of protein. That requires government to implement policies that open employment opportunities and alleviate poverty in rural coastal communities in KZN. According to the UN (2021, p. 3) there are guidelines which could be utilised by government states to secure sustainability of small-scale and traditional fisheries in the context of food security and poverty alleviation. The guidelines

also converge with Agenda 2063 of the African Union to promote and improved efficiency of governance for small-scale and traditional fisheries.

a) Employment opportunities

Traditional fishers expressed the lack of opportunities in the fishery sector due to inaccessibility of resources such as tools of trade, infrastructure and necessary permits or licenses to fish. The matrix below (Matrix 7-1) presents views of the study participants from the MM regarding existing and potential opportunities for traditional fisheries.

Matrix 7-1: Socio-economic opportunities

Subcategory	Responses	Respondents
Employment opportunities	It creates employment for many community members.	All
	Some of us make good money as we have established our own market whereby we supply fish to informal traders in town. It also enables many of us to eat a healthy and decent meal from cooking fish.	DC27-TF-3 DC27-TF-4 DC27-CS-1 DC27-CS-2 DC27-CS-3 DC27-IND-3 DC27-IND-4 ETH-TF-1 ETH-CS-1 ETH-CS-2 ETH-CS-3 ETH-CS-4 ETH-IZI-1
	We have also realised that there is big market for fishing. So, there is huge opportunity to make money from fishing provided that we get assisted to tap into that market.	DC27-IND-3 DC27-IND-4 ETH-TF-1

The responses from the Matrix 7-1 for socio-economic opportunities converge with the views presented by study participants from the public consultations.

For instance, participants UMK-TF-1, UMK-IND-1, KC-TF- 5 and IL-TF-6 stated that

“..... we like traditional fishing because it is source of our livelihood and food security for many of us in our communities.....we have various existing cooperatives within our communities that fish using limited resources to make ends meet. There is still an untapped market for traditional fishers because of high demand of fish in South Africa and abroad.”

Therefore, the views expressed by study participants from the MM are coherent regarding existing and potential socio-economic opportunities for traditional fishers. This reveals that traditional fishers and coastal communities from different KZN coastal district municipalities seem to have a background characterised by similar socio-economic dynamics which propels

them to identify the same socio-economic opportunities. This means that KZN coastal communities are affected by similar socio-economic issues due to socio-cultural, political and environmental dynamics.

In addition, Chuenpagdee and Jentoft (2018, p. 108) claim that common socio-economic issues for traditional fishers in most parts of the world are influenced and shaped by similar regulatory policies and socio-cultural dynamics in the fishery sector. Hence, CCRF regulate fishing operations internationally through encouraging all states to adhere to implementation of international standards for trade of fishery products and also provide standards of conduct for all persons involved in the fisheries sector (FAO, 1995, pp. 2-18). The silence of RASAP and WPMFPSA on the impact of regional socio-cultural dynamics in the development of South African traditional fishers complements the imposing of a blanket approach by the international community. The Eurocentric worldview of international codes of conduct for the fishery sector by CCRF fails to acknowledge the socio-cultural, socio-political and socio-economic contexts for SADC countries. This leads to the perpetuation of economic systems that support the economic exclusion of traditional fishers from most parts of Africa and South Africa in particular.

Consequently, Pita and Gaspar (2020, pp. 284-287) argue that traditional fisheries are poorly organised and neglected from the ocean economy opportunities because of the policy vacuum on impacts of regional and local socio-economic, socio-political and cultural importance in the management of the fishery sector. This means that regional and local policies regulating fisheries should express epistemic freedom to accurately capture and address socio-economic issues using African epistemological worldviews for the development of traditional fishers. This also refers to the public consultations conducted by DFFE on the introduction of OEMP as an economic vehicle to drive socio-economic opportunities for traditional fishers which was rejected by the traditional fishers as it misrepresents local socio-cultural dynamics for coastal communities.

For instance, participants UMK-TF-1, UMK-TF-2, UMK-TF-3 UMK-TF-4, UMK-TF-5, KC-TF-1, KC-TF-2, KC-TF-3, KC-TF-4, IL-TF-1, IL-TF-2, IL-TF-3, IL-TF-4, IL-TF-5 and IL-TF-6 expressed that

“....we are not interested in the OEMP. We have previously expressed to DFFE that we don't want aquaculture and exploration of offshore oil and gas be imposed on us. All we want is government to fulfil promises of assisting traditional fishers with tools of trade, infrastructure and sourcing of fishing market.”

Therefore, this hermeneutic phenomenological study demonstrates that KZN traditional fishers and coastal communities are characterised by socio-economic opportunities which are viewed

differently from policies applying a Eurocentric worldview. This means that ground realities and lived experiences of KZN traditional fishers should determine socio-economic opportunities using African epistemological methodologies to inform policy decisions.

b) Poverty alleviation

According to Pogge (2017, p. 67) approximately 10 per cent of the world population still live in poverty today with no basic needs like health care, education, and access to water and sanitation. As a result, the UN (2018, p. 19) proposed that all government states are to eradicate extreme poverty and ensure that men and women have equal rights to economic resources, access to basic services and control over land. Poverty alleviation is prioritised as a number one developmental issue in SDG 2030 and Agenda 2063 of African Union as it is a significant threat to humanity. Marine fisheries play an important role in ensuring food security and providing livelihoods in South Africa, as in many other developing coastal states. The report from FAO (2018) expresses the need for a paradigm shift from a top-down management strategy to a strong hermeneutic phenomenological approach aligned with human rights to traditional fisheries management. According to the NDP of South Africa, traditional fisheries cannot be regarded as a mechanism that has the potential to boost employment. The NDP also claims that government intends to reduce the rights allocated to commercial fisheries to award and empower the traditional fisheries to create more job opportunities for rural communities. Furthermore, the PGDP for KZN promotes of tourism, fisheries and SMMEs’ development based on an area's economic potential. The PFRSFAA recognises that most people working in fisheries are poor and marginalised due to holding few rights of tenure over the resources of their livelihoods. This continental policy framework moves for intensifying the contribution of traditional fisheries in rural economies in terms of household food security and employment amongst the rural poor. Therefore, the below matrix presents expressions from traditional fishers and communities in relation to the implementation of the PSSF.

Matrix 7-2: Poverty alleviation

Subcategory	Responses	Respondents
Poverty alleviation	Fishing fights poverty, so government needs to prioritise to improve our policies that governs fisheries.	All
	Fishing enables us to have a decent meal with our families.	All

Traditional fishers and communities expressed that most youth are unemployed because of the poor economic performance of the country. Traditional fisheries are the major source of

employment and food security for many in rural coastal communities. Therefore, fisheries bring dignity for many people in rural coastal communities as it provides food security. In the public consultation traditional fishers and coastal communities also expressed their views in relation to the implementation of the PSSF.

For instance, IL-TH-1, IL-TH-3, KC-TH-1, UMK-TH-1, UMK-TH-2, UMK-TF-3, UMK-TF-2, KC-TF-1, KC-TF-6, IL-TF-4, IL-TF-5, UMK-IND-2, KC-IND-2 and IL-IND-2 stated

“... we need to provide for our families, and through fishing we are able to put food on the table.”

The views of study participants from the MM indicate that traditional fisheries play a huge role in alleviating poverty in rural coastal communities. Despite the socio-economic and socio-cultural challenges faced by traditional fishers, there is the potential of economic growth for traditional fishers provided that different role players assume their responsibilities to bring change. Government ought to introduce policies that are developed on the basis of an African epistemological worldview to understand the extent, nature, causes and dynamics of poverty in fishing communities.

7.4.1.2 Socio-economic barriers

Béné (2006, p. 9) claims that causes of poverty in traditional fishery communities stem from various socio-economic barriers such as lack of resources, access to capital, market share and restrictions from obtaining necessary licenses. Kimani, Wamukota, Manyala and Mlewa (2020, p. 2) further expand on the extent of the common socio-economic barriers in Kenya to mention poverty, lack of political voice, inequality, perennial underfunding, poor infrastructure and weak governance, lack of appropriate markets and market information. The PFRSFAA acknowledges the funding challenges for small-scale and traditional fishers in parts of the African continent. It further recommends a long-term commitment of funding for transformative change processes to develop traditional fisheries (AUC, 2014, p.39). The below matrix (include number) presents views of the study participants from the MM regarding socio-economic barriers for traditional fisheries.

Matrix 7-3: Socio-economic barriers

Subcategory	Responses	Respondents
Resources	We don't have means to buy a fishing boat so that we can maximise our fishing capacity.	DC27-TF-2 ETH-CS-1 DC21-TF-4 DC21-CS-1

Subcategory	Responses	Respondents
		DC21-CS-2
	We don't have tools of trade to perform fishing operations.	DC27-TF-2 DC21-TF-4 DC21-CS-1 DC21-CS-2
	There are no government funds allocated to assist us as traditional fishers with basic necessities for fishing.	All
Market share	We had requested government to assist us to find fishing markets for traditional fishers.	All
	It seems like government only assist commercial businesses with accessing fishing markets.	All
Fishing permits	Fishing permits will be the first step towards economic empowerment.	All
	There are four (4) traditional fishers that were issued with Fishing Permits by iSimangaliso Wetland Park a few years ago. However, they are still not allowed to use those fishing permits to gain access to fishing areas.	DC27-TF-1 DC27-TF-2 DC27-TF-3 DC27-TF-4

a) Resources

The traditional fishers highlighted lack of access to financial resources for traditional fishers as a major socio-economic barrier that requires urgent interventions by the government. Traditional fishers and small-scale fishers compete for the same resources as heavily subsidised industrial and commercial fishers (Pascual-Fernández *et. al.*, 2019, p. 143). The PFRSFAA acknowledges a responsibility for African states to secure adequate funding for implementation of reforms and development of traditional fishers (AUC, 2014, p.3), whereas CCRF, RASAP and PSSF are silent on the need for financial resources to empower traditional fishers. Furthermore, OEMP identifies funding support in the form of loans to empower traditional fisheries (DFFE, 2020, p.4). Therefore, the policies mentioned were designed to serve the interest of the commercial and heavily industrialised fishers as financial resources are offered on the basis of criteria established by commercial banks (DFFE, 2020, p7). This reveals that traditional fishers continue to be subjected to high barriers of entry to the ocean economy due to lack of access to financial resources. In the public consultation, traditional fishers and coastal communities revealed that government policies continually exclude traditional fishers from participating in the ocean economy.

For instance, UMK-TF-1, UMK-TF-2, UMK-TF-3 UMK-TF-4, UMK-TF-5, KC-TF-1, KC-TF-2, KC-TF-3, KC-TF-4 and IL-TF-1 stated that

“.... financial barriers of entry into the fishing are big because we cannot afford to buy boats and other fishing equipment required.

The studies conducted by Pascual-Fernández et. al. (2019, p. 146), Kimani et. al. (2020, p. 3) and Nayak and Berkes (2019) in Spain, Kenya and India respectively compliment the claims by KZN traditional fishers regarding red tape (i.e. excessively bureaucratic for purposes of exclusion) systems in terms of financial resources in the fishery sector. Moreover, according to Stephanie et. al. (2021, p. 75) commercial fisheries access low-interest institutional credit and subsidised development loans whereas small-scale fisheries only access informal credit at interest rates many times higher than the institutional rates. Therefore, this affirms that start-ups for small-scale businesses and cooperatives in the fishery sector are deemed to be unrealistic due to the lack of access to financial resources as a socio-economic barrier.

b) Market share

According to Stephanie, Herna, Monah and Eyong (2021, p. 69) the fishery sector is in conflict in the market as commercial fishers dictate prices of fishing inputs and their massive landings depress fish prices. On the other hand, small-scale fishermen become increasingly uncompetitive in the market because they are required to adjust to low prices determined by commercial fishers. Ali (2018, pp. 83-84) further explains that small-scale fishermen often have relatively high stock prices because of inadequate infrastructure, and the high cost of loans from commercial banks. Institutional support is often presented to commercial fishermen due to their apparently higher efficiency and greater “contribution” to economic growth (Funge-Smith and Bennett, 2019, p. 1176).

In contrast, traditional fisheries are geographically dispersed and isolated with limited infrastructure. Furthermore, they are politically unorganised and characterised by dysfunctional governance (Fulton, 2021, p.430). Their technological stagnation has kept them out of the competitive urge to access the bigger market (Stephanie, Herna, Monah and Eyong, 2021, p. 70). This indicates that government requires huge capital to re-establish traditional fisheries in South Africa. In the public consultation traditional fishers and coastal communities revealed that there are minimal efforts from government to assist traditional fishers to break into the new market for fishing.

For instance, UMK-TF-3, UMK-TF-5, UMK-TF-7 UMK-TF-8, UMK-TF-9, KC-TF-1, KC-TF-3, KC-TF-5, KC-TF-7 and IL-TF-1 stated that

... "we don't have market that is big enough to make sufficient money out of traditional fisheries."

This reveals that traditional fisheries face multi-layered challenges regarding accessing or breaking into a new market. On the one hand, the PFRSFAA recognises insignificant market share for traditional fishers as it intends to drive market demands stimulating and fostering market access and value chain investments in Africa (AUC, 2014, p. 8). On the other hand, RASAP and PSSF are silent in addressing market share challenges for traditional fishers in South Africa. This reveals that there is a big misalignment between African fishery policy framework (PERSFAA) and SADC policy framework (RASAP). The SADC policy framework influences South African fishery policy framework (WPMFP and PSSF). The policy vacuum created by the misalignment between the African policy framework and the SADC policy framework exacerbate lack of access to market for traditional fishers as it is not a binding responsibility for SADC states.

c) Fishing permits

The studies conducted in The Philippines, Mexico and Chile by Wright (2022), Quintana and Basurto (2021, p. 3) and Nahuelhual *et. al.*, (2018, p. 10) respectively outline lack of access to fishing permits as one of the biggest socio-economic barriers for traditional fishers. Furthermore, PFRSFAA, WPMFPSA and PSSF reveal fishing licences as an impediment to economic development for African small-scale fishers and further propose remedial actions. In contrast, according to Merle (2006, p.61) historical evidence frames that indigenous fishers harvested intertidal resources along the coast for many thousands of years. Hence colonialization had a profound impact on harvesting activities for indigenous people of the Cape and KZN.

Matrix 6-2 reaffirms the importance of fishing licenses for traditional fishers for economic emancipation. Furthermore, the discussion by traditional fishers and communities in the public consultation revealed their dissatisfaction about the criteria that are used by the government to issue fishing licenses. It was highlighted that young people from coastal communities are often systematically excluded from obtaining fishing licenses.

For instance, UMK-TF-1, UMK-TF-2, UMK-TF-3 UMK-TF-4, UMK-TF-5, KC-TF-1, KC-TF-2, KC-TF-3, KC-TF-4 and IL-TF-1, IL-TF-2, IL-TF-3, IL-TF-4 and IL-IND-1 stated that

".... we cannot fish like how it used to be like many years ago..... majority of young people don't have fishing permits. Some of us do have fishing licences, however we still denied to fish using these licences."

Therefore, this reveals that government is required to intervene to enable more traditional fishers, especially the youth, to be granted fishing permits. Moreover, government has a responsibility to

redress the injustices of colonisation which led to displacement and denied access to fishing permits for traditional and indigenous fishers.

7.4.2 Co-create evidence-based knowledge with study participants to overcome barriers and expand opportunities for traditional fisheries in KZN, South Africa.

According to Harrison, Rybråten and Aas (2018, p. 3) IKS are commonly known to contrast with scientific knowledge systems which causes challenges to integration of these two knowledge systems. In most cases where there is conflict between these two knowledge systems, the scientific knowledge systems take preference (Blake, 2021, pp. 37-38). In contrast, the effective implementation of indigenous knowledge systems (IKS) is conducted through the collaboration of traditional fishers, traditional leaders, scientists and government authorities for consideration of knowledge of sides of the spectrum (Mulalap, Frere, Huffer, Hviding, Paul, Smith and Vierros, 2020, p. 2).

Traditional fishers and indigenous people base their own knowledge systems on practical experiences which are intergenerational, as indicated by Haggan, Neis and Baird (2007, p. 16). For instance, Republic of Vanuatu and some parts of Australia rediscovered the resource management value of traditional beliefs and practices which were suppressed by colonial governments. These traditional beliefs were practised by tribal authorities concerned by the depletion of highly valued fish species. In the African context, PFRSFAA encourages traditional fishers to share their local and traditional knowledge. Furthermore, it references the right to manage marine fisheries resources vested with small-scale fisheries, integrating their indigenous local knowledge and institutions in these processes. In contrast, CCRF, RASAP and PSSF are not acknowledging the importance of indigenous local knowledge. The below matrix 7-4 presents the views of the study participants from the MM regarding co-creation of evidence-based knowledge to overcome barriers and expand opportunities for traditional fisheries in KZN.

Matrix 7-4: Inclusion of Indigenous knowledge in policy-making

Subcategory	Responses	Respondents
Indigenous knowledge	We need a policy that will embrace our local indigenous knowledge. we want a policy that will enable us, as local communities to recognise our own way of fishing. We prefer a policy that will recognise and protect and capture our indigenous knowledge for our future generation to continue with our legacy.	All
	We want recognition of traditional fisheries in municipal planning, programmes and policies that will promote our indigenous knowledge.	All

Subcategory	Responses	Respondents
	Policy makers should incorporate indigenous knowledge as a means to protect the natural environment.	All
	More government efforts should focus on initiatives to capture African ways of knowing so that government is aware of what we do as the fishing community and provide support accordingly.	All

The responses from study participants indicate that rural coastal communities value their local indigenous knowledge centred around traditional fisheries. The matrix 7-4 further portrays the gap between the rural coastal communities and government which causes the disconnect in the implementation of policies. In addition, the matrix affirms the claims that policy framework that governs the affairs of fisheries in the SADC region and policies and programmes which regulate fisheries in South African do not recognise the significance of IKS. The South African government continues to examine traditional knowledge from a "scientific perspective" to regulate the fisheries sector and validate traditional knowledge at an informational level (Emery, 2000, p. 7). Consequently, there is a disconnect between traditional fisheries and government in policy implementation and enforcement. Firstly, the disconnect results from the traditional fishers' and rural coastal communities' resistance to the policies imposed by government. Secondly, the disconnect is speculated to be caused by the government failure to recognise and use the local IKS and adoption of community belief systems. Lastly, the top-down approach by government fails to understand the socio-cultural dynamics of the South African rural coastal communities as there is conflict in the implementation of the fishery policies. In the public consultation workshops traditional fishers and coastal communities revealed that IKS have not been endorsed by the government for better governance of fishery resources.

For instance, IL-TH-1, IL-TH-2, KC-TH-1, KC-TH-2, UMK-TH-1, UMK-TH-2, UMK-TF-6, UMK-TF-7, UMK-TF-8, KC-TF-4, KC-TF-5, IL-TF-3, IL-TF-4, UMK-IND-1, KC-IND-1 and IL-IND-1 stated

".... government should allow tribal meeting to meet to have one voice via traditional leadership in terms of the issues facing our communities. Government have to allow the traditional methods of conveying messages to the communities as Izinduna are expected to meet with the community to have more discussions regarding governance of traditional fisheries."

The communities' view affirms the claims that indigenous traditional knowledge is best implemented through engaging indigenous holders of the knowledge as active participants in the community project, using traditional knowledge holders as part of the team of experts (Emery, 2000, p. 1). Successful implementation of IKS requires community engagement throughout

policy conceptualisation, development, implementation, monitoring and evaluation to bridge the gap between communities and government (Tharakan, 2015, p. 364). Therefore, the process of formulation of policies impacting South African rural communities should be sensitive to socio-cultural context and respect local knowledge systems. Moreover, PFRSFAA should be used as a policy foundation for the establishment of programmes, plans and projects pertaining to socio-cultural and socio-economic transformation.

7.4.3 Examine implementation of the PSSF that governs traditional fisheries in KZN, South Africa as it pertains to traditional fishers, civil society members, traditional leaders and government.

The analysis of this research question presents the views of study participants from the MM on inequality and marginalisation of traditional fishermen and fisherwomen in the fisheries sector. It further presents analysis for the effect of public participation and education in the implementation of the PSSF.

7.4.3.1 Inequality and marginalisation of traditional fishermen and fisherwomen

Fabinyi, Foale and Macintyre (2015, p. 1) reveal the ethnographic perspective highlighting the priorities of local communities centred around the inequality between traditional fisheries and the commercial fishing industry in two parts of the Asia-Pacific, Papua New Guinea and the Philippines. In the South African context, it is argued that the Apartheid legacy perpetuates socio-economic inequalities between traditional and commercial fisheries and also enhances capitalism in the fishery sector (Van Sittert, 2002, p. 295). Consequently, MLRA claims to legally recognise traditional fisheries and make a commitment to address the historical marginalisation of small-scale fishers. In contrast, according to Isaacs, Hara and Raakjær (2007, p. 301) transformation of traditional fisheries is not defined in the MLRA or in any other South African legislative or policy to reform and redress apartheid-era inequalities. In addition, examination of the policy framework that governs fisheries in South Africa reveals minimal contribution of local policies to address the socio-economic disparities and marginalisation of traditional fishermen and fisherwomen in the fishery sector.

Nonetheless, PFRSFAA identifies that most African rural communities in the fisheries sector are poor and marginalised. Furthermore, it argues that traditional fishers and coastal communities have few rights of tenure over the ocean resources of their livelihoods. In addition, it classifies women in small-scale and traditional fisheries as one group of people who particularly need to be empowered and encouraged to be involved in fisheries. The matrix 7-5 below demonstrates that socio-economic inequality is prevalent between traditional and commercial fisheries in rural

coastal communities. Furthermore, study participants exemplified the marginalisation of traditional fishers from the ocean economy.

Matrix 7-5: Inequality and marginalisation

Subcategory	Responses	Respondents
Inequality	The policies do not address issues faced by traditional fishers whereas they seem to be favouring commercial fishers.	All
	Fishery policies don't support traditional fishers because most fishers are still poor.	All
	It seems like government policies only support economic growth for commercial fishers.	DC27-TF-1 DC27-TF-2 DC27-TF-3 DC27-TF-4
Marginalisation	We are still marginalised from formally participating in our economy, especially traditional fisherwomen.	All
	We want policy that is inclusive of previously marginalised groups of people	DC27-TF-2 ETH-CS-1 DC21-TF-4

Coastal communities expressed their level of dissatisfaction with the existing fishery policies as traditional fishers are still excluded from the ocean economy which is dominated by commercial fisheries. The major contributing factor for the marginalisation of traditional fishers is the greater influence of socio-institutional dimensions in the fisheries sector. That means the fisheries business in South Africa is controlled by a set of rules and regulations governing access to fishing resources or to the subsequent benefits (Béné, 2003, p. 950). Therefore, the slow economic growth is exacerbated by fishery policies that advocate economic inequality. In the public consultation engagements traditional fishers and coastal communities revealed the prevalence of socio-economic inequalities affecting traditional fishermen and fisherwomen in the fisheries sector.

For instance, the majority of traditional fishers from the OEMP public consultation stated that

“.... coastal fishing areas under protection of Marine Protected Area (MPA) are a hinderance to the development of traditional fishers because they are the boundary that separates the fishers with the sea. Furthermore, we don't have access to the ocean because of the privately-owned properties occupying some parts of the coastal land which leads to inaccessible beach.”

Morea (2019, p. 1) claims that MPAs within communal land are pressured by human development which creates a gap between the socio-cultural objectives and management of protected areas. MPAs are intended to safeguard biodiversity, and strengthen protected area durability and efficacy (Kroner *et al.*, 2019, p. 881). However, Finegan (2018, p. 1) argues that MPAs have been

both the system and the beneficiaries of settler colonialism to marginalise indigenous nations in many parts of the world such as Canada, Australia, and the United States. This assertion indicates that South African MPAs have a socio-cultural impact on the rural coastal communities and traditional fisheries in KZN. Inaccessibility of certain areas proclaimed as cultural or sacred sites within communal lands limits traditional fishers and local communities in the practice of cultural beliefs. Consequently, the South African MPAs have created a disconnect between cultural beliefs and the management of the natural environment. For this reason, there is continual unresolved conflict between traditional fishers and government over the management system imposed by MPA policy. Therefore, there is a great need for government to introduce another strategy to resolve the conflict. Hence, countries like Canada have co-created frameworks partnering with indigenous people through co-management agreements for Indigenous Knowledge use in protected area management (Finegan, 2018, p. 1). These frameworks were created from epistemic freedom ideology, applying a social perspective to resolve territorial conflicts in MPAs.

In addition to predominant socio-economic inequalities between traditional and commercial fisheries, African women in the fisheries sector are marginalised in terms of opportunities due to patriarchal expectations. Previous studies have argued that there is a need for equal gender participation in the fisheries sector to overcome socio-economic imbalances (Gustavsson, Frangoudes, Lindström, Álvarez and de la Torre Castro, 2021, p. 2). Lack of understanding of the socio-cultural dynamics and diverse nature of traditional fisheries has contributed to the inequities and marginalisation of traditional fishermen and fisherwomen in the fisheries sector (Sowman, 2006, p. 60). In addition, the community perspectives on gender relations are understood as social and cultural constructs that perpetually marginalise traditional fisherwomen (Chakravorty, 2015, p. 53). In the public consultation traditional fishers and coastal communities revealed the prevalence of socio-economic inequalities and marginalisation of traditional fishermen and fisherwomen in the fisheries sector.

For instance, IL-TH-4, IL-TH-5, KC-TH-6, KC-TH-3, UMK-TH-4, UMK-TH-5, UMK-TF-3, UMK-TF-5, UMK-TF-7, KC-TF-1, KC-TF-3, IL-TF-7, IL-TF-3, UMK-IND-1, KC-IND-1 and IL-IND-1 stated

“.... there is great dominance of commercial fishers using the sea shore within our communal land as they have unlimited access to it. We, as traditional fishers, we are constantly denied free movement within our communal land and the sea.”

The traditional fishers and rural coastal communities revealed that there is less focus on regulation and enforcement of fishing policies on commercial fishers, whereas traditional fishers are always

subjected to all policies that regulate and manage fisheries and nature conservation. The RASAP, MLRA and PSSF further affirm that government efforts are vested in the protection of the natural coastal environment through intensifying the enforcement actions of fishery and environmental protection policies. However, the study argues that the enforcement of some of these policies perpetuates socio-economic inequalities and further deliberately marginalises traditional fishermen and fisherwomen of this country. The limitation of movement of traditional fishers and community members within their communal land and the sea has socio-cultural and socio-economic impacts in rural coastal communities. Therefore, enforcement of these regulatory policies conflicts with cultural traditions and livelihood for traditional fishers and rural coastal communities. Hence, there are socio-economic imbalances and marginalisation of traditional fishermen and fisherwomen entrenched by fishery and environmental regulatory policies.

7.4.3.2 Public consultation

According to McNeill, Clifton and Harvey (2019, p. 107) various governments in Africa are under intense pressure to consult their constituents and include them in the decision-making processes as traditional fishers represent a significant proportion of the public and can have considerable influence on governing authorities. It has been found that involving stakeholders from the beginning fosters a strong sense of ownership and enables recommendations generated by IKS to lead to the most suitable management measures (Retnoningtyas, Yulianto, Soemodinoto, Herdiana, Kartawijaya, Natsir and Haryanto, 2021, p. 128). By contrast, the policy framework from the African continent that regulates governance of fisheries reveals minimal actions regarding the importance of incorporating public participation in the development of fishery policies. This suggests that South African fishery policies are alleged not to convey the public perspective through public participation processes. The matrix 7-6 below reveals that the process of public participation plays a significant role in the development or review of the policy.

Matrix 7-6: Public consultation process

Subcategory	Responses	Respondents
Consultation process	We are not being properly consulted in the development of policies that have the impact on us.	All
	Government should have awareness campaigns in our community for information sharing. Through information sharing by workshops and awareness campaigns.	DC27-TF-1 DC27-TF-2 DC27-TF-3 DC27-TF-4 DC21-TF-1 DC21-TF-2 DC21-TF-3 DC21-TF-4

The matrix reveals that public consultation plays a significant role in influencing policies which have socio-cultural and socio-economic effects on the rural coastal communities. According to Ahmadi and Rachmiatie (2019, p. 305) democratic governance is characterised by community involvement in decision-making and public policy implementation. Therefore, traditional fishers and local communities are aware of the need for further improvement of policy frameworks to achieve greater economic, social and environmental sustainability in the fisheries sector. However, if communities feel excluded from decision-making, it can fuel resistance to the proposed policies (Perlaviciute and Squintani, 2020, p. 341). Therefore, study participants indicated that capturing lived experiences and perspectives of the community to shape the policies could have a greater impact on the transformation of the fisheries sector. In the public consultation traditional fishers and coastal communities revealed that the inclusion of communities in decision-making can improve implementation.

For instance, IL-TH-4, IL-TH-5, KC-TH-6, KC-TH-3, UMK-TH-4, UMK-TH-5, UMK-TF-3, UMK-TF-5, UMK-TF-7, KC-TF-1, KC-TF-3, IL-TF-7, IL-TF-3, UMK-IND-1, KC-IND-1 and IL-IND-1 stated

“... it is important that we as the community get involved from the initial phases of the policy formulation. It is also important that our IKS and perspectives as the community are incorporated to the policies affecting us.”

According to Akerboom and Craig (2022, p. 1) public participation enables citizens to present different perspectives to inform governmental decision-making. The traditional fishers and communities affirm that consideration of community perspectives in the development or review of policies could greatly improve the implementation of the government policies. Hence, communities take ownership of policies that incorporate and represent the communities' self-identified socio-economic and socio-cultural concerns.

7.4.3.3 Political influence

Most traditional fishers in most parts of the developing world are inaccurately quantified in terms of their contributions to national and regional economies, and also according to the food security and development of many millions of people (UNDP, 2018). According to Andrew *et al.*, (2007, pp. 227-229) there is general consensus that traditional fisheries in most parts of the developing world are failing to reach their full potential of social upliftment and economic development. There is speculation that traditional fisheries are adversely affected by the broader political, institutional and economic drivers of global, national and local economies (Murunga, Partelow and Breckwoldt, 2021, pp. 1-2). Consequently, the political influence on macroeconomic

reforms, competition with industrial fisheries, the world’s fish markets, infrastructure development and ecosystem transformation have not favoured traditional fisheries and rural coastal communities in most parts of the developing world (LeBaron and Lister, 2021, pp. 2,3). Furthermore, PFRSFAA as a continental policy framework supports the integration of traditional fisheries into the regional political and economic agenda to influence public policy priorities and civic needs and elevate issues identified by fishing communities. The study participants from in-depth interviews conducted in uMkhanyakude (Dukuduku), eThekweni Metro (Umgababa), and uGu (Mthwalume) communities (using the MM) raised similar arguments regarding the role of politics to change the socio-economic and socio-cultural status quo for traditional fishers and coastal communities. Therefore, the below matrix 7-7 presents responses from traditional fishers and communities on the role of local politics in addressing the socio-economic challenges of traditional fishers and coastal communities.

Matrix 7-7: Political influence towards change

Subcategory	Responses	Respondents
Political influence	We need a political will to influence our agenda. Politicians have capability of influencing and leading change in the fishing sector.	DC21-CS-4 DC21-IND-1 DC21-IND-2 DC21-IND-3 DC21-IND-4
	Politicians should not only come here to our communities for campaigning of votes. They must play their role in changing the current status quo.	All

In the public consultation workshops traditional fishers and coastal communities also expressed the role of local politics in addressing the socio-economic challenges of traditional fishers and coastal communities.

For instance, IL-TH-1, IL-TH-3, KC-TH-1, UMK-TH-1, UMK-TH-2, UMK-TF-3, UMK-TF-2, KC-TF-1, KC-TF-6, IL-TF-4, IL-TF-5, UMK-IND-2, KC-IND-2 and IL-IND-2 stated

“.... we need a political will for most of our problems.”

The study participants from the MM express the minimal role that is played by political structures in addressing the socio-economic and socio-cultural challenges of traditional fishers and rural coastal communities. Lack of political will in most parts of the developing world is one of the primary factors characterising weak governance in fisheries (Carbonetti, Pomeroy and Richards, 2014, p. 295). Efficient governance requires fisheries management agencies to be more responsive to political and socio-economic pressures in working towards long-term sustainable fisheries (Nilsson, Fulton, Johnson and Haward, 2019, pp. 1-2)

In addition, the current political agenda about access to land converges with the challenge of inequality and the marginalisation of traditional fishermen and fisherwomen.

7.4.4 Critically assess the functionality of governance and institutional framework for the fishery industry in KZN, South Africa, particularly as it pertains to African ways of knowing.

Aguión *et al.*, (2022, p. 652) claim that the lack of effective governance is a major concern in small-scale and traditional fisheries in many parts of the world. There is also a challenge of implementation of effective governance that incorporates social, economic, and ecological pillars of sustainability (Marín and Berkes, 2010, p. 851). Consequently, top-down management approach often neglects the integration of social, economic, and cultural conditions for communities. However, co-management, which is the sharing of power and responsibility between the government and local resource users, is a recommended method to deal with a top-down approach in fisheries management (Léopold, Thébaud and Charles, 2019, p. 187). The below matrix reveals the perspectives of the traditional fishers and communities on the role of cooperative governance, cultural religion and traditional leadership for better functionality of governance and institutional framework for the fishery industry in KZN.

7.4.4.1 Cooperative governance

According to Méndez-Medina *et al.* (2020, p. 1) government states are supporting decentralisation of operational functions on the ground to improve delivery efficiency and the responsiveness of bureaucracies to citizens' demands. This governance strategy also enables different stakeholders to work in unity for the betterment of the community (Ocampo-Diaz, Lopez, Axelrod and Norris, 2022, p. 1). The study revealed that traditional fishers and communities support the logic behind decentralisation as local institutions have a better understanding of local issues. Moreover, Alves (2021, p. 1) supports claims that the involvement of other role players at the local level empowers government authorities to make sound decisions and to respond effectively to the needs of coastal communities. In contrast, according to de Vivero, Mateos and del Corral (2008, p. 319) cooperative governance at the local level does not bear a linear relationship where it results in greater participation of different stakeholders. Moreover, cooperative governance, as interaction between state and civil society, might not strengthen the interests of the traditional fishers and communities as the most vulnerable groups. Matrix 7-8 below presents views from traditional fishers and communities regarding the impact of cooperative governance on the functionality of governance and institutional framework for the fishery industry in KZN.

Matrix 7-8: Cooperative governance

Subcategory	Responses	Respondents
Cooperative governance	Collaboration between traditional leadership, civil societies, governmental departments from all spheres of government can improve policies and the living conditions of rural communities	All
	All stakeholders must come to attend local community meeting to get the better understanding of our issues.	All
	Government and other stakeholders are working in silos because they differ in governance of fisheries. So, collaborations between government and the community will improve a lot of things.	All
	We want partnership with commercial fishers in terms to fish supply.	All

The study participants revealed that a decentralised approach that involves different stakeholders’ participation in decision-making processes serves as an example to analyse and bridge the gaps between government and communities in the implementation of policies. That is affirmed by WPMFP by supporting multidisciplinary inputs of knowledge to understand the social, economic and cultural contexts of fisheries and fisheries development. Furthermore, the PFRSFAA also supports a bottom-up approach to implement policies affecting traditional fishers. However, the policy framework at the global and SADC level indicates less effort towards cooperative governance at the local level. The realignment of fisheries policies from the global scale to the local level should be prioritised to strengthen the policy framework that governs the affairs of traditional fishers and rural coastal communities. In the public consultation traditional fishers and coastal communities expressed the importance of integration of IKS in cooperative governance structures.

For instance, IL-TH-1, IL-TH-3, KC-TH-3, KC-TH-5, UMK-TH-1, UMK-TH-2, UMK-TF-1, UMK-TF-2, UMK-TF-7, KC-TF-5, KC-TF-6, IL-TF-1, IL-TF-2, UMK-IND-1, KC-IND-1 and IL-IND-1 stated

“... traditional leadership should be recognised as a formal institution that looks after the affairs of traditional fishers and communities. Izimbizo should be respected as one of the governance platforms that discusses traditional fisheries matters.”

The collaborative and decentralised co-management approach supports the integration of customary laws in the governance of traditional fisheries. It also recognises local customary laws were built around intergenerational ritual practices which are respected by local communities (Tilley *et al.*, 2019, p. 392). It is argued, however, that it creates a management conflict for national fisheries enforcement due to ambiguity in implementation of legislation among agencies

(Méndez-Medina *et al.*, 2020, p. 1). The socio-cultural and socio-economic dynamics for KZN rural coastal communities are conducive to decentralised cooperative governance which promotes democratic participation in decision-making processes.

7.4.4.2 Cultural spirituality

According to Lowe, Jacobson, Anold, Mbonde and Lorenzen, (2019, p. 1024) cultural spirituality and spirituality play a pivotal role in the governance of the fishery sector in many parts of the world. It further influences local community participation in fisheries governance. For instance, in Eastern North Carolina most traditional fishermen and managers practise Christian beliefs which influence their attitudes toward the management of fisheries to the extent that public economic meetings turn into religious arguments (Brown, 2008, p. 2). However, these cultural customs are often excluded in modern fisheries governance in some part of the world (Yusuf, 2011, p.20). It is speculated that the provision of cultural benefits such as cultural identity and heritage values are identified as a key information gaps in fishery policies (López de la Lama *et al.*, p. 129). The below matrix presents perspectives from traditional fishers and communities on matters regarding the impact of cultural religion in the functionality of governance and institutional framework for the fishery industry in KZN.

Matrix 7-9: Cultural and Spiritual Approaches to Environmental Sustainability

Subcategory	Responses	Respondents
Cultural-spiritual	The ocean environment is regarded as a sacred environment and every community member is expected to protect that environment at all cost. It is something that we have learnt from our elders that we need to protect the natural environment in and around the coast.	All
	We protect the environment because it is where we spend most of our time connecting with our ancestors. Sacred space must be protected by all means. Every community member is aware that the ocean environment has to be kept clean and healthy for other community members be able to have a great ocean experience from a spiritual standpoint.	All
	We've got different groups of people using the coastal area for spiritual reasons and they are expected to ensure that the environment is always clean.	All
	There are also different traditional groups practising and performing their customs on a daily basis which includes respect for the natural environment.	All

Traditional fishers and communities support the influence of cultural customs in the governance of the fishery sector. The alignment of government fishery policies and the practice of local cultural customs could bridge the gap between the communities and government. There is a strong

connection of African people with cultural customs (Penniman, 2018, p. 2). The connection could further extend to government through incorporation of cultural customs with fishery policies. Therefore, understanding the evolving interaction between traditional fisheries and cultural practices may provide valuable insights for improving governance of fisheries. For instance, WPMFP embraces multidisciplinary inputs of knowledge to understand social, economic and cultural contexts of fisheries and fisheries governance. The level of non-compliance with fishery policies could be significantly reduced by alignment between cultural customs and fishery policies enforced by the government. In contrast, cultural differences work against the development of any community. Cultural difference incites conflict in communities resulting in weak governance and a high level of non-compliance (Advani, 2020, pp. 2,3). Nonetheless, in the public consultations traditional fishers and coastal communities expressed the need to recognise customary practices when it comes to the functionality of governance and institutional framework for the fishery industry in KZN.

For instance, IL-TH-1, IL-TH-3, KC-TH-3, KC-TH-5, UMK-TH-1, UMK-TH-2, UMK-TF-1, UMK-TF-2, UMK-TF-7, KC-TF-5, KC-TF-6, IL-TF-1, IL-TF-2, UMK-IND-1, KC-IND-1 and IL-IND-1 stated

“... we take pride to our customary laws because they bond us all as the community. Therefore, our customary laws should be incorporated to the government policies.”

South Africa is characterised by customary rights or cultural practices derived from customary law (Monyamane and Bapela, 2019, p. 4). These are acknowledged in the Constitution of South Africa (RSA, 1996). However, it is argued that preservation and sustainability negate the use of the oral tradition of customary law in South Africa (Manetsi, 2007, p. 1). Even though most policies from the policy framework of the study do not recognise the significance of cultural customs in the governance of fishery sector, WPMFP and PFRSFAA should be used as a baseline for the development of fishery policies. That would be one step toward bridging the gap between government and communities on fishery governance matters. Furthermore, integration of cultural customs with fishery policies complements the bottom-up approach which seeks to understand and address issues of communities.

7.4.4.3 Traditional institution and leadership

History presents evidence that traditional leadership experienced adversity under the colonial system. According to Koenane (2018, p. 58) the institution of traditional leadership and governance on the African continent existed in the colonial and apartheid eras. It was the only

recognised system that was used for the governance of indigenous people. African traditional leadership structures were collapsed by the political influence imposed by the Apartheid system through the adoption of democracy (Monyamane and Bapela, 2019, pp. 2-4). African traditional leadership is regarded as a ‘one-man show’ system of governance which is highly critiqued by the ideology of the democratic system (Lutabingwa, Sabela and Mbatha, 2006, pp. 73-75). However, it is argued that the traditional leadership is still relevant as a trusted system of governance in rural communities in South Africa, although the democratic government of South Africa fails to clearly define the role of traditional leadership in government. In addition, the policy framework that is the subject of this study does not recognise nor clearly explain the role of traditional leadership in the governance of the fishery sector. Nonetheless, the below matrix 7-10 presents views from traditional fishers and communities on matters regarding the impact of traditional leadership on the functionality of governance and institutional framework for the fishery industry in KZN.

Matrix 7-10: Traditional institutions and leadership

Subcategory	Responses	Respondents
Traditional institutions and leadership	<i>Imbizo</i> and any other meetings called by traditional leadership should be used as a formal structure for fishers to discuss matters around traditional fisheries.	DC27-TF-1 DC27-TF-2 DC27-TF-3 DC27-TF-4 ETH-TF-1 ETH-TF-2 ETH-TF-3 ETH-TF-4
	<i>Amakhosi</i> have tried countless times to engage government on issues that affect traditional fishers, but there is nothing happening.	All
	We have been sending our grievances to our local councillors and traditional leaders and we are not getting any response and direction. We have even tried to engage Isimangaliso Wetland Park and there are no improvements. No one is attending our issues.	DC27-TF-1 DC27-TF-2 DC27-TF-3 DC27-TF-4

The matrix indicates the disconnect between the community and government on matters around fishery governance. The community expressed that they have a strong connection with traditional leadership institutions. On one hand, the issues affecting communities are reported to these traditional institutions and subsequently referred to relevant government structures. However, there is no urgency from government structures addressing issues received from traditional institutions. Hence, there is a disconnection between traditional or indigenous institutions and government structures. Even though traditional leaders are recognised by the Constitution of South Africa, the type of role they play in local and provincial government structures is not that clear. For instance, a study conducted by Johnson, Reyuw, Yalon, McLean and Houk (2020, p.

1) established that rural communities and traditional fishers with decentralised decision-making systems had the best ecological outcomes. On the other hand, rural communities and traditional fishers lacking any form of leadership are associated with poor ecological outcomes. The study also investigated the rural communities and traditional fishers with strong top-down leadership which yielded inconsistent ecological outcomes. In the public consultations traditional fishers and coastal communities discussed the impact of traditional leadership on the functionality of governance and institutional framework for the fishery industry in KZN.

For instance, IL-TH-5, IL-TH-8, KC-TH-9, UMK-TH-1, UMK-TH-2, UMK-TF-1, UMK-TF-4, UMK-TF-7, KC-TF-5, KC-TF-6, IL-TF-1, IL-TF-2, UMK-IND-1, KC-IND-2, UMK-IND-1 and IL-IND-2 stated

“... Government should have granted Izinduna and Amakhosi time to engage the communities through Izimbizo for the public consultation. That shows government does not recognise the existence of traditional leadership in the province of KZN.”

Government officials in the public consultation engagements for small-scale fisheries and coastal communities seemed to be imposing the proposed policy to communities since the due customary processes were not followed. That is perpetuated by current government’s ideology that promotes neoliberal policy frameworks which undermines traditional leadership and African ways of knowing. KZN is characterised by a multi-cultural society which is diverse in nature. The government’s approach to public participation creates barriers between rural communities and government as it lacks cultural background and uses a Eurocentric system. Therefore, it would be important that traditional institutions be allowed to take the lead in cultural and customary practices.

7.4.5 Co-create with study participants an evidence-based policy framework and interventions for environmental sustainability to improve the operations of the traditional fisheries in KZN, South Africa.

The United Nations (2018, p. 7) identifies the three pillars of environmental sustainability as economic development, social development, and conservation of the natural environment. However, the concept of environmental sustainability is perceived differently by traditional fishers and rural coastal communities in KZN. The study participants expressed that the concept of environmental sustainability should incorporate MPAs, environmental education and IKS to improve governance of traditional fisheries.

7.4.5.1 Effect of the South African MPAs

Bennett and Dearden (2014, p. 107) claim that MPAs that are located near coastal communities are effective conservation and fisheries management tools that drive a social, economic, cultural, and political impact on rural coastal communities. However, Eger (2020, p. 1) argues that MPAs are not well coordinated, and are also influenced by a centralised and top-down approach to conservation of the marine environment. Furthermore, it excludes traditional fishers from environmental decision-making as stakeholder consultation engagements about management of MPAs exclude the communities (Haddaway *et al.*, 2017, p.1). The policy framework of the study presents that CCRF, PFRSFAA, RASAP, WPMFP and PSSF advocate the protection of the natural environment. It also indicates the commitment by national, provincial and local sphere of government to provide more resources for environmental protection initiatives.

Faasen and Watts (2007, pp. 36-40) claim that the conservation of natural resources in apartheid South Africa entailed the exclusion of humans from protected areas. This exclusion included denial of access rights that rural communities had enjoyed in the areas designated as conservation reserves. In fact, South Africa experienced environmental racism that took many extreme forms in apartheid South Africa. Palmer, Zedler and Falk (2016, p. 1) claim that an ecological restoration system has been practiced for many years by many traditional people to sustain the natural ecosystem. Therefore, the matrix 7-11 below presents views from traditional fishers and communities on their role in the environmental conservation of the MPAs.

Matrix 7-11: Environmental sustainability

Subcategory	Responses	Respondents
Environmental sustainability	We don't overfish as we are all aware that it can deplete our limited resources. We want our fishing activities to be more sustainable because we are very much dependent upon it.	All
	We have systems in place that protect overfishing by using a certain type of a fishing net.	All
	We have systems in place that we use to protect our environment by ensuring that there is no overfishing and degradation or pollution of the natural environment.	All
	Government seems to have the perception that our traditional ways of fishing are not sustainable and that we are degrading the environment but we are not.	All
	We know certain types of fishes cannot be caught during certain periods of the year. We link climatic conditions to the movement of fish to support environmental sustainability.	All

Traditional fishers and rural coastal communities expressed that government imposes more stringent regulations to protect MPAs. There are also concerns expressed by traditional fishers that the MPA agenda undervalues socio-economic objectives and human rights which are not

front and centre in high-level dialogue around the MPAs. The MPA policy is contested because the framework is not centred around communities. Consequently, the protection of the environment is prioritised over the needs of communities. It is argued that MPA policy serves to override geographic, political and economic interests while jeopardising the substantial benefits SSF provides through the nature conservation and livelihoods of communities (Cohen *et al.*, 2019, p. 171). Nonetheless, in the public consultations traditional fishers and coastal communities expressed the impact of environmental sustainability on traditional fisheries.

For instance, IL-TH-1, IL-TH-3, KC-TH-1, UMK-TH-1, UMK-TH-2, UMK-TF-3, UMK-TF-2, KC-TF-1, KC-TF-6, IL-TF-4, IL-TF-5, UMK-IND-2, KC-IND-2 and IL-IND-2 stated

“...MPAs impose methods of environmental conservation on communities and it is also a tool used by the government to marginalise our communities.”

Therefore, MPAs should be founded on transdisciplinary perspectives to effectively redress multiple concerns associated with socio-economic and socio-cultural dynamics for traditional fisheries and coastal communities (Chuenpagdee and Jentoft, 2019, p. 3). In addition, environmental conservation for coastal areas requires transdisciplinary knowledge which integrates the universal knowledge of natural science and context specific knowledge with local indigenous knowledge endorsed by communities. It is imperative that government invest in cross-sectoral cooperation to resolve historical disagreements between traditional fisheries and environmental sustainability programmes. Friedman, Garcia and Rice (2018, p. 1) affirm that the approach of fisheries in many parts of the world is progressively focusing on a broader range of environmental sustainability with socio-economic issues in the forefront. Therefore, an institutional framework is required for governance of the marine environment and improved links between dynamic ecological and social systems (Hughes *et al.*, 2005, p.330).

7.4.5.2 Environmental education

Environmental education should be centred around knowledge co-production which involves indigenous communities in defining objectives to enhance local capacity for self-determination in research and resource management (Chapman and Schott 2020, p. 931). In contrast, it is argued that co-production is sometimes regarded as a method that fails to be sufficiently protective of scientific inquiry and that tampers with the independence of knowledge generators (Cooke *et al.*, 2021, p. 89). However, ensuring that multiple stakeholders are engaged as partners can mitigate some challenges through strengthening relationships between researchers and local collaborators (Parry, Eve and Myers, 2022, p. 147). The policy framework of the study lacks information regarding discussion on the importance of environmental education. Therefore, the below matrix

7-12 presents perspectives from traditional fishers and communities on the role of environmental education in sustainability development.

Matrix 7-12: Environmental education

Subcategory	Responses	Respondents
Environmental education	We as the community have to educate government that our methods are compatible with environmental sustainability.	All
	Education should be a two-way stream whereby government empowers us with information and at the same time government is open to learn from communities.	All

Traditional fishers and rural coastal communities expressed that environmental education involves facilitating participation of different stakeholders, empowerment of marginalised groups, government learning and socially just engagement. Therefore, the transdisciplinary nature of environmental education should be reflected in a consultative approach and broad engagement by different role players. In addition, facilitation of environmental education through knowledge co-production offers a new frame for the collaborative implementation of the resulting plans. Stakeholders from diverse knowledge systems including local communities create a permeable knowledge boundary which caters for the needs of multiple social groups while safeguarding environmental sustainability. In the public consultation workshops traditional fishers and coastal communities expressed the impact of environmental education on traditional fisheries.

For instance, IL-TH-1, IL-TH-3, KC-TH-1, UMK-TH-1, UMK-TH-2, UMK-TF-3, UMK-TF-2, KC-TF-1, KC-TF-6, IL-TF-4, IL-TF-5, UMK-IND-2, KC-IND-2 and IL-IND-2 stated

“.... even though government does not learn much from the community, but we always receive workshops and participate in awareness campaigns about environmental education.

The expression above indicates that co-production of environmental knowledge bridges the gap between communities and government through promotion of cross-sectoral cooperation. It also integrates the IKS with Western scientific approaches to understand governance of traditional fisheries (Nel et al., 2016, p. 176). Government should introduce environmental education programmes that localise issues and also collaborate with scientists, resource managers, community organisations, traditional leaders and indigenous groups to co-create knowledge systems that best suit the South African context. That means government should conduct more collaborative work with traditional fishers and local communities to strengthen environmental policies that seek to conserve the coastal ecosystem. Integration of IKS into government policies would create the sense of ownership, sharing expertise, best practices, consultation on policy

direction, programme delivery, and research partnerships. It is recommended that government promote stakeholder engagements and enable indigenous rights holders to be more directly involved in research agendas and to facilitate more direct pathways for knowledge exchange. Therefore, government should introduce a framework which promotes effective environmental education through collaborative environmental actions. Furthermore, a framework should also be able to transfer information to communities to enhance environmental attitudes, values, and knowledge.

7.4.5.3 Environmental indigenous knowledge

On one hand, indigenous knowledge has been part of the rich cultural heritage of societies (Battiste, 2016, p. 111). Adom (2019, p. 43) claims that elderly people in most coastal communities in Ghana often use IKS in teaching younger generations about the need to conserve the natural environment. On the other hand, there are studies that argue that IKS are utilised as a mechanism to abuse the environmental resources under the guise of maintaining the natural and spiritual relationship between indigenous people and their ancestors. However, Latulippe and Klenk (2020, p. 7) affirm that indigenous knowledge co-production plays an informative and facilitative role in global environmental change governance. There is a great opportunity for government and policy makers to entrench indigenous environmental knowledge which informs environmental decision-making. Indigenous environmental knowledge influences self-determining nations with rights and responsibilities regarding their knowledge systems and collective decision-making (Arsenault *et al.*, 2019, p.120). PFRSFAA, as part of the policy framework of the study, recognises the role of the IKS system in social cohesion and the governance of the fishery sector. Although the concept of the introduction of IKS into environmental sustainability is slowly emerging, the implementation of the one-dimensional scientific method is still prevalent in many parts of the world. Matrix 7-13 presents perspectives from traditional fishers and community members on the role of IKS in environmental conservation in sustainable development.

Matrix 7-13: IKS conserves the natural environment

Subcategory	Responses	Respondents
Environmental IKS	We have our own ways of conserving the environment through indigenous knowledge that allows us to communicate with nature.	DC27-TF-3 DC21-TF-2 DC21-TF-3
	Cultural beliefs also form part of conservation of the natural environment.	DC27-TF-1 DC27-TF-2 DC27-TF-3 DC27-TF-4

The responses of the traditional fishers and community demonstrate that positive use of IKS in environmental sustainability education can potentially enhance conservation ethics and collaboration in communities. IKS are preserved to have rich conservation ethics which enhances sound environmental sustainability education for local communities (Battiste, 2016, p. 111). IKS advocate for environmental protection and relay a unique sacred relationship between indigenous communities and the environment which leads to a peaceful coexistence. Furthermore, IKS play a critical role in the conservation of the environment through mechanisms for disseminating traditional ecological knowledge (Battiste and Youngblood, 2000, p. 1). IKS transcends knowledge, beliefs, traditions and worldviews developed and sustained by indigenous and local communities. Moreover, it is interconnected and embedded to humans and their behaviours to broaden environmental, socio-cultural and spiritual context. There is a strong socio-cultural relationship between the rural coastal communities along the KZN coast and the sea (Sunde and Erwin, 2020, p. 7). The strong spiritual connection and ancestral relationships of these rural villages with the natural coastal environment is vital for the people. To this end, in the public consultations traditional fishers and coastal communities expressed the impact of environmental IKS in traditional fisheries.

For instance, IL-TH-1, IL-TH-3, KC-TH-1, UMK-TH-1, UMK-TH-2, UMK-TF-3, UMK-TF-2, KC-TF-1, KC-TF-6, IL-TF-4, IL-TF-5, UMK-IND-2, KC-IND-2 and IL-IND-2 stated

“... African ways of conserving the environment should be incorporated to fishery policies.”

The views of the study participants indicate that IKS play a significant role in attempts for academic decolonisation. IKS attempt to neutralise the Eurocentric methodologies and embrace African ways of knowing. Knowledge co-production of IKS with environmental governance justifies a paradigm shift from Western science and makes way for Indigenous research leadership (Latulippe and Klenk, 2020, p. 8). Traditional fishers and communities affirmed the assertion by Muller, Hemming and Rigney (2019, p. 400) that the conservation of the environment has been a tool of colonialism, privileging Western science, institutions, and administrative procedures. That means the South African policy framework that governs fisheries is highly influenced and controlled by Western culture. Consequently, it influences the methodologies that are applied when conducting research in search of solutions. It conflicts with the concept of ‘African solutions to African problems’ which is a maxim of the African Union. IKS intend to emancipate African states to become self-reliant, responsible and capable to solve our own problems and reduce the influence of external forces in continental affairs. Therefore, government should introduce a framework that is developed on the basis of the ‘African solutions to African problems’ maxim. The framework should call for appropriate research approaches which express

epistemic freedom through decolonising systems that safeguard Eurocentric thinking on the African continent.

7.5 Conclusion

In conclusion, the demographic profile of respondents reflects a comprehensive representation of the diverse voices within traditional fisheries and coastal communities. By ensuring inclusivity across gender, age groups, and organizational hierarchies, the study has endeavoured to capture a holistic spectrum of perspectives that enriches understanding of the complex dynamics at play.

Overall analysis reveals a sobering reality that traditional fishers continue to grapple with systemic marginalization and exclusion within the broader policy landscape of South Africa. Rooted in historical legacies that perpetuate socio-economic disparities, existing policies have failed to adequately address the unique needs and aspirations of traditional fishers, constraining their ability to fully participate in the economic mainstream.

Central to the aspirations of traditional fishers is the pursuit of fishing licenses, which are perceived as a crucial gateway to economic empowerment and sustainable livelihoods. As such, study findings underscore the urgent need for policy interventions that prioritize the equitable distribution of fishing licenses to traditional fishers, thereby fostering economic development and social equity in the coastal regions of KZN.

Moving forward, it is imperative for government entities at the national, provincial, and local levels to heed the voices of traditional fishers and enact policies that promote their socio-economic advancement. By embracing a more inclusive and participatory approach to policy-making, stakeholders can pave the way for a more just and sustainable future for traditional fisheries and coastal communities alike. Only through concerted action and collaboration can begin to dismantle the barriers that perpetuate marginalization and pave the way for a more equitable and prosperous future for all.

8. CHAPTER EIGHT: COMPARATIVE ANALYSIS, TRIANGULATION AND EMERGING THEMES

8.1 Introduction

Chapter Eight delves into the intricacies of qualitative comparative analysis, aiming to construct a robust framework that not only resonates conceptually but also stands the test of empirical scrutiny. The study strives to unearth insights that are not only meaningful but also empirically grounded, enriching our understanding of the phenomena under investigation.

Furthermore, this chapter embarks on a journey of triangulation, weaving together multi-method, mixed-method, and theoretical approaches to illuminate the complexities inherent in our research. Through triangulating diverse perspectives and methodologies, the study endeavours to enhance the validity and reliability of our study, ensuring that our findings are robust and defensible.

Moreover, this chapter elucidates emerging themes that have surfaced during data analysis. These themes offer a nuanced and detailed insight into the various facets of the phenomena under study, shedding light on the diverse range of intersubjective experiences that characterize our research context. Through careful examination and interpretation, the study aims to unravel the underlying patterns and intricacies that define our study domain.

8.2 Qualitative Multi-Mode Data Triangulation

This section presents a comparative analysis of qualitative data organised consistently with the subheadings used in Chapter Six. This section presents comparative in-depth interviews across three district municipalities in KZN and secondary data. This section encompasses the triangulation of multi-method qualitative data to establish if there is any correlation or divergence between the in-depth interview data and the secondary data. Triangulation of multi-mode qualitative data refers to an analysis of multiple methods or data sources in qualitative study to obtain a comprehensive understanding of phenomena (Lemon and Hayes, 2020, p.604). It is viewed as a qualitative research strategy to test validity through the convergence of information from different sources of data (Archibald, 2016, p. 228). Therefore, multi-mode triangulation of qualitative data was applied to the study to enhance the internal validity of study. This section presents the multi-mode triangulation of qualitative data organised consistently with the subheadings used in Chapter Six, and applying the information presented in Section 8.2 of this chapter. This section presents a multi-mode triangulation of qualitative data for in-depth interviews conducted in uMkhanyakude (Dukuduku), eThekweni Metro (Umgababa), and uGu

(Mthwalume) communities together with documentary evidence to establish if there is any correlation or divergence between these three modes.

8.2.1 Socio-economic opportunities and barriers for traditional fisheries in KZN, South Africa.

Table 8-1 presents the qualitative multi-mode data triangulation for socio-economic opportunities and barriers drawn from in-depth interview matrices and secondary data respectively. This comprehensive approach allows us to capture the multifaceted nature of socio-economic dynamics within our research context, providing a holistic understanding of the factors at play and their interconnections.

Table 8-1: Qualitative multi-mode data triangulation for socio-economic opportunities and barriers

SUB-CATEGORIES	INTERVIEWS					SECONDARY
	uMkhanyakude	eThekweni	uGu	Government	Public	
OBJECTIVE 1 A: Socio-economic opportunities						
Employment and food security	Fishing creates employment for many of us in this community. DC27-TF-1 DC27-TF-2 DC27-CS-1	Traditional fisheries also fight poverty as it creates employment for many people in our community. ETH-TF-3 ETH-CS-1 ETH-IND-1	Some fishers make good money as they have established their own market whereby they supply fish to informal traders in town. DC21-TF-1 DC21-TF-2 DC21-CS-1 DC21-IND-1	DFFE encouraged traditional fishers to pursue other alternative opportunities such as marine aquaculture, offshore oil and gas exploration, marine manufacturing and repairs.	Fishing creates employment and food security for many of us in this community.	Traditional fisheries contribute to employment, income and food security (FAO, 1995). States should empower marginalised groups in aquaculture. (AUC, 2014; SADC, 2016). States should promote market access and value chain investments for traditional fishers. (AUC, 2014; RSA, 2020).
OBJECTIVE 1 B: Socio-economic barriers						
Resources	We don't have means to buy a fishing boat so that we can maximise our fishing capacity. DC27-TF-2, DC27-TF-4 DC27-CS-2	Government has not delivered to provide traditional fishers with the fishing equipment. ETH-TF-1 ETH-TF-2	There are no government funds allocated to assist us as traditional fishers with basic necessities for fishing.	There is budget that accommodates commercial and small-scale fisheries.	Financial barriers of entry into fishing are big because we cannot afford to buy boats and other fishing	Long-term commitment for funding to transform marginalised group is required (AUC, 2014). Access to local, regional and international

SUB-CATEGORIES	INTERVIEWS					SECONDARY
	uMkhanyakude	eThekweni	uGu	Government	Public	
		ETH-CS-1 ETH-IND-1	DC21-TF-1 DC21-TF-4 DC21-CS-4 DC21-IND-1		equipment required.	funding sources to support fishery industry (RSA, 2020; RSA, 1997; SADC, 2016; AUC, 2014).
Market share	We had requested government to assist us to find fishing markets for traditional fishers. DC27-TF-1 DC27-TF-1 DC27-CS-1	It seems like government only assist commercial businesses to access fish markets. ETH-TF-4 ETH-CS-3 ETH-IND-2	There are opportunities of accessing greater market for traditional fisheries. DC21-TF-2 DC21-TF-4 DC21-CS-4 DC21-IND-2	There are government initiatives that promotes small-scale fishers to have access to markets.	We cannot fish like how it used to be like many years ago. We don't have market that is big enough to make sufficient money out of traditional fisheries.	African economy to drive market-led sustainable development strategies (PFRSFA, 2014). To improve market access to aquaculture products for diversification locally and SADC region (RSA, 1997; SADC, 2016).
Fishing permits	Fishing permits will be the first step towards economic empowerment. DC27-TF-2 DC21-TF-4 DC27-TF-4 DC27-CS-2	We need to be granted fishing permits to gain access to the sea. ETH-TF-1 ETH-CS-3 ETH-IND-1	Fishing permits are very important for traditional fishers. DC21-TF-2 DC21-TF-4 DC21-CS-1 DC21-IND-1	Government issues fishing permits for registered small co-operates from rural coastal communities.	Majority of young people don't have fishing permits. Some of us do have fishing licences, however we still denied to fish using these licences.	The policy objective advocates that holders of fishing rights provide acceptable conditions of employment. (RSA, 1997). Dysfunctional process for allocation of fishing rights to small-scale fishers (RSA, 1997; RSA, 2012).

As Table 8-1 presents, primary and secondary data reveal the convergence views about socio-economic opportunities for traditional fisheries. The convergent views from the interviews and secondary data reflect fisheries as the main source of income for traditional fishers from all three district municipalities. Furthermore, fisheries play a significant role to alleviate poverty for number of rural coastal families within these district municipalities. However, data also reveals the divergence views about socio-economic opportunities between government officials and the public. Government officials presented and workshopped the public about marine aquaculture, offshore oil and gas exploration, and marine manufacturing and repairs as emerging economic opportunities to be explored by traditional fishers. Whereas, the public demonstrated their main

interest to fisheries and rejected marine aquaculture, offshore oil and gas exploration, and marine manufacturing and repairs.

As Table 8-1 presents, primary and secondary data reveal the convergence views about socio-economic barriers affecting traditional fisheries. The convergent views from the interviews and secondary data reveal lack of access to financial resources, market share and fishing permits as stumbling block for development of traditional fisheries. However, data also reveals the divergence views about socio-economic barriers between government officials and the public. Government officials claimed that DFFE issues fishing licences for traditional fishers in close corporation companies. Whereas, the interviews, public and secondary data reveal slow progress by DFFE to issue fishing licencing to traditional fishers in KZN.

Therefore, the overall converging views of primary and secondary data may suggest that different stakeholders within the fishery sector acknowledge the socio-economic opportunities and barriers for traditional fisheries. However, the converging views may reveal the disconnection between DFFE and the rural coastal communities in KZN. Furthermore, it could be concluded that there are major shortfalls in the implementation of SSFP by DFFE.

8.2.2 Co-create evidence-based knowledge with study participants to overcome barriers and expand opportunities for traditional fisheries in KZN, South Africa.

This section presents the multi-mode triangulation of qualitative data for co-creation of evidence-based knowledge with study participants to overcome barriers and expand opportunities for traditional fisheries. The multi-mode triangulation for qualitative data is drawn from the in-depth interview matrices and secondary data respectively, as presented in Table 8-2.

Table 8-2: Qualitative multi-mode data triangulation for co-creation of evidence-based knowledge with study participants

SUB-CATEGORIES	INTERVIEWS					SECONDARY
	uMkhanyakude	eThekweni	uGu	Government	Public	
OBJECTIVE 2: Co-create evidence-based knowledge with study participants to overcome barriers and expand opportunities for traditional fisheries in KZN, South Africa.						
Indigenous knowledge	SSFP should embrace local indigenous knowledge. DC27-TF-1 DC27-TF-2 DC27-CS-2	Integration of IKS to local economic development initiatives for traditional fishers' development	A policy that will recognise, protect and capture our indigenous knowledge. DC21-TF-1 DC21-TF-1	DFFE presented the legislated process that was followed for the public consultation workshop.	Government should use existing traditional leadership platforms for any public participation process.	Great value of indigenous and local knowledge for development of fishing industry (RSA, 2012; PFRSFA, 2014).

SUB-CATEGORIES	INTERVIEWS					SECONDARY
	uMkhanyakude	eThekwini	uGu	Government	Public	
		ETH-TF-2 ETH-CS-3 ETH-IND-2	DC21-CS-1 DC21-IND-1			

As Table 8-2 presents, primary and secondary data reveal the convergence views regarding co-creation of evidence-based knowledge with study participants to overcome barriers and expand opportunities for traditional fisheries. The convergent views from the interviews and secondary data reflect the importance of the recognition of IKS and other African ways of knowing for the development of traditional fisheries. However, there are conflicting views between government and the public regarding integration or inclusion of indigenous knowledge to fishery policies. This seems to confirm that government and rural communities are governed by two separate governance systems that run parallel.

Therefore, this seem to suggest government excludes the contribution of IKS and other African ways of knowing in the implementation of SSFP. Furthermore, this means government is defying SSFP and the Constitution of South Africa regarding the role of customary law as being of equal status with common law.

8.2.3 Examine implementation of the SSFP that governs traditional fisheries in KZN, South Africa as it pertains to traditional fishers, civil society members, traditional leaders and government

This section presents the multi-mode triangulation of qualitative data for examination of an implementation of the PSSF pertaining traditional fishers, civil society members, traditional leaders and government. The multi-mode triangulation for qualitative data is drawn from the in-depth interview matrices and secondary data respectively, as presented Section 8.2.3 of this chapter.

Table 8-3: Qualitative multi-mode data triangulation for examination of SSPF policy

SUB-CATEGORIES	INTERVIEWS					SECONDARY
	uMkhanyakude	eThekwini	uGu	Government	Public	
OBJECTIVE 3: Examine implementation of the PSSF that governs traditional fisheries in KZN, South Africa as it pertains to traditional fishers, civil society members, traditional leaders and government						

SUB-CATEGORIES	INTERVIEWS					SECONDARY
	uMkhanyakude	eThekweni	uGu	Government	Public	
Inequality and marginalisation of traditional fishermen and fisherwomen	MPA hinders the development of traditional fishers. DC27-TF-2 DC27-TF-2 DC27-CS-2	Rural communities are denied access to the MPA. ETH-TF-2 ETH-CS-2 ETH-IND-3	Fishing permits are mainly granted to commercial fishers. DC21-TF-1 DC21-CS-3 DC21-IND-2	DFFE presented marine aquaculture, offshore oil and gas exploration, marine manufacturing and repairs as possible opportunities for traditional fishers. DFFE presented possible measures to resolve conflict between communities and government.	Traditional fishers are systematically excluded the ocean economy,	RSA (1998) and RSA (2012) advocate transformation and the redress of past injustices in the fishery sector.

As Table 8-3 presents, primary and secondary data reveal the convergence views regarding examination of an implementation of the SSFP pertaining traditional fishers, civil society members, traditional leaders and government. The convergence views indicate that government, traditional fishers and rural coastal communities acknowledge conflict by implementation MPA policy as communities are denied to access most part of the coastal area. Consequently, inaccessible MPAs has detrimental socio-economic and socio-cultural to traditional fishers and local communities. However, the divergence view reveal government's efforts to force traditional fishers to pursue alternative economic opportunities such a aquaculture, offshore oil and gas exploration.

Therefore, this seems to suggest that traditional fishers and rural coastal communities in KZN are socio-economic and socio-culturally marginalised through the implementation SSFP and MPA policy.

8.2.4 Critically assess the functionality of governance and institutional framework for the fishery industry in KZN, South Africa, particularly as it pertains to African ways of knowing

This section presents the multi-mode triangulation of qualitative data for the roles of inequality, public consultation and political influence in the implementation of PSSF in KZN. The multi-mode triangulation for qualitative data is drawn from the in-depth interview matrices and secondary data respectively, as presented in Table 8-4.

Table 8-4: Qualitative multi-mode data triangulation for assessing the functionality of governance and institutional framework

SUB-CATEGORIES	INTERVIEWS					SECONDARY
	uMkhanyakude	eThekwin	uGu	Government	Public	
OBJECTIVE 4: Critically assess the functionality of governance and institutional framework for the fishery industry in KZN, South Africa, particularly as it pertains to African ways of knowing						
Public consultation	We are not properly consulted for any policy amendment of formulation. DC27-TF-1 DC27-TF-2 DC27-CS-2	Government create conducive environment for public awareness campaigns and workshops for effective information sharing, ETH-TF-2 ETH-TF-3 ETH-CS-1 ETH-CS-2 ETH-IND-3	Government should follow cultural protocols for any public consultations. IKS should be recognised by SSFP DC21-TF-1 DC21-TF-3 DC21-CS-1 DC21-CS-4 DC21-IND-1	DFFE granted the community 30 days to comment on the new policy propositions.	The bottom-up approach to be applied for a review of SSFP. Involvement of local traditional leadership in public consultation is vital. The public should be granted enough time to comment on proposed policy amendments. Language barrier is always a challenge as policies are written in English.	Multidisciplinary inputs of knowledge to better understand socio-economic and cultural contexts for fisheries development (RSA, 1997). State must recognise the existence common law, customary law and customary fishing practices (RSA, 2012).
Cooperative governance	Collaboration between traditional leadership, civil societies, governmental departments from all spheres of government can improve	Stakeholders should attend local based community meeting to better understand traditional fisheries issues. IKS	Collaborations between government can bring positive change to communities. DC21-TF-1 DC21-CS-3 DC21-IND-2	Lack of understanding the importance of IKS in fishery governance by government.	<i>Izimbizo</i> should be recognised as the main the governance platforms that presides over traditional fisheries matters.	Establishment of cooperative institutional frameworks for effective governance and policy implantation (SADC, 2016). Promotion of integrated systems

SUB-CATEGORIES	INTERVIEWS					SECONDARY
	uMkhanyakude	eThekweni	uGu	Government	Public	
	<p>policy implementation.</p> <p>DC27-TF-1 DC27-TF-2 DC27-CS-2</p>	<p>should be recognised.</p> <p>ETH-TF-2 ETH-CS-2 ETH-IND-3</p>				<p>Traditional leadership should be assigned a role to co-manage traditional fisheries.</p> <p>of governance between nationally and internationally. (PFRSFA, 2014).</p>
Cultural-spiritual	<p>The ocean environment is regarded as a “sacred” place for our community.</p> <p>DC27-TF-1 DC27-TF-2 DC27-TF-4 DC27-CS-1 DC27-SC-3 DC27-IND-2</p>	<p>Most indigenous religious groups are spiritually connected to the coastal environment.</p> <p>ETH-TF-2 ETH-CS-2 ETH-IND-3</p>	<p>Some traditional groups perform their customs by the sea. Traditional fishers are denied access to the MPAs</p> <p>DC21-TF-1 DC21-CS-1 DC21-IND-1</p>	<p>DFFE indicated that Ezemvelo Wildlife are assigned to manage MPAs</p>	<p>The community is denied access to the MPA by Ezemvelo Wildlife.</p>	<p>Government should encourage MIT-D initiatives to better understand socio-economic and cultural for traditional fisheries development (RSA, 1997).</p>
Institution of traditional leadership	<p>Traditional leadership to take charge on traditional fisheries matters.</p> <p>DC27-TF-1 DC27-TF-2 DC27-TF-4 DC27-CS-1 DC27-SC-3 DC27-IND-2</p>	<p>Imbizo and any other meeting called by traditional leadership should be used as a formal structure for fishers to discuss matter around traditional fisheries. <i>Amakhosi</i> have tried countless times to engage government on issues that affect traditional fishers, but there is nothing happening.</p>	<p>Local-based structure should be used as war rooms to address issues pertaining traditional fisheries.</p> <p>DC21-TF-1 DC21-CS-1 DC21-IND-1</p>	<p>Government always involve traditional leadership on issues pertaining traditional fisheries</p>		<p>WPMFP embraces multidisciplinary inputs of knowledge to understand social, economic and cultural contexts of fisheries and fisheries governance (RSA, 2014).</p>

As Table 8-4 presents, primary and secondary data reveal the convergence views about assessment for the functionality of governance and institutional framework pertaining African ways of knowing. The convergent views from the interviews and secondary data reflect the importance of the community and other stakeholders in the public participation processes to influence SSFP. The data reveals a great opportunity for government to use existing institutions of traditional leadership at ward level for interactive and effective public consultation. Traditional leadership has a significant role to play in incorporating traditional fisheries agenda to Imbizo and other local government platforms. In addition, the convergence views identify a disconnect between government and the public which causes ineffective cooperative governance. Moreover, there is data consistencies about integration of IKS and cultural custom in public governance.

However, the divergence views between government and the public shows regarding timeframes for the public to provide comments on the proposed policy amendments. Data presents divergence views regarding corporative governance which indicate poor collaboration between the public, government and stakeholders. There are inconsistent views about cultural custom practices in the MPAs which create conflict between KZN Ezemvelo Wildlife and the public as communities are denied access to the MPAs.

Therefore, the overall interpretation of data, it is concluded that more public discourses that reconciles differences between government and the public regarding the role of IKS and cultural practices in public governance.

8.2.5 Co-create with study participants an evidence-based policy framework and interventions for environmental sustainability to improve the operations of the traditional fisheries in KZN, South Africa.

This section presents the multi-mode triangulation of qualitative data for co-creation of an evidence-based policy framework with study participants and interventions for environmental sustainability to improve the operations of the traditional fisheries. The multi-mode triangulation for qualitative data is drawn from the in-depth interview matrices and secondary data respectively, as presented Table 8-5.

Table 8-5: Qualitative multi-mode data triangulation for environmental sustainability

SUB-CATEGORIES	INTERVIEWS					SECONDARY
	uMkhanyakude	eThekwin	uGu	Government	Public	
OBJECTIVE 5: Co-create with study participants an evidence-based policy framework and interventions for environmental sustainability to improve the operations of the traditional fisheries in KZN, South Africa.						
MPAs	Communities use indigenous methods to nature conservation. MPAs aim to protect the environment. There is a need for environmental education. DC27-TF-3 DC27-TF-4 DC27-TF-1 DC27-CS-5 DC27-SC-6 DC27-IND-1	Traditional fishers use indigenous ways to manage overfishing. There is a need for environmental education. ETH-TF-2 ETH-TF-4 ETH-CS-5 ETH-CS-4 ETH-IND-1	Communities are denied access to the MPAs. MPAs aim to protect the environment DC21-TF-4 DC21-TF-5, DC21-CS-4 DC21-CS-5, DC21-IND-1	Government claims that traditional fishers and communities have access to the MPAs. MPAs aim to protect the environment. There is a need for environmental education.	Communities are denied to access MPAs with affect their socio-economic and socio-cultural wellbeing. There is a need for environmental education.	Implementation of environmental management policies for nature conservation. (FAO,1995; PFRSFA, 2014; SADC, 2016). Promotion of environmental sustainability.

As Table 8-5 presents, primary and secondary data reveal the convergence views regarding co-creation of an evidence-based policy framework with study participants and interventions for environmental sustainability to improve the operations of the traditional fisheries. The converging views reveal that MPAs play a vital role in the conservation of coastal natural environment. In addition, these views emphasise the role of environmental education in empowering both government and the public about environmental conservation. However, divergence views project the high level of dissatisfaction of local communities with management of MPAs. Implementation of the MPA policy perpetuates socio-economic and socio-cultural impacts to traditional fishers and rural coastal communities. Consequently, MPAs are perceived to advocate Eurocentric approach to fishery governance due to lack of integration of African ways of knowing into decision-making processes. Therefore, overall views portray MPAs as a stumbling block to the socio-economic and socio-cultural development of traditional fishers and coastal communities in KZN. There is necessity of integrating IKS to MPA policy and environmental education for the betterment of traditional fisheries and rural coastal communities in KZN.

8.3 Mixed-Method Approach Triangulation

According to Fielding (2012, p.124), combining different data and methods is the methodical strategy that is used to enhance validity for the empirical study of social phenomena. Mixed-method triangulation is applied through linking converging results to solidify the validity of the study (Flick, 2018, p.11). The following Table 8-1 presents an overview of how empirical data was used to triangulate findings from mixed-method research.

Table 8-6: Mixed-method triangulation

QUANTITATIVE METHOD (PRIMARY)	QUALITATIVE METHOD (PRIMARY)	QUALITATIVE METHOD (SECONDARY)
Research objective 1: Identify the socio-economic opportunities and barriers for traditional fisheries in KZN, South Africa.		
Socio-economic opportunities		
<p>There is strong positive correlation between socio-economic opportunities and traditional fisheries development.</p> <p>Significant percentage (about 90%) of government officials agreed with traditional fisheries comprises of socio-economic opportunities.</p>	<p>Traditional fishing because it is source of our livelihood and food security for many of us in our communities.</p>	<p>There are approximately 200 million Africans who rely on fish as an affordable source of protein (AUC 2014, p.17).</p>
Socio-economic barriers		
<p>There is strong positive correlation between socio-economic barriers and traditional fisheries development.</p> <p>Significant percentage (about 90%) of government officials agreed with traditional fisheries comprises of socio-economic barriers.</p>	<p>We don't have tools of trade to perform fishing operations. We also don't have fishing permits and access to market share.</p>	<p>CCRF, RASAP and PSSF are silent on the need for financial resources to empower traditional fishers (FAO,1995; SADC, 2016).</p>

Source: Researcher's fieldwork 2021-2022

Outcome of the Mixed-Method Triangulation for objective 1

Data reveals there are convergence views between both research methods regarding socio-economic opportunities and barriers for traditional fisheries in KZN. The objective views of

government officials coincide with experiences of traditional fishers about socio-economic and barriers for traditional fisheries in KZN.

<p>Research objective 2: Co-create evidence-based knowledge with study participants to overcome barriers and expand opportunities for traditional fisheries in KZN, South Africa.</p>		
<p>There is a strong correlation between means to overcome barriers and expand opportunities for traditional fisheries.</p> <p>Significant percentage (about 90%) of government officials agreed that there are means to overcome barriers and expand opportunities for traditional fisheries.</p>	<p>We need a policy that will embrace our local indigenous knowledge. A policy that will enable local communities to recognise their own way of fishing as local community. A policy that will recognise and protect and capture or indigenous for our future generation to continue with our legacy.</p>	<p>Policies should recognise the complementary value of indigenous and local knowledge systems (RSA, 2014).</p>

Source: Researcher's fieldwork 2021-2022

Outcome of the Mixed-Method Triangulation for objective 2

Data reveals there are convergence views between both research methods regarding means to overcome barriers and expand opportunities for traditional fisheries in KZN. The objective views of government officials coincide with experiences of traditional fishers regarding means to overcome barriers and expand opportunities for traditional fisheries in KZN.

<p>Research objective 3: Examine implementation of the SSFP that governs traditional fisheries in KZN, South Africa as it pertains to traditional fishers, civil society members, traditional leaders and government.</p>		
<p>The p-value <0.05 suggests that implementation of SSFP strongly influences development of traditional fisheries.</p> <p>Significant percentage (about 90%) of government officials agreed that there are no gaps in the implementation of SSFP in KZN.</p>	<p>Government is failing to support traditional fishers in KZN. Governance institutions for traditional fisheries are dysfunctional which leads to ineffective implementation of SSFP in KZN.</p>	<p>Government states should create more opportunities for traditional fishers and marginalised groups (FAO,1995).</p>

Source: Researcher's fieldwork 2021-2022

Outcome of the Mixed-Method Triangulation for objective 3

Data reveals there are divergence views between both research methods regarding implementation of SSFP in KZN. The objective views of government officials differ with

experiences of traditional fishers the implementation of SSFP in KZN. Government objective views identified no gaps in the implementation of SSFP. Whereas, traditional fishers and the public views revealed various challenges in the implementation of SSFP which have adverse impacts to the development of traditional fisheries in KZN.

Research objective 4: Critically assess the functionality of governance and institutional framework for the fishery industry in KZN, South Africa, particularly as it pertains to African ways of knowing.		
There is a strong correlation between the two variables (governance functionality and development of traditional fisheries). This means that positive intervention on institutional sustainability can result in good governance and significant development of traditional fisheries.	<i>Izimbizo</i> should be respected as one of the governance platforms that discusses traditional fisheries matters. Collaboration between traditional leadership, civil societies, governmental departments from all spheres of government can improve policies and the living conditions of rural communities.	WPMFP by supporting multidisciplinary inputs of knowledge to understand the social, economic and cultural contexts of fisheries and fisheries development (RSA, 2014).

Source: Researcher's fieldwork 2021-2022

Outcome of the Mixed-Method Triangulation for objective 4

Data reveals there are convergence views between both research methods regarding functionality of governance and institutional framework in KZN. The objective views of government officials coincide with experiences of traditional fishers regarding functionality of governance and institutional framework in KZN.

Research objective 5: Co-create with study participants an evidence-based policy framework and interventions for environmental sustainability to improve the operations of the traditional fisheries in KZN, South Africa.		
The p-value < 0.05 suggests that any changes on institutional and environmental sustainability can strongly influence changes on traditional fisheries development. Significant percentage (about 90%) of government officials agreed that environmental sustainability has a positive impact to the development of traditional fisheries.	MPA policy is implemented as a tool to continuously marginalise rural coastal communities in KZN. Traditional fishers and coastal communities are denied access to the MPAs. As result, there are socio-economic and socio-cultural impacts caused by inaccessibility of MPAs in KZN.	Protect and enhance our environmental assets and natural resources through sustainable resource management and use (SADC, 20216). Improved social and environmental responsibility among fishers and other members of the community (RSA, 2014).

Source: Researcher's fieldwork 2021-2022

Outcome of the Mixed-Method Triangulation for objective 5

Table 8-6 shows the mixed-method triangulation where the responses from the quantitative data are compared to the views extracted from the qualitative data. Table 8-6 reveals data convergences regarding, 1) socio-economic opportunities and barriers, 2) means to overcome barriers and expand opportunities, 3) functionality of governance and institutional framework in KZN. Whereas, there are data divergences regarding, 1) implementation of SSFP in KZN, and 2) the influence of environmental sustainability to the development of traditional fisheries in KZN. In other words, data reveals divergent outcomes between the two research methods regarding the influence of environmental sustainability to the development of traditional fisheries in KZN. The views of government officials differ with views and experiences of traditional fishers regarding the role of the MPAs in socio-economic and socio-cultural benefits to rural coastal communities. Traditional fishers and the public (civil society participants and public consultation participants) claimed that the enforcement of the MPA policy in KZN has negative impacts to socio-economic and socio-cultural outcomes.

8.4 Theoretical triangulation

Theoretical triangulation is applied to this research because various theories are used to form the meta-theoretical framework of the study (Fusch, Fusch. and Ness, 2018, p. 2). The meta-theoretical framework is made of stakeholder theory, theory of well-being, ethnography theory and ecological theory which are used to gain an understanding about governance, socio-economic, cultural and environmental management objectives. Furthermore, these theories are derived from and linked to the study variables or constructs from the annotated bibliography used to establish the rationale of the study.

Table 8-7: Theoretical triangulation of the study

OBJECTIVES	THEORY/ CONCEPTS	DISCIPLINE
Identify the socio-economic opportunities and barriers for traditional fisheries in KZN, South Africa.	Theory of wellbeing	Development Studies
Co-create evidence-based knowledge with study participants to overcome barriers and increase opportunities for traditional fisheries in KZN, South Africa.	Theory of wellbeing	Development Studies

OBJECTIVES	THEORY/ CONCEPTS	DISCIPLINE
Examine the implementation of the Small-Scale Fisheries policy that governs traditional fisheries in KZN, South Africa as it pertains to traditional fishers, civil society members, traditional leaders and government.	Policy implementation Stakeholder theory	Public policy Public Governance
Critically assess the functionality of governance and institutional frameworks for the fishery industry in KZN, South Africa, particularly as it pertains to African ways of knowing.	Ethnography theory Stakeholder theory	Socio-cultural Studies Public Governance
Co-create with study participants an evidence-based policy framework and interventions for environmental sustainability to improve the operations of the traditional fisheries in KZN, South Africa.	Ecological theory Policy implementation	Environmental Management Public policy

Multiple perspectives are employed to interpret a single set of data as presented in Table 8-7. Therefore, this study applies theoretical triangulation to promote the collaboration of different disciplines to establish ‘African solutions for African problems’. This research combines different theories from different fields or disciplines to produce the unique meta-theoretical framework as depicted in Figure 8-1. The meta-theoretical framework of this study aims to overcome the shortcomings from each theory to ensure perspectives that explain a phenomenon of the study. Therefore, the theoretical triangulation is aligned with a MIT-D approach in which different disciplines collaborate with an aim to understand and accurately capture social phenomena.

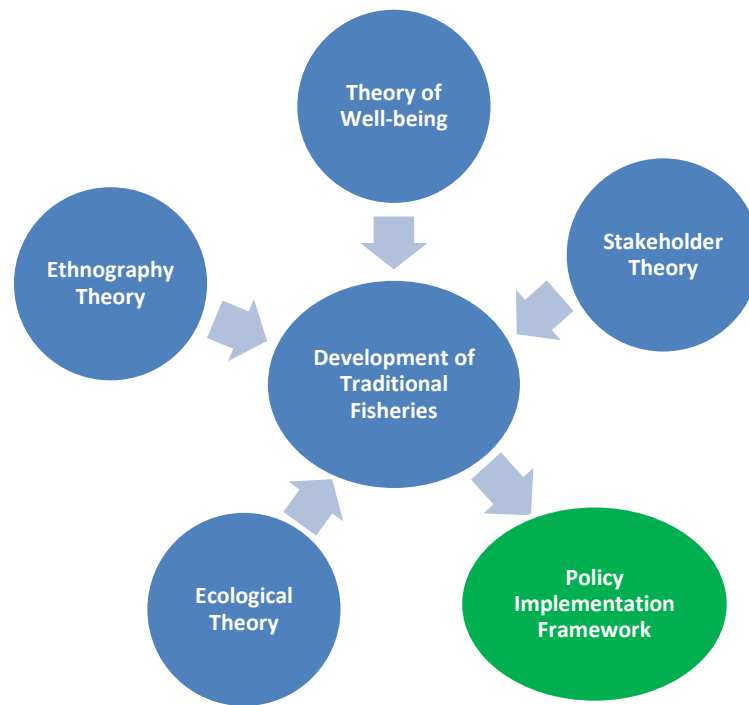


Figure 8-1: Theories and a concept triangulated in the study

The complex nature of challenges for traditional fishers and coastal communities requires a combination of cooperative efforts from different disciplines to understand and design solutions for the problems. Therefore, the development of traditional fisheries is influenced by different theories that form the meta-theoretical framework of the study as depicted in Figure 8-1. As a result, the meta-theoretical framework of the study complements the MIT-D approach which was embedded in this research in an attempt to establish solutions for traditional fisheries. The policy implementation framework is an output indicator from the collaborative efforts of different theories to better understand traditional fisheries. The policy implementation framework is comprehensively discussed in Chapter Ten as part of the recommendations of the study.

8.5 Paradigmatic Triangulation

The following Table 8-8 presents the paradigms and underlying ontologies, epistemologies, axiologies and methodologies that assisted the study to answer the research questions.

Table 8-8: Paradigmatic triangulation of data

Paradigmatic Orientations	African Epistemologies	Constructivism	Interpretivism	Hermeneutic Phenomenology
Ontology	<ul style="list-style-type: none"> • African experience, spiritual and cultural view of reality. • Ubuntu philosophy. 	<ul style="list-style-type: none"> • Reality is socially constructed. 	<ul style="list-style-type: none"> • Reality is socially constructed. 	<ul style="list-style-type: none"> • The same ‘bottoms-up’ strategy holds for formal ontology. • Ontological thematization of understanding and interpretation
Epistemology	<ul style="list-style-type: none"> • Knowledge is created through the concepts of wholeness, community and harmony which are deeply embedded in cultural values. 	<ul style="list-style-type: none"> • Knowledge is constructed between researcher and study participants. 	<ul style="list-style-type: none"> • Understanding the beliefs, cultures and motivations, 	<ul style="list-style-type: none"> • Subjective understanding through the meanings that people assign.
Axiology	<ul style="list-style-type: none"> • African values and communal values. 	<ul style="list-style-type: none"> • Phenomenological values 	<ul style="list-style-type: none"> • Inquiry is value-bound. 	<ul style="list-style-type: none"> • Beneficent • Balanced • Intentionality
Methodology	<ul style="list-style-type: none"> • A Social Study of Research. • Triangulation • Meta-theory. 	<ul style="list-style-type: none"> • Qualitative • Narrative research • Phenomenological • Ethnographies • Grounded theory • Case study 	<ul style="list-style-type: none"> • Interpretivists use both qualitative and quantitative research methods 	<ul style="list-style-type: none"> • Qualitative • Narrative research • Phenomenological • Ethnographies • Grounded theory • Case study
Methods	<ul style="list-style-type: none"> • Group interviews 	<ul style="list-style-type: none"> • Group interviews. 	<ul style="list-style-type: none"> • Group interviews. 	<ul style="list-style-type: none"> • Group interviews.

In Table 8-2, the green shaded areas present unique strengths of each paradigm. These unique paradigm characteristics highlighted in green are integrated and applied to answer the research questions. Integration of paradigms assisted the study to obtain a deeper understanding of socio-economic, socio-cultural, governance functionality, indigenous knowledge and environmental sustainability experiences of traditional fisheries in KZN. Furthermore, this integration assisted the study to provide a set of assumptions and perceptual orientations shared by traditional fishers, civil societies and traditional leaders. Moreover, it revealed the study participants’ the viewpoints about the phenomena and established suitable research methods that were employed to study those phenomena.

Table 8-2 affirms that African epistemological worldview is the foundation of the research as its ontology, epistemology, axiology, methodology and methods cut across all paradigms of the study. Government officials, traditional fishers and the public are guided by *Ubuntu* as roots in humanist African philosophy which advocates values of community and oneness. The

constructivism paradigm enabled the researcher to construct new knowledge with the study participants to produce the Traditional Fishery Conceptual Policy Framework (TFCP) which is discussed in Chapter Nine. The interpretivist paradigm assisted the study to understand cultural beliefs for traditional fishers and coastal rural communities. Interpretivism paradigm also uses both quantitative and qualitative research methods to understand and interpret the phenomena of the study. Hence, the study applied the mixed-method approach to investigate and answer the research questions. On one hand, the multivariant linear regression analysis was applied in the quantitative component to investigate the objectivity of the research questions. On other hand, the matrix and documentary analysis were applied in the qualitative component to investigate the subjectivity of the research questions. Therefore, the interpretivist paradigm applied the mixed-method triangulation for data analysis. Moreover, hermeneutic phenomenology enabled the study to establish emerging themes emanating from the qualitative data analysis. The hermeneutic phenomenology also intentionally influenced an application of a “bottoms-up” approach in the development of TFCP.

8.6 Emerging Themes from the Data Analysis

Emergent themes are defined as building blocks of an inductive approach in qualitative research and are derived from captured lived experiences of research participants through matrix analysis. This approach was applied to this research as it is an inductive approach which converges with the postpositivist and social constructivist paradigm of the study. Emergent themes have an ability to adapt to new ideas emanating from study matrices or findings that arise while conducting qualitative research. Therefore, matrix data is critically important to the development of emerging themes as it forms the building blocks of the subcategories from matrices.

The emerging themes analysis enhances the validity of the study through cross-checking collected data from study participants for correlation with emergent themes. It also verifies if the perceptions of the study participants are reflected in the emerging themes to ensure an accurate representation of the perspective or true picture of the study participants. The following Table 8-3 presents how the emerging themes of the study were derived from the matrices.

Table 8-9: Emerging themes derived from matrix categories and subcategories

CATEGORIES	SUBCATEGORIES	EMERGING THEMES
Socio-economic opportunities	Employment opportunities Poverty alleviation Crime reduction	Socio-economic opportunities in traditional fisheries

CATEGORIES	SUBCATEGORIES	EMERGING THEMES
Collaboration of stakeholders	Partnership with commercial fishers Recognition of different role players Inclusive decision-making process Transparent governance Collaboration of communities and government Capacity building	Cooperative governance
Resources	Exposure to fishing technologies Modern fishing technology Access to fishing equipment New fishing boats Funding	Capital resources
IKS	IKS in fishing Customary laws Traditional fishing practices Local and traditional knowledge Traditional fishers' formal structure <i>Amakhosi</i> and <i>Izinduna</i> leadership <i>Izimbizo</i>	IK is fundamental
Environmental management	Environment as a sacred space Spirituality and environment Culture and environment Environmental protection Indigenous conservation practices MPAs	Environmental conservation is subject to divergent views
Public policy	Red taping Fishing permits Inequality Exclusion from ocean economy Redress economic injustices Government policies Poor policy formulation implementation	Policy implementation is ineffectual

The emerging themes presented in Table 8-3 are further discussed in the following subsections. Furthermore, the study creates a link between themes and variables used in multivariate regression analysis in the quantitative study to enhance the validity of these emerging themes.

8.6.1 Socio-economic opportunities in traditional fisheries

The study participants expressed that traditional fisheries create employment for many people in the coastal communities. The findings also indicate that fishing provides a major source of protein and improves food security for coastal communities. The study participants claim that the traditional fishery sector is the biggest employer for coastal communities. Hence, it contributes immensely to nutritional needs, food security, and poverty alleviation for traditional fishers and coastal communities in KZN. As a result, traditional fisheries contribute to the broader vision of

the UN to alleviate poverty through the attainment of SDGs. Furthermore, the findings also indicate that communities highlighted traditional fisheries as a mechanism to reduce crime in their communities. The study participants expressed that crime is connected to unemployment as the various studies affirm that perpetrators of crimes in rural communities are mostly unemployed (Bhorat, Thornton and Van der Zee, 2017, p. 1).

The multivariate regression analysis of quantitative data revealed that there is a strong correlation between development of traditional fisheries and constructs or variables that emerged from subcategories of the matrices. Tshabalala (2014, p. 519) affirmed the relationship between crime and socio-economic indicators in the South African context. Therefore, employment opportunities, poverty alleviation and crime reduction have a significant impact on the development of traditional fisheries and socio-economic upliftment of coastal communities in KZN. As a result, the creation of more employment opportunities in the fishery sector can significantly reduce the crime rate and alleviate poverty in coastal communities.

8.6.2 Cooperative governance

The findings present that local fishers are subjected to poor cooperative governance which is detrimental to the development of traditional fisheries and coastal communities in KZN. The study participants expressed that there is inefficient partnership between government authorities and communities regarding governance of the fishery sector. Government seems to be imposing policies without conducting proper engagements or public consultations with traditional fishers and coastal communities. Consequently, traditional fishers and coastal communities are often excluded from decision-making processes due to poor public participation engagements which involve all interested and affected parties. Furthermore, the role of some stakeholders is unclear because of disintegrated efforts and the silo mentality approach from many organisations.

Bobbio (2019, p. 42) affirms that public participation process aims to present an opportunity for the public and various agencies to have meaningful inputs in decision-making processes. Therefore, traditional fisheries require coordination and delivery of integrated services to traditional fishers and coastal communities facilitated through partnerships with stakeholders. The findings also indicate that coastal communities expressed that public participation processes should be coordinated at various levels including the ward, local municipality, district and provincial level through *Izimbizo*, traditional gatherings and other forms of official gatherings. In addition, it was also stated that public engagement processes shall be transparent and fair and representative of community dynamics. Moreover, the public engagements should present an opportunity for all role players to share information to capacitate or educate government authorities about the realities of the communities. According to Makoti and Odeku (2021, p. 43)

cooperative governance requires that all three spheres of government, namely, national, provincial and local, together with various role players and stakeholders cooperate to achieve good governance.

Therefore, the multivariate regression analysis of quantitative data revealed that there is a strong correlation between the development of traditional fisheries and constructs or variables that emerged from subcategories of matrices. According to the multivariate regression analysis, there is a strong correlation between the development of traditional fisheries, and cooperative governance and co-management of fisheries. As a result, functionality of cooperative governance and co-management of fisheries have a strong influence and impact on the development of traditional fisheries. Furthermore, cooperative governance is imperative for any government to render integrated essential basic services to the traditional fishers and coastal communities in KZN.

8.6.3 Capital resources

The findings of the study indicate that there are inadequate resources for traditional fishers. It was highlighted by study participants that there is inaccessibility to resources such as funding and fishing equipment with modern technologies. Inaccessibility of funding for traditional fisheries was the main challenge raised by study participants. Funding could assist traditional fishers to get their small fishery businesses off the ground. Through funding and proper training, traditional fishers can grow their small businesses and transform the lives of their communities (Hamilton, Basurto, Smith and Virdin, 2021, p. 2).

Furthermore, according to the study participants, government had not fulfilled a promise to provide fishing vessels for coastal communities in an effort to stimulate local economic development. Fishing vessels are recognised as a vehicle for traditional fishers to compete in the ocean economy against commercial fishers (Prestrelo, Oliveira and Vianna, 2019, p. 100). Furthermore, the findings of the study present that traditional fishers still utilise unsafe equipment which exposes them to high risk of injury or loss of life.

According to the multivariate regression analysis, there is a strong correlation between the development of traditional fisheries, and financial resources and infrastructural development, which are variables that emerged from subcategories of the matrices. Accessibility of financial resources and infrastructural development in coastal communities could bring a positive change to the local economic growth and transform the socio-economic status of traditional fishers and their communities.

8.6.4 Indigenous Knowledge Systems in public governance

The findings from the study indicated the gap for IKS in the governance of traditional fisheries. The existing decision-making approaches that are implemented by government exclude IKS. The top-down approach to decision-making system implemented by the current government has greater socio-economic and socio-cultural impact on communities. IKS are regarded as a significant resource that contributes to the efficiency, effectiveness and sustainability of public governance (Thompson, Lantz and Ban, 2020, p. 2). It plays a vital role in community level decision-making especially in areas pertaining to economic and social and environmental conservation activities (Munsaka and Dube, 2018, p. 3). Furthermore, IKS play a crucial role in the management of marine resources and the spiritual, cultural and economic well-being of local coastal communities (Jabali, Wamukota and Fulanda, 2020, p. 19). Moreover, the study participants revealed that they inherited historically accumulated understanding of weather patterns based on their spirituality associated with the sea. As a result, IKS assist the coastal communities to regulate marine resource exploitation and ensure the safety of traditional fishers using responsive weather patterns. Traditional fishers also expressed that IKS of seasonality play a critical role in the influence of timing in the availability of ocean species and consequently in fishing patterns.

Exclusion of IKS from the governance of traditional fisheries threatens the sustainability of ocean resources and the natural coastal environment. There is evidence that the implementation of PSSF lacks recognition of IKS which creates conflict between government authorities and traditional fishers. This study speculates that the conflict results from misunderstanding between the government authorities and communities regarding the fixed standardised methods of managing the natural coastal environment. In effect, two different approaches are being used to manage the natural coastal environment with government authorities relying on the top-down Eurocentric approach and communities applying African ways of knowing.

According to the multivariate regression analysis, there is a strong correlation between the development of traditional fisheries and the implementation of African ways of knowing and IKS promotion. Therefore, implementation of African ways of knowing and IKS promotion significantly influence the development of traditional fisheries and coastal communities. Incorporation of African ways of knowing and the application of IKS to fishery policies could bring a positive change to the socio-economic, socio-cultural and environmental status of communities.

8.6.5 Environmental conservation

The findings of the study present that traditional fishers and coastal communities from KZN take cognisance of environmental conservation in their fishing operations. It was also indicated that these coastal communities believe traditional conservation methods that have been passed on from generation to generation to conserve the natural environment. According to Rachman (2017, p.109) traditional conservation methods are based on IKS to manage the natural coastal environment using ancient African manuscripts which make up the country's cultural heritage. IKS play a significant role in the conservation of the ocean environment by ensuring its pristine integrity is maintained (Domínguez and Luoma, 2020, p. 65).

The findings revealed that local communities are attached to traditional management practices as a system for conservation of the natural coastal environment. Furthermore, study participants expressed that these indigenous conservation methods should be integrated with the existing conservation policies to motivate communities to take accountability for environmental management. Therefore, the government policy interventions should consider the integration of the cultural and spiritual value of ocean resources for effective environmental conservation and sustainability of the country's cultural heritage.

Moreover, findings also revealed that indigenous conservation practices make an immense contribution to the conservation of the medicinal plants which are situated in MPAs. As a result, the indigenous conservation practices have a direct connection to improving human health in rural coastal communities. However, it was revealed that communities are struggling to access MPAs due to unjust restrictions imposed by MPA policy. The study participants recommended government endorse, integrate and promote indigenous ways of conservation to ensure sustainable utilisation of medicinal plants to enhance primary health care for communities. It was also recommended that government authorities be open and educated about African ways of knowing to resolve issues regarding governance of MPAs and their socio-cultural impact on coastal communities.

According to the multivariate regression analysis, there is a strong correlation between the development of traditional fisheries and IKS of conservation, effectiveness of MPAs and environmental education.

8.6.6 Policy implementation

The findings of the study revealed that PSSF and other government policies still marginalise traditional fishers and coastal communities. There is evidence that a significant percentage of traditional fishers have been denied access to fishing permits. Consequently, PSSF and MPA

policy prohibits traditional fishers from operating along the sea and within the MPA due to lack of fishing permits. The study participants declared that fishing licenses are mostly granted to heavy industrialised companies for commercial use. It was also revealed that the few traditional fishers that were granted fishing permits are still not authorised to operate along the sea and within the MPAs. This portrays inequality between traditional fishers and heavy industrialised commercial companies in terms of opportunities provided by the ocean economy. Furthermore, it is speculated there is a lot of red tape in government processes which causes high costs and bureaucratic administration processes for small business start-ups.

Therefore, the study recommends the review of the PSSF and MPAs policies through intensive public engagements with all government stakeholders to address socio-economic, socio-cultural and environmental issues. These engagements should be facilitated by government with an aim to accurately capture the realities of coastal communities and to develop suitable interventions.

The multivariate regression analysis of quantitative data revealed that there is a strong correlation between the development of traditional fisheries and the inequality and red tape policies that emerged as subcategories of the matrices. Therefore, any change of policy could have a major influence on the development of traditional fisheries and coastal communities. Chapter Ten of this research discusses in detail interventions around policy implementation for the betterment of the lives of traditional fishers and coastal communities.

Furthermore, the role of the media in creating awareness of the problematic issues under investigation in the research project is a crucial aspect to consider. In the context of traditional fisheries in KZN, the media can serve as a powerful tool for amplifying the voices of fishing communities and shedding light on their struggles and aspirations. By highlighting the socio-economic disparities, policy shortcomings, and environmental concerns affecting traditional fisheries, media outlets can mobilize public attention and spur collective action.

Moreover, the media can play a role in holding policymakers and stakeholders accountable for addressing the underlying issues identified in the research project. Through investigative journalism, advocacy campaigns, and public discourse, media platforms can exert pressure on decision-makers to enact meaningful reforms and allocate resources towards supporting traditional fisheries and coastal communities.

8.7 Conclusion

Chapter Eight synthesizes the key findings and outcomes derived from the mixed-method triangulation approach employed to address the research objectives. The research objectives aimed to explore various aspects of traditional fisheries in KZN, South Africa, including socio-

economic opportunities and barriers, means to overcome barriers, implementation of the SSFP, functionality of governance and institutional frameworks, and environmental sustainability. Through the convergence of quantitative and qualitative data analysis, several significant insights have emerged.

The analysis revealed that there is a strong correlation between socio-economic opportunities and traditional fisheries development. Despite the challenges faced, such as limited access to fishing permits and market share, traditional fisheries remain vital for employment, food security, and poverty alleviation within coastal communities. Furthermore, the study identified means to overcome barriers and expand opportunities, emphasizing the importance of embracing indigenous knowledge systems and fostering transparent and inclusive decision-making processes.

Regarding the implementation of SSFP, the findings suggest a divergence in views between government officials and traditional fishers. While government officials perceive no gaps in implementation, traditional fishers highlight various challenges, including dysfunctional governance institutions and ineffective policy implementation. These discrepancies underscore the need for improved collaboration and communication between government authorities and local communities to address the concerns raised.

The functionality of governance and institutional frameworks emerged as crucial determinants of traditional fisheries development. Cooperative governance and inclusive decision-making processes were identified as essential for ensuring the sustainable management of marine resources and fostering community empowerment. However, challenges such as poor public participation and disintegrated stakeholder efforts highlight the necessity for coordinated and integrated approaches to governance.

Moreover, the study revealed the significance of environmental conservation and the integration of indigenous conservation practices into policy frameworks. While traditional fishers recognize the importance of preserving the natural coastal environment, challenges such as restricted access to MPAs hinder their efforts. Addressing these challenges requires a holistic approach that acknowledges and integrates indigenous knowledge systems while promoting sustainable resource management practices.

Overall, the findings underscore the complex interplay between socio-economic, cultural, environmental, and governance factors shaping traditional fisheries in KZN. The recommendations derived from this study emphasize the importance of collaborative, interdisciplinary approaches to policy development and implementation, aiming to address the

diverse needs and challenges faced by traditional fishers and coastal communities. By integrating the perspectives of various stakeholders and leveraging indigenous knowledge systems, policymakers can work towards promoting the sustainable development of traditional fisheries while preserving cultural heritage and enhancing community well-being.

9. CHAPTER NINE: CONCEPTUAL POLICY FRAMEWORK FOR TRADITIONAL FISHERIES

9.1 Introduction

This chapter reflects on the rationale of the study to benchmark the research findings to inform a new conceptual policy framework proposition. The chapter also presents recommendations of the study withdrawn from the qualitative of multi-mode, mixed-method approach, theoretical and paradigmatic triangulation in Chapter Eight. Moreover, the study presents a new Conceptual Policy Framework for Traditional Fisheries (CPFTF) as recommendations.

9.2 Recapitulation of Research Problem Statement

In the pre-colonial era, African communities shared a common identity and culture which served as a guide in terms of ways of attaining knowledge and confronting life issues. However, the advent of Eurocentrism emphasised Western ways of knowing and acquiring knowledge. Therefore, the study has deduced that European colonisation left South Africa psychologically, economically, culturally, and politically damaged which resulted in socio-political domination, slavery and economic exploitation, and racial and cultural devastation. Colonisers destroyed the African-based philosophies and imposed European systems as an alternative. This has also resulted in African communities being in denial of their African identity and embracing Western thought and cultural realities and perspectives. Consequently, more than 200km worth of ocean resources in uMkhanyakude District Municipality coastline are untapped by the traditional fishers and coastal communities due to the MPA policy. Therefore, there is a missed economic opportunity for uMkhanyakude District communities which would have reduced unemployment rate in KZN. Sections 9.2.1 and 9.2.2 further explain the new conceptual framework shown in Figure 9-1.

9.2.1 New Conceptual Policy Framework

The study recommends Conceptual Policy Framework for Traditional Fisheries (CPFTF) for enhancement and effective implementation of SSFP. This is depicted in Figure 9-1. The CPFTF comprises of three components, that is 1) counter-current governance approach, 2) transformative worldview, and 3) public governance paradigm shift. These three CPFTF components play an integral role in the life cycle for policy implementation.

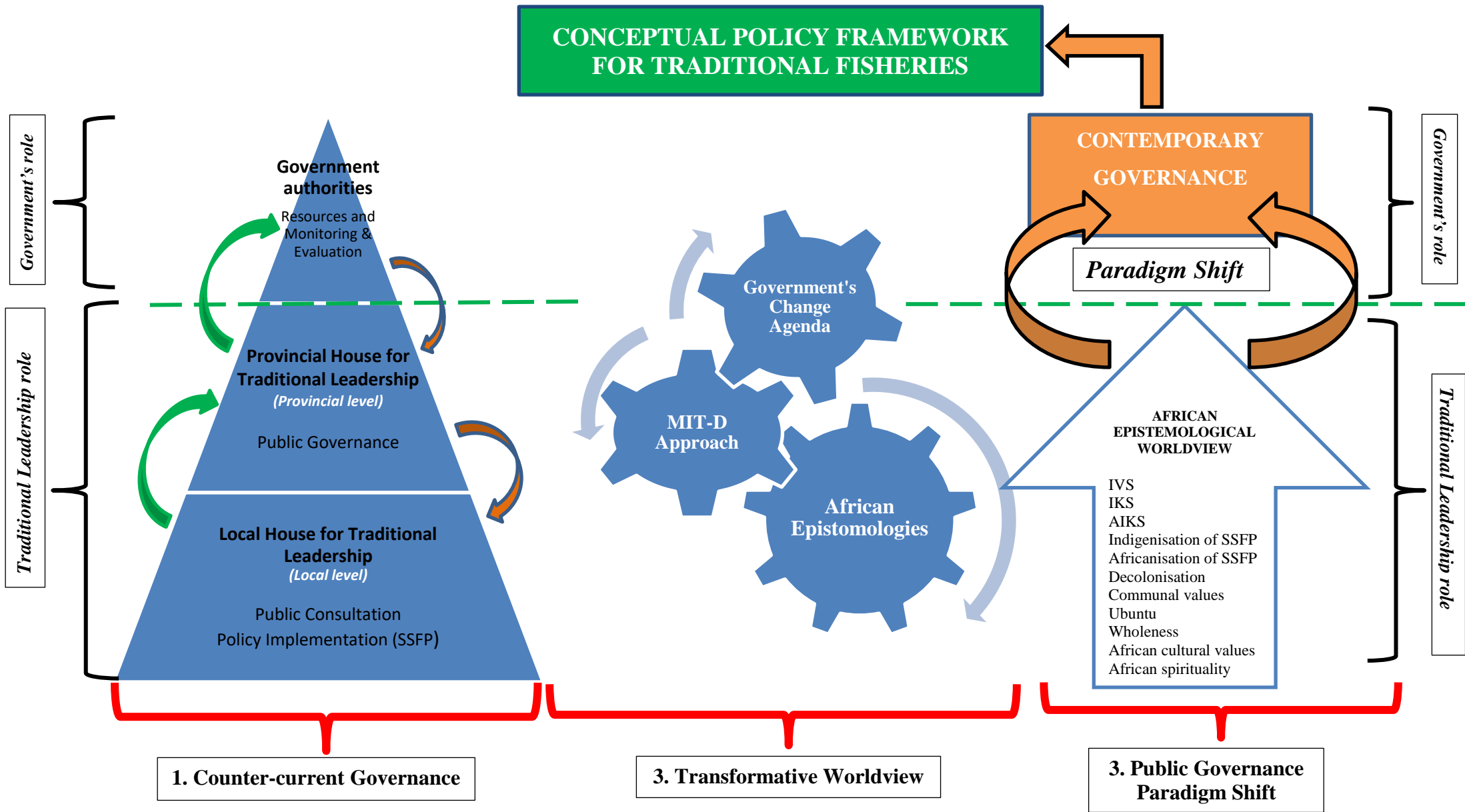


Figure 9-1: Conceptual Policy Framework for Traditional Fisheries

9.2.1.1 Counter-current governance

Counter-current governance is an integrated service delivery system that focuses in interactions between different spheres of government interplaying between top-down and bottom-up procedures. Interaction between bottom-up and top-down policy governance approaches strengthen the implementation of the SSFP by coordinated, interactive and cooperative governance. On the one hand, a bottom-up approach mainly focuses on the execution of SSFP implementation plan and public participation process through local and provincial House of Traditional Leadership. The provincial and local traditional leadership have a joint responsibility to champion SSFP implementation, public participation and oversee governance for traditional fisheries. *Amakhosi* and *izinduna* are assigned a responsibility to champion SSFP implementation and public consultation workshops for traditional fisheries. On the other hand, a top-down approach mainly focuses on role of the national and provincial government in providing adequate resources for traditional leadership to facilitate policy implementation and public participation. It also aims to merge local and provincial economic development plans and strategies for traditional fisheries into a single and viable economic development plan which will be resourced through one budget. Therefore, this attempts to solve the SSFP implementation problem of “silos” mentality approach and non-inclusive public participation processes.

In addition, this integrated service delivery system ensures SSFP objectives are achieved through cooperative efforts where government, traditional leadership, traditional fishers, communities and NGOs have distinct role in the policy implementation. Furthermore, counter-current governance approach primarily aims to influence contemporary public governance and policy implementation to endorse indigenous governance management systems and practices. This approach enhances AIKS known to be overshadowed by the influence of colonialism, neo-colonialism, global capitalism to perpetuate promotion of Western governance practices. It promotes restoration of pre-colonial governance approach instituted knowledge systems, governance structures and practices informed by African ontologies, epistemologies, axiologies and cosmologies. Therefore, counter-current governance approach is aligned to a pre-colonial governance structure (Basheka and Auriacombe, 2020, p. 231) is characterised by self-sufficiency, direct control, upward and downward accountability and uniformity of governance.

Moreover, counter-current process provides an enabling environment for local government and other role players to economically stimulate entrepreneurial and innovative traditional fisherman. Collaboration of localised DFFE, COGTA, traditional leadership, NGO's, traditional fishers and other role players, is designed to promote entrepreneurial traditional fishers to drive local

economic programmes. Therefore, counter-current governance approach encourages communities to work together to access economic opportunities in partnership with multiple stakeholders through a multi-sectoral and integrated service delivery system.

9.2.1.2 Transformative worldview

The CPFTF implements the transformative worldview to attain government's changed agenda through integration of African epistemologies, MIT-D and counter-current governance approach in the SSFP implementation and public participation processes. The transformative worldview is a meta-physical framework that holds research inquiry intertwined with certain political agenda to confront social oppression (Stetsenko, 2020, p.729). Transformative worldview aims to conduct inquiry towards social justice (Sweetman, Badiee and Creswell, 2010, p. 441). It aims to address the socio-economic and socio-cultural conditions such as issues of power imbalances and marginalization of underrepresented groups in societies.

The transformative worldview enhances IKS checks and balances for holding traditional and government leaders accountable with an influence on existing political systems. It is a worldview that incorporates concepts of "African constitution" (Basheka and Auriacombe, 2020, p. 237) which recognises communities as building blocks of government. The "African constitution" values public opinion for decision making and implement regulatory measures to curb despotism. It promotes the decentralised political systems to allow sharing of power between provincial and local government, and also recognise responsibilities of traditional leadership. It is an African indigenous political system that recognises communities as knowledgeable to solve their own problems in their own localities. The "African constitution" is aligned to the philosophical worldview of the study as it reflects constructivist, interpretivist and African epistemological characteristics. Moreover, it emphasises freedom of expression, communal decision-making and participatory democracy.

An application of transformative worldview enables transparent public engagement through existing traditional governance systems to reflect the local context on issues such as socio-economic, environmental and political factors to improve service delivery. The involvement traditional leadership lays the foundation for indigenisation and Africanisation of governance systems for efficient SSFP implementation and public participation processes. This worldview is characterised by epistemic freedom as realities and experiences of communities that are accurately captured without any, or at least minimal influence of Eurocentric worldviews. Therefore, integration of African epistemologies, MIT-D, meta-theoretical framework and government's change agenda play an integral role in the localised policy implementation and public participation which reflect true identity of traditional fishers and local communities.

Consequently, this worldview could encourage integration of IKS in decision-making processes by providing “African solutions to African problems”.

9.2.1.3 Public governance paradigm shift

The Oxford English Dictionary defines a paradigm shift as “a fundamental change in approach or underlying assumptions.” Based on various factors affecting governance of traditional fisheries in KZN, the study recommends a paradigm shift. This paradigm shift requires cooperation of government, non-profit organisations, traditional leadership, politicians, public and NGO’s to drive indigenisation and culturalization of coterporally governance. This would give effect to preservation and promotion cultural heritage as communities and traditional fishers access the MPAs. It is important that contemporary governance integrates African epistemologies, environmental conservation, economic and social development to achieve public governance paradigm shift. The integration of these four indigenous governance pillars redefine the global concept of sustainable development for local application. In consideration of the research findings, these four pillars play a significant role in addressing the research problem statement. Ultimately, these four pillars are main drivers of epistemically-driven sustainable development as shown in Figure 9-2.

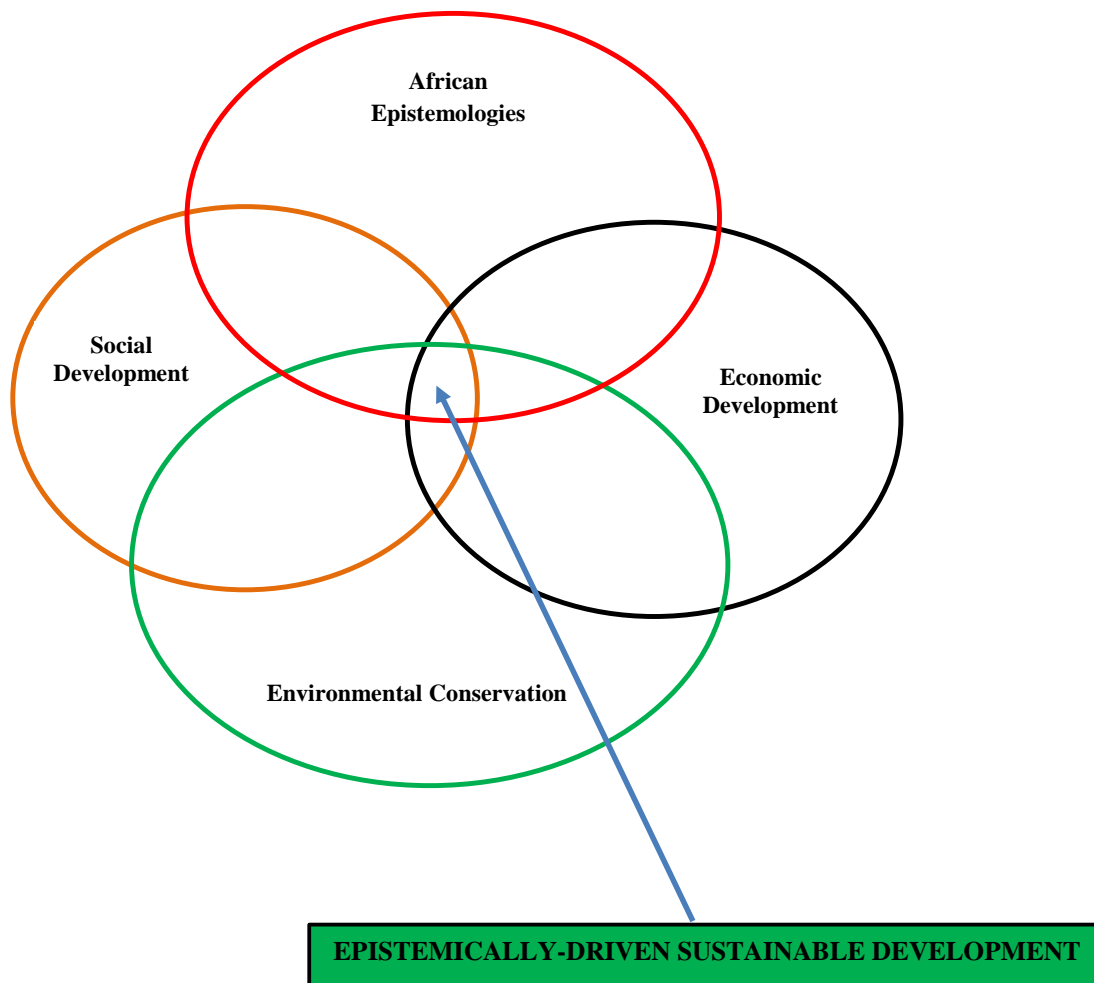


Figure 9-2: Epistemically-driven sustainable development

Therefore, paradigm shift attempts to reinforce and redefine the concept of sustainable development by reactivation of indigenous governance through consideration of the philosophical position. The local indigenous knowledge is known to be unique to a given culture or society and it enhances public participation in local government (Petzold, Andrews, Ford, Hedemann and Postigo, 2020, p. 2). Therefore, KZN traditional fishers, coastal communities and traditional leadership as custodians of the IKS, have a responsibility to uphold “African constitution” and epistemically-driven sustainable development. The redefinition of sustainable development should reflect epistemic elements to develop solutions for local socio-economic, socio-cultural and environmental challenges that hinders development of traditional fisheries and rural coastal communities in KZN. It is a sustainable development concept in an African context that promotes community-based practices that balance co-existence of communities and the natural environment.

Therefore, CPFTF will be attained through systematic change of fishery governance by incorporation of indigenisation and Africanisation of SSFP implementation. Moreover, findings from the study revealed the conflict between traditional fishers and the coastal natural environment due to the enforcement of MPA policy which prohibits coastal communities from accessing coastal land. As a result, MPA policy is perceived to be systematically excluding traditional fishers from the ocean economy. Hence, there is lack of co-existence between coastal communities and the natural coastal environment exacerbated by the MPA policy enforcement. That conflict could potentially be resolved by epistemically-driven sustainable development through implementation of CPFTF.

9.2.2 Integration of philosophical worldview, MIT-D and meta-theoretical framework

Figure 9-2 presents the helicopter view description of CPFTF showing relationships between main concepts drawn from the findings of the study. The figure demonstrates that success of public participation, SSFP implementation, research and monitoring and evaluation is centred around African epistemologies.

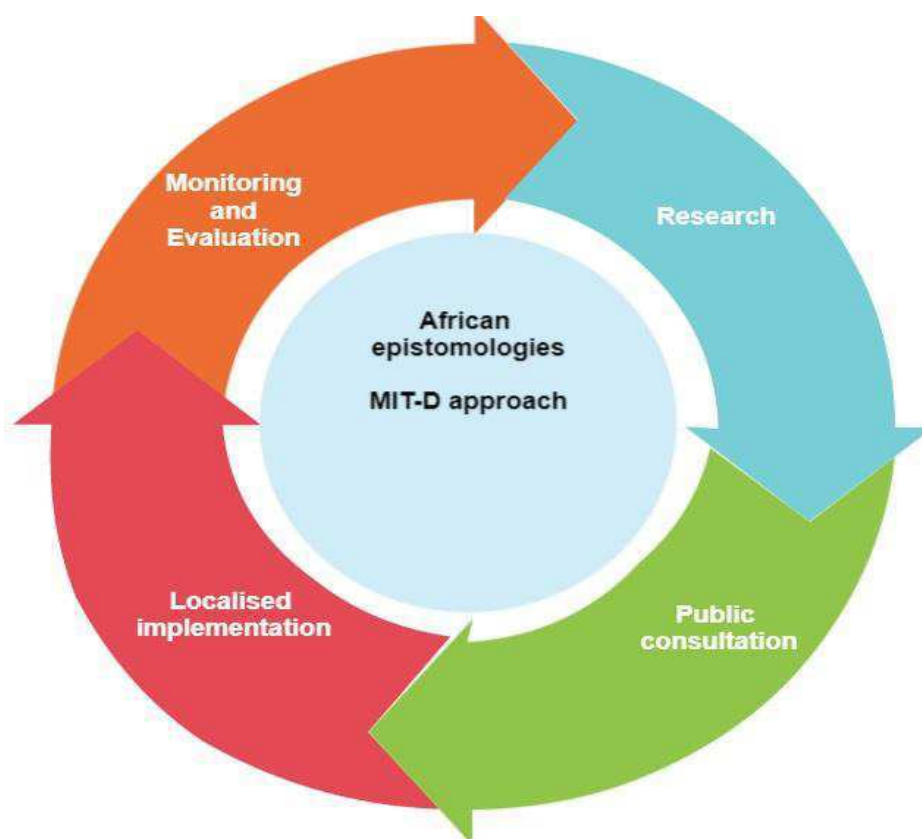


Figure 9-3: Overall indigenisation of policy implementation

Figure 9-2 also presents that application of an African epistemologies and MIT-D approach to the South African policy development processes will address critical issues and challenges for

marginalised communities. Moreover, MIT-D can be embedded in African epistemologies to examine and understand the possible future realities in Africa through a deconstructed interrogation of past and present realities. Therefore, interdepartmental integration, wide stakeholder participation and effective information sharing are key priorities government should heed for policy implementation to improve synergy across all spheres of government and increase efficiency in service delivery.

Moreover, the integration of African epistemologies and MIT-D approach utilise the study variables derived from meta-theoretical framework which are also aligned to the strategic pillars of the study, that is, the stakeholder, ethnography, and ecological theories and theory of well-being. These study variables are interdependent as they interrogate relationships between existing disciplines in the co-creation of new knowledge with communities. These approaches further dissolve boundaries which were created to support policies that are Eurocentric in nature and devalue African ways of thinking and knowing.

9.3 Conclusion

In conclusion, Chapter Nine highlights the significance of incorporating African epistemologies into the development and implementation of fishery policies in South Africa, particularly within the context of ongoing efforts to decolonize the country. The creation of the CPFTF represents a crucial step towards integrating IKS with contemporary governance structures, thereby empowering vulnerable groups and asserting South Africa's epistemological views globally. By embracing African ways of knowing, the CPFTF seeks to redefine the concept of sustainable development, shifting towards a paradigm that prioritizes the preservation of cultural heritage, community participation, and environmental stewardship.

The CPFTF acknowledges the unique philosophical worldview embedded within local indigenous knowledge, recognizing its potential to enhance public participation in local governance and decision-making processes. As custodians of indigenous knowledge, traditional fishers, coastal communities, and traditional leadership in KZN bear the responsibility of upholding an "African constitution" rooted in epistemic-driven sustainable development. This paradigm shift towards epistemologically-driven sustainable development aims to address the socio-economic, socio-cultural, and environmental challenges hindering the development of traditional fisheries and rural coastal communities in KZN.

Furthermore, the CPFTF emphasizes the importance of community-based practices that promote the co-existence of communities while preserving cultural heritage and natural resources. By integrating philosophical worldview, meta-theoretical frameworks, and the principles of MIT-D

approaches, the CPFTF aims to foster a more inclusive and holistic approach to policy formulation and implementation. This approach not only respects and integrates diverse knowledge systems but also empowers local communities to actively participate in shaping their own futures.

In summary, the CPFTF represents a significant milestone in the journey towards decolonizing fishery policies in South Africa. By embracing African epistemologies and promoting community-based practices, the CPFTF seeks to create a more equitable, sustainable, and culturally relevant governance framework for traditional fisheries and coastal communities in KZN. Through ongoing collaboration and engagement with stakeholders, policymakers can continue to refine and implement policies that reflect the values, aspirations, and needs of local communities, thereby fostering genuine socio-economic development and environmental stewardship.

10. CHAPTER TEN: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

10.1 Introduction

Chapter Ten serves as a critical reflection on whether the research successfully addressed the overarching research questions posed at the outset of the study. Therefore, this chapter refers back to the previous chapters, highlighting the key findings, conclusions, and insights derived from Chapters Six, Seven and Eight. It also delves into a comprehensive summary of each chapter within the thesis, providing a holistic understanding of the research journey, from the initial exploration of the research problem to the formulation of conclusions based on empirical evidence and theoretical frameworks.

The subsequent sections within Chapter Ten analyse the contributions of the study to existing bodies of knowledge within the field. By synthesizing the findings and conclusions presented in earlier chapters, the chapter elucidates the novel insights, theoretical advancements, and practical implications generated by the research. This critical evaluation of the study's contributions underscores its significance in advancing scholarly discourse and informing policy and practice in the domain of traditional fisheries governance and policy implementation.

Moreover, Chapter Ten offers valuable insights and recommendations for future research endeavours. By identifying gaps, limitations, and areas for further exploration uncovered during the study, this section provides a roadmap for future researchers to build upon the foundations laid by the current study. These suggestions for future research directions aim to inspire ongoing inquiry and innovation in the field, fostering continuous growth and development in understanding traditional fisheries dynamics and governance frameworks.

10.2 Recapitulation of Research Objectives and Research Questions

This section restates research objectives and research question in Table 10-1 to benchmark summary of findings, conclusions and recommendations.

Table 10-1: Recapitulation of research objectives and research questions

	Research Objectives	Research Questions
1	Identify the socio-economic opportunities and barriers for traditional fisheries in KZN, South Africa.	What are the complexities driving socio-economic opportunities and barriers for traditional fisheries in KZN, South Africa?

2	Co-create evidence-based knowledge with study participants to overcome barriers and increase opportunities for traditional fisheries in KZN, South Africa.	How can evidence-based knowledge co-created with study participants overcome barriers and advance opportunities for traditional fisheries in KZN, South Africa?
3	Examine the implementation of the Small-Scale Fisheries policy that governs traditional fisheries in KZN, South Africa as it pertains to traditional fishers, civil society members, traditional leaders and government.	In what ways can any gaps found in the implementation of Small-Scale Fisheries policy in South Africa be filled to enhance the socio-economic benefits and sustainable livelihoods of the traditional fishery sector?
4	Critically assess the functionality of governance and institutional frameworks for the fishery industry in KZN, South Africa, particularly as it pertains to African ways of knowing.	How effective is the functionality of governance and institutional framework for the fishery industry in KZN, South Africa as it pertains to African ways of knowing?
5	Co-create with study participants an evidence-based policy framework and interventions for environmental sustainability to improve the operations of the traditional fisheries in KZN, South Africa.	What evidence-based policy framework and interventions for environmental sustainability can be co-created with study participants to improve the operations of the traditional fisheries in KZN, South Africa?

Table 10-1 shows recapitulation of research objectives and research questions to determine if the study achieved its aims and objectives.

10.2.1 Chapter One summary

Chapter One is the introductory part of the research which outlines the overview of the study. The chapter detail the scope of the study and reflect what is expected from subsequent chapters. Furthermore, this chapter laid a foundation for the study through presentation of research objectives and questions. It presented the research the problem statement and articulated research question and objectives. In this regard, the problem statement of the study is connected to the first objective as it presents the socio-economic challenges for traditional fisheries in KZN.

10.2.2 Chapter Two, Three and Four summary

These chapters focus on investigation of literature which provided theoretical premises from which the epistemological analysis of challenges encountered by the traditional fishing industry in South Africa was conducted. Integration of African epistemologies with constructivist, interpretivist and hermeneutic phenomenology presented a philosophical worldview of the study. Integration of these philosophies aimed to strengthen weaknesses of each philosophy to form one

philosophical worldview of the study. The third, fourth and fifth research objective are partly addressed by Chapter Two as the philosophical worldview served different purposes in addressing these research objectives. The philosophical worldview of the study influenced the development of CPFTF which is linked to the third objective. This chapter answers the fourth research objective as the philosophical worldview shaped the governance functionality in the implementation of SSFP. Moreover, the fifth research objective's connection with Chapter Two is motivated by the influence of the philosophical worldview on analysis of environmental sustainability.

10.2.3 Chapter Three summary

An evidence-based investigation demonstrated a link between multi-level geospatial policies and the study literature in terms of the policy implementation and governance from pre-colonial to post-colonial times. Chapter Three expanded on the influence of policy implementation on fishery and environmental governance. It also assisted the study to unpack the dynamics of policy implementation. It explored these policy implementation dynamics to gain better understanding of challenges and possible interventions for SSFP implementation. In effect this chapter contributed to achieving the third, fourth and fifth objectives by investigating influence of fishery and environmental governance on policy implementation.

10.2.4 Chapter Four summary

Chapter Four interrogates various roles of tradition and culture in socio-economic development of traditional fisheries. The literature highlighted the dominant influence of Westernised ways of knowing to contemporary governance systems in many parts of the world. Furthermore, the chapter expands on socio-economic factors that drives development of traditional fisheries in various parts of the world. Therefore, this chapter partly answers the first, third and fourth research objectives, discussing governance, socio-economic and socio-cultural influences on traditional fishery development.

10.2.5 Chapter Five summary

This chapter presents the detailed methodology of the study. It demonstrates application of the mixed-method guided by philosophical worldview of African epistemologies, constructivist, interpretivist and hermeneutic phenomenology. The qualitative component of the study captured objective views of government official from all spheres of government regarding SSFP implementation. The multi-mode (in-depth interviews) of qualitative component captured lived experiences and perspectives of traditional fishers, traditional leadership and public. African ways of knowing played a vital role during data collection as traditional fishers and community

members organised themselves in groups and cycles upholding their cultural practices. In effect this chapter assisted the study with co-creation of information with study participants. Hence, this chapter partly answers the second and fifth research questions and achieves the corresponding objective of the study.

10.2.6 Chapter Six summary

Chapter Six outlines data presentation of the quantitative component of the study. The univariate and multivariate regression analysis for study variables of quantitative component were conducted using SPSS, STATA and Microsoft Excel. The univariate regression analysis aimed to operationalise the variables of the study. Whereas, the multivariate regression analysis aimed to assess the relationship between dependant and independent variables of the quantitative component. Chapter Six is connected to all research objectives as variables of the study are linked to each research objective. However, the chapter intended to capture the objective views of government officials about SSFP implementation. Therefore, this chapter partly answers the first, third, fourth and fifth research objectives.

10.2.7 Chapter Seven summary

The data for quantitative component revealed the correlation between development of traditional fisheries (dependent variable) and socio-economic opportunities and barriers, governance and institutional functionality and environmental sustainability (independent variables). Whereas, the qualitative component of the study used data matrices for synthesis and analysis of data. The data matrices were guided by constructs of the qualitative study which were aligned to the variables of the quantitative study. Chapter Seven is connected to all research objectives as constructs of the study are linked to each research objective. However, the chapter intended to capture lived experiences and perspectives of traditional fishers, traditional leadership and civil society about SSFP implementation. It aimed to co-create new knowledge with the study participants. Hence, this chapter partly answers the second, third, fourth and fifth research objectives.

10.2.8 Chapter Eight summary

The chapter applied multi-mode triangulation of qualitative method to use multiple data sources to answer the research question. The chapter also applied a mixed-method triangulation to use different methods to approach the same research questions. It applied a theoretical triangulation by applying African epistemologies, constructivism, interpretivism and hermeneutic phenomenology to approach research questions using different theoretical frameworks. These triangulation analyses enhanced validity of the study by combining complementary methods that account for each other's limitations. The findings of the study from triangulation analysis

presented convergence and divergence views directed to each research question. The overall findings of the study indicated disconnection between government and the public regarding policy implementation. In effect this chapter contributed to achieving the second and fifth research objectives by refining co-created or co-constructed new knowledge.

10.2.9 Chapter Nine summary

Chapter Nine produces conceptual knowledge co-created by the researcher and study participants. The development of conceptual knowledge (CPFTF) was influenced by the philosophical worldview and research findings. Therefore, second and third research objectives are connected to Chapter Nine. As a result, the study developed the CPFTF as a tool to reintroduce African epistemological worldview in the implementation of the SSFP.

10.3 Main Research Findings, Conclusions and Recommendations

This section comprehensively examines the overarching findings, conclusions, and recommendations derived from the integration of quantitative and qualitative methodologies, drawing insights from Chapters Six, Seven and Eight to evaluate their alignment with the research questions.

10.3.1 Findings, conclusions and recommendations for Objective 1

In this sub-section the researcher demonstrates how the first research question was answered by drawing upon the findings, conclusions and recommendations.

10.3.1.1 Findings: Lack of resources and market share

The results from both the literature and quantitative and qualitative data in relation to the socio-economic barriers for traditional fisheries indicate that traditional fisheries and their communities encounter various social, economic and political challenges that reflect apartheid's legacy of social and economic exclusion, poverty, inequalities, unemployment and illiteracy. These challenges are epitomised by little access to financial assistance from financial institutions, lack of market access and power, no legal fishing rights in the ocean without fishing licenses and inability to compete with commercial entities, as outlined in Chapter Seven. Furthermore, the KZN coastal district municipalities under the traditional leadership are highly affected by unemployment, with minimal economic activities capable of providing employment for these communities, as discussed in Chapter Seven and Eight.

Findings of the study on socio-economic opportunities revealed great potential for food security and poverty alleviation in rural coastal communities. As a result, traditional fisheries has great

potential to create jobs and improve standards of living for traditional fishers and rural coastal communities. These rural coastal communities are mostly dependent on traditional fisheries and the agricultural sector for livelihood.

10.3.1.2 Conclusions

Based on socio-economic barriers, it is concluded that there is minimal impact of SSFP implementation on job creation and access to business opportunities to rural coastal communities of KZN. Furthermore, it can be concluded that politicians have not played their role in driving socio-economic transformation to traditional fisheries. Consequently, commercial fisheries dominate ocean economy due to privileges of contemporary governance systems are afforded to heavy fishing companies.

Based on socio-economic opportunities, it has concluded that traditional fisheries can play a significant role in reducing high unemployment rate in KZN. Traditional fisheries has potential to improve standard of living for most vulnerable communities along KZN coast.

10.3.1.3 Recommendations

In view of these findings and conclusions, it is recommended that government invests more in traditional fisheries by providing the necessary financial and non-financial resources to open up opportunities in the ocean economy for coastal communities. Fishing equipment such as fishing vessels can open up significant opportunities for traditional fisheries. Furthermore, government should issue more fishing licenses to traditional fishers, especially to the youth. The enforcement of compliance in the fishing sector with the national laws regulating the fishing industry must be accelerated. This should be done by maximising access to government services such as granting fishing licences to traditional fisheries so that they can legally enjoy the same fishing rights as the commercial entities, giving them market power and access. The government must also establish mechanisms and strategies in combating corruption, poor management, inequalities and “red taping” in government structures pertaining to traditional fishers. This will remove unnecessary barriers and assist in maximising the participatory inclusion of traditional fisheries in the local economy.

The study also recommends exploring the scope of applying micro-financing techniques to address the financial needs of the indigenous fishing industry along the South African coast. Micro-financing has shown promise in various sectors globally, providing small-scale entrepreneurs and marginalized communities with access to financial services and resources that traditional banking institutions often overlook. In the context of the indigenous fishing industry, micro-financing could potentially provide much-needed capital for investment in equipment,

vessels, and infrastructure, thereby enhancing productivity and sustainability. By empowering traditional fishers with access to micro-loans or credit facilities, they may be better equipped to navigate financial challenges, adapt to market fluctuations, and invest in environmentally sustainable practices.

Moreover, micro-financing initiatives tailored to the unique needs and circumstances of indigenous fishers could contribute to poverty alleviation, economic empowerment, and community development along the South African coast. By fostering entrepreneurship and self-reliance within indigenous fishing communities, micro-financing has the potential to not only improve livelihoods but also strengthen social cohesion and resilience. However, it is essential to conduct further research to assess the feasibility, effectiveness, and potential risks associated with implementing micro-financing programs in the indigenous fishing industry. Factors such as repayment capacity, interest rates, regulatory frameworks, and cultural considerations must be carefully examined to ensure the success and sustainability of such initiatives. Overall, exploring the applicability of micro-financing techniques in addressing the financial needs of the indigenous fishing industry represents a promising avenue for enhancing economic development and livelihoods in coastal communities while promoting sustainable fishing practices and environmental stewardship.

10.3.2 Findings, conclusions and recommendations for Objective 2

In this sub-section the researcher demonstrates how the second research question was answered by drawing upon the findings, conclusions and recommendations.

10.3.2.1 Findings: Africanisation and indigenisation of SSFP implementation.

The findings of the study, as detailed in Chapter Six, Seven, and Nine, revealed that co-creation and sharing of knowledge play a critical role in the process of developing a public policy to address socio-economic, socio-cultural, and environmental challenges. This co-creation process necessitates the integration of African epistemologies with constructivism, interpretivism, hermeneutic phenomenology, and the MIT-D approach, as discussed in Chapter 6, to solidify the contribution of different knowledge producers by incorporating Indigenous Knowledge Systems (IKS). Moreover, co-creation of evidence-based knowledge should employ a methodological approach that embraces African epistemologies to understand and capture the realities of communities, as outlined in Chapter Seven.

Furthermore, the findings indicate that public participation and institutional innovations can build mutual trust and enhance co-creation and sharing of knowledge between government and the public, as discussed in Chapter Nine. This enhanced collaboration enables government and other stakeholders to better understand and empathize with the realities of traditional fishers and coastal communities. Additionally, the study discovered that Africanization and indigenization of SSFP implementation have the potential to address the country's ecological crises and strengthen spiritual relationships between rural coastal communities and nature. Conversely, Eurocentric ways of thinking perpetuate the disconnection of rural coastal communities from the natural environment, as discussed in Chapter Nine.

10.3.2.2 Conclusions

It can be concluded that contemporary governance system is characterised by Westernised ways of knowing as Africanisation and indigenisation concept is excluded from SSFP implementation. As a result, Westernised ways of knowing take charge in governance institutions from all spheres of government. Furthermore, public participation engagements or processes undermine roles of traditional leadership in the development of traditional fisheries.

10.3.2.3 Recommendations

In view of these findings and conclusions, it is recommended that government encourages extensive participation of traditional fisheries in the development of policy and amendment of SSFP to reflect African indigenous knowledge and systems of traditional fisheries. This will assist in the development of well-informed programmes and strategies in response to emerging and pertinent social, economic and environmental coastal issues. The interactive governance and public participation should enhance SSFP implementation and socio-cultural empowerment of traditional fisheries.

10.3.3 Findings, conclusions and recommendations for Objective 3:

In this sub-section the researcher demonstrates how the third research question was answered by drawing upon the findings, conclusions and recommendations.

10.3.3.1 Findings: Role of political influence and inclusive public participation

The findings of the study, as discussed in Chapters Six, Seven, and Eight, indicate an inadequate policy response in mitigating the consequences of the challenges faced by traditional fisheries and their communities. For example, the findings highlight a poor SSFP implementation mechanism that lacks consultation and inclusivity of traditional fisheries and traditional authorities in the management of traditional fishing, as detailed in Chapter Six. Moreover, the

study reveals that the SSFP implementation excludes African ways of traditional fisheries, as discussed in Chapter Seven. Additionally, there are parallels between the SSFP and the government's attitude towards Africanization and indigenization of policy implementation, as explored in Chapter Eight.

Furthermore, the government lacks programs or forums that promote and protect or manage the governance of Indigenous Knowledge Systems (IKS) for traditional fisheries, as outlined in Chapter Six. Similarly, there is a lack of recognition of the fundamental role that traditional authorities could play in the management of traditional fisheries, as discussed in Chapter Seven. Moreover, the findings highlight a gap for political influence on the paradigm shift to a contemporary governance system, as detailed in Chapter Eight.

10.3.3.2 Conclusions

Conclusions that may be drawn from the study signify disconnection between government and the public regarding service delivery. The disconnection is exacerbated by misalignment of philosophical worldviews of government policies and African indigenous communities. The impact of neo-liberal policies to contemporary governance system conflicts with African epistemological worldview of rural coastal communities of KZN. Hence, traditional fishers are systematically excluded from socio-economic and socio-cultural opportunities offered by fishing sector.

10.3.3.3 Recommendations

In view of these findings and conclusions, it is recommended fishing communities, through the traditional leadership, councillors (political representatives) and relevant national and provincial government departments, must collaboratively find avenues to integrate IKS in the SSFP implementation. It is also recommended that public participation processes consider a concept of Africanisation and indigenisation of policy implementation processes or governance systems. In addition, political leadership should initiate and lead public conversations about integration of African epistemologies in policy implementation and public participation processes. Therefore, the integration of African epistemological worldview in SSFP review through inclusion of cultural values and upholding Ubuntu philosophy to improve connection between government and the public.

Moreover, government should economically include women to enjoy the benefits of the fishing activities without dislodging the socio-cultural structures. These efforts will extend to the inclusion of women in the local economy and other social benefits.

10.3.4 Findings, conclusions and recommendations for Objective 4:

In this sub-section the researcher demonstrates how the fourth research question was answered by drawing upon the findings, conclusions and recommendations.

10.3.4.1 Findings: Effective cooperative governance and cultural spirituality

The findings of the study, as detailed in Chapters Six, Seven, Eight, and Nine, indicate that issues such as poor management, inequality, and bureaucratic hurdles within government structures pertaining to traditional fishers have received minimal attention. Furthermore, traditional fisheries is not adequately recognized or properly managed by the government, as discussed in Chapter Six. Consequently, there is slow progress in establishing recognized indigenous institutional forums and management systems for traditional fisheries that acknowledge traditional leadership and promote Indigenous Knowledge Systems (IKS), as explored in Chapter Seven.

Instead, the study found that the government's policies and programs tend to promote a Westernized or modernized fishery sector, as outlined in Chapter Eight. This approach has empowered commercial fisheries while marginalizing traditional fisheries, further endorsing the dominance of commercial fisheries and threatening the existence of cultural and traditional practices of traditional fishers based on African ways of fishing, as discussed in Chapter Nine.

10.3.4.2 Conclusions

It can be concluded that alienation IKS from government's institutional frameworks has adverse impacts on development of traditional fisheries in KZN. The SSFP implementation lacks measures to address "red taping" and inequality in the fishery sector. Furthermore, the role of local traditional institutions is undermined by dominance of Westernised cultural practices in policy implementation.

10.3.4.3 Recommendations

In view of these findings and conclusions, it is recommended government creates synergy between traditional fisheries, and economic and environmental sectors to establish functional institutional and governance framework that will serve interests of traditional fishers and rural coastal communities. Co-management between traditional leadership and relevant government departments should encourage integration of Africanisation and indigenisation of policy implementation at the local sphere of government. The concerted efforts from these various stakeholders will assist in creating the synergy between traditional fisheries, and economic and environmental sectors, thus mitigating the conflict that currently exists between them and

ensuring maximum participation with minimal social, economic and environmental concerns. Therefore, there is an opportunity for ethnography and stakeholder theories to apply African epistemological worldview to resolve governance and institutional conflicts between government and the public. Furthermore, government should strive for promotion of inclusive and equal institutional practices by countering conflict economies and acknowledging African ways of knowing as a driving force for peace.

10.3.5 Findings, conclusions and recommendations for Objective 5

In this sub-section the researcher demonstrates how the fifth research question was answered by drawing upon the findings, conclusions and recommendations.

10.3.5.1 Findings: Influence of MPAs to environmental sustainability

Findings from Chapters Six, Seven, Eight, and Nine shed light on the significant hindrance posed by Marine Protected Areas (MPAs) to the socio-economic and socio-cultural development of traditional fishers and rural coastal communities in KZN. As discussed in Chapter Six, the implementation of MPA policies perpetuates the marginalization of traditional fishers, contributing to inequality and socio-economic disparities. Moreover, the global concept of sustainable development, as explored in Chapter Seven, is found to be misaligned with the social constructs and challenges faced in South Africa, particularly in the context of traditional fisheries.

The study further reveals, as discussed in Chapter Eight, that the inequality and marginalization experienced by traditional fishermen and fisherwomen are exacerbated by the implementation of MPA policies. Consequently, MPAs create a disconnection between communities and the natural environment, as discussed in Chapter 9, leading to adverse impacts on the socio-economic, socio-cultural, and environmental development of traditional fisheries.

10.3.5.2 Conclusions

Conclusions that may be drawn from the study signify that MPA policy and SSFP implementation plan were designed to socio-economically and socio-culturally exclude traditional fishers and rural coastal communities. The study concludes that PSSF was formulated on the basis of a rigid system whereby decisions were made without thorough public consultation and orders were given from the top. In other words, PSSF was formulated on the basis of a top-down system in which decisions filter down through a hierarchical structure to impact the people on the ground level. The study also concludes that PSSF favours Eurocentrism as a system of knowledge which guides the development of South African fishery policies.

10.3.5.3 Recommendations

In view of these findings and conclusions, it is recommended government reviews MPA policy to reflect transdisciplinary perspectives and African epistemological worldview to effectively redress multiple concerns associated with socio-economic and socio-cultural dynamics. Collaboration of traditional leadership and government to drive environmental education for sharing of information. It is also recommended that government endorses transdisciplinary knowledge which integrates natural science and context specific knowledge with local indigenous knowledge from communities. Through paradigm shift, government should redefine the concept of sustainable development it is misaligned with ontological and epistemically worldviews of African communities. Therefore, paradigm shift is required to promote epistemically-driven sustainable development.

10.4 Contributions of the study to bodies of knowledge

The study contributed to various bodies of knowledge through influences of philosophical worldview of the study and findings that were co-created with study participants. The philosophical worldview enabled the study to develop its own worldview characterised by epistemic freedom. The philosophical worldview of the study was influenced by systems of beliefs that shape the way traditional fishers, government officials and rural KZN coastal communities perceive, understand, and live in the world. In addition, it provided epistemological reasons for what traditional fishers believe and that they reject foreign beliefs that undermine epistemic freedom. As a result, the philosophical worldview of the study presented subjective reality for traditional fishers constructed through integrated paradigms to see and interpret the world in their respective context.

The philosophical worldview of the study influenced the research methodology adopted by the researcher to answer the research questions and provide reliable evidence pertaining traditional fisheries in KZN. Research methodology adopted by the study promoted collaborative knowledge creation between the researcher and study participants to capture and understand experiences of KZN traditional fishers. As a result, co-creation of knowledge is aligned with values of African epistemologies that advocate and strengthen sense of community. Furthermore, co-creation knowledge significantly contributed to the development of CPFTF which seek to address SSFP policy implementation challenges for the betterment of traditional fishers. This particularly adds to the Public Governance body of knowledge.

10.5 Ideas for future research

The study discovered gaps to be filled by future researchers. These include assessment and evaluation of SSFP regarding socio-economic opportunities and barriers for traditional fisheries in KZN. The study also discovered knowledge gaps in relation to socio-economic and socio-cultural impacts about which further research is in order. Finally, provided that the new CPFTF is implemented, future research about it could provide implications for the South African government's long term national strategic development goals.

10.6 Conclusion of the chapter

Chapter 10 concludes the study by providing a comprehensive summary of the findings, conclusions, and recommendations derived from the research. Throughout this chapter, the key insights gleaned from Chapters Six, Seven, Eight and Nine are synthesized, contributing to a holistic understanding of the research questions and objectives.

The study has illuminated the myriad challenges confronting traditional fisheries in KZN, South Africa, spanning social, economic, policy, and management domains. These challenges, ranging from limited access to financial assistance and market opportunities to inadequate recognition and management of traditional fishing rights, underscore the urgent need for policy reform and community empowerment.

Moreover, the study underscores the importance of inclusivity and consultation in policy formulation and marine management, advocating for the integration of indigenous knowledge systems and local perspectives. By engaging fishing communities in decision-making processes and promoting environmental sustainability, the study proposes the development of evidence-based policy frameworks to address the multifaceted challenges facing traditional fisheries.

In light of these findings, the study offers recommendations for policymakers, stakeholders, and researchers to enhance the resilience and sustainability of traditional fisheries in KZN. These recommendations emphasize the importance of community participation, environmental stewardship, and policy reform to foster equitable access to marine resources and promote socio-economic development.

Looking ahead, the study highlights avenues for future research, including further exploration of the socio-cultural dynamics of traditional fisheries, the impact of marine protected areas on coastal communities, and the role of indigenous knowledge in sustainable resource management. By continuing to advance knowledge and policy interventions, the study aims to support the

resilience and vitality of traditional fisheries and their communities in the face of ongoing challenges and uncertainties.

11. References

- Ababouch, L. and Fipi, F., 2015. Fisheries and aquaculture in the context of blue economy. *Feeding Africa*, 2, pp.21-23
- Abdullah, D.F., 2017. The development of corporate governance literature in Malaysia: a systematic literature review and research agenda. *Corporate Governance: The International Journal of Business in Society*.
- Abuselidze, G., 2021. The intergovernmental relations and their regulation in the context of decentralization of fiscal policy. In *E3S Web of Conferences* (Vol. 280, p. 02010). EDP Sciences.
- Acharya, A.S., Prakash, A., Saxena, P. and Nigam, A., 2013. Sampling: Why and how of it. *Indian Journal of Medical Specialties*, 4(2), pp.330-333.
- Adams, J., 2020. Sample size in bibliometric analysis. *Scientometrics*, 125(1), pp.777-794.
- Adegbindin, O., 2018. On Indigenous African Epistemology: Mythographic Representations of the Witchcraft Phenomenon in the Ifá Text. *Synthesis philosophica*, 33(1), pp.123-147.
- Adhuri, D.S., Rachmawati, L., Sofyanto, H. and Hamilton-Hart, N., 2016. Green market for small people: Markets and opportunities for upgrading in small-scale fisheries in Indonesia. *Marine Policy*, 63, pp.198-205.
- Adom, K., 2019. Indigenous knowledge for environmental sustainability education in Ghana: Myths. *Agriculture & Food: E-Newsletter*, 1(3), pp.43-45.
- Advani, S., 2020. *How commoditization and cross-cultural values influence the sustainability of small-scale fisheries in the Andaman and Nicobar Islands, India* (Doctoral dissertation, University of British Columbia).
- Aguas, P.P., 2022. Fusing Approaches in Educational Research: Data Collection and Data Analysis in Phenomenological Research. *Qualitative Report*, 27(1).
- Aguión, A., Ojea, E., García-Flórez, L., Cruz, T., Garmendia, J.M., Davoult, D., Queiroga, H., Rivera, A., Acuña-Fernández, J.L. and Macho, G., 2022. *Establishing a governance threshold in small-scale fisheries to achieve sustainability*. *Ambio*, 51(3), pp.652-665.
- Ahmadi, D. and Rachmiatie, A.T.I.E., 2019. Public Participation Model for Public Information Disclosure. *Jurnal Komunikasi: Malaysian Journal of Communication*, 35(4).

Ajolor, O.V., 2018. The challenges of policy implementation in Africa and sustainable development goals. *International Journal of Social Sciences*, 3(3), pp.1497-1518.

Akerboom, S. and Craig, R.K., 2022. How law structures public participation in environmental decision making: A comparative law approach. *Environmental Policy and Governance*, 32(3), pp.232-246.

Akhtar-Khavari, A., 2019. The social life of plants and trees and the limits of environmental law's recovery imagination. In *Ecological Restoration Law* (pp. 29-49). Routledge.

Akinola, A.O., 2018. Women, culture and Africa's land reform Agenda. *Frontiers in psychology*, 9, p.2234.

Al Riyami, T., 2015. Main approaches to educational research. *International Journal of Innovation and Research in Educational Sciences*, 2(5), pp.412-416.

Alavi, M., Visentin, D.C., Thapa, D.K., Hunt, G.E., Watson, R. and Cleary, M.L., 2020. Chi-square for model fit in confirmatory factor analysis.

Algozzine, Bob, and Dawson Hancock. *Doing case study research: A practical guide for beginning researchers*. Teachers College Press, 2017.

Alharahsheh, H.H. and Pius, A., 2020. A review of key paradigms: Positivism VS interpretivism. *Global Academic Journal of Humanities and Social Sciences*, 2(3), pp.39-43.

Ali, M.R., 2018. Small-scale fisheries in Pakistan. *Small-scale Fisheries in South Asia*, 81.

Allison, E.H., 2011. Aquaculture, fisheries, poverty and food security.

Alonso-Población, E. and Niehof, A., 2019. On the power of a spatial metaphor: Is female to land as male is to sea? *Maritime Studies*, 18(3), pp.249-257.

Alves, C., 2021. Marine resource management and fisheries governance in Belize exhibit a polycentric, decentralized, and nested institutional structure. *Ocean & Coastal Management*, 211, p.105742.

Amarullah, T. and Sumardi, Z., 2018, December. Eco-friendly fishing gears based on code of conduct for responsible fisheries in the city of Banda Aceh, Indonesia. In *IOP Conference Series: Earth and Environmental Science* (Vol. 216, No. 1, p. 012052). IOP Publishing.

Ameyaw, G.A., Tsamenyi, M., McIlgorm, A. and Aheto, D.W., 2021. Challenges in the management of small-scale marine fisheries conflicts in Ghana. *Ocean & Coastal Management*, 211, p.105791.

Anandajayasekeram, P., 2018, July. Assessing the Scalability of a Research and Development Project: Concepts, Framework and Assessment. In *2018 Conference, July 28-August 2, 2018, Vancouver, British Columbia* (No. 276970). International Association of Agricultural Economists.

Andrew, N.L., Béné, C., Hall, S.J., Allison, E.H., Heck, S. and Ratner, B.D., 2007. Diagnosis and management of small-scale fisheries in developing countries. *Fish and Fisheries*, 8(3), pp.227-240.

Ani, N.C., 2013. Appraisal of African epistemology in the global system. *Alternation*, 20(1), pp.295-320.

Anney, V.N., 2014. Ensuring the quality of the findings of qualitative research: Looking at trustworthiness criteria. *Journal of emerging trends in educational research and policy studies*, 5(2), pp.272-281.

Anongu, I.M.M. And Akunoko, P.I., 2023. The Basis of African Epistemology. *Sapientia: Journal of Philosophy*, 17.

Archibald, M.M., 2016. Investigator triangulation: A collaborative strategy with potential for mixed methods research. *Journal of mixed methods research*, 10(3), pp.228-250.

Arieska, P.K. and Herdiani, N., 2018. Margin Of Error Between Simple Random Sampling And Stratified Sampling. In *PROCEEDING International Conference Technopreneur and Education 2018* (Vol. 1, No. 1).

Armat, M.R., Assarroudi, A., Rad, M., Sharifi, H. and Heydari, A., 2018. Inductive and deductive: Ambiguous labels in qualitative content analysis. *The Qualitative Report*, 23(1), pp.219-221.

Arsenault, R., Bourassa, C., Diver, S., McGregor, D. and Witham, A., 2019. Including indigenous knowledge systems in environmental assessments: restructuring the process. *Global Environmental Politics*, 19(3), pp.120-132.

Aseres, S.A. and Sira, R.K., 2021. Ecotourism development in Ethiopia: Costs and benefits for protected area conservation. *Journal of Ecotourism*, 20(3), pp.224-249.

Atta-Asiedu, K.A., 2020. African Worldviews and Research in African Studies: The Missing Ingredient. Available at SSRN 3637097.

Atwood, G.E., Stolorow, R.D. and Orange, D.M., 2011. The madness and genius of post-Cartesian philosophy: A distant mirror. *Psychoanalytic Review*, *The*, 98(3), pp.263-285.

Averill, J.B., 2002. Matrix analysis as a complementary analytic strategy in qualitative inquiry. *Qualitative health research*, 12(6), pp.855-866.

Awoniyi, S., 2015. African cultural values: The past, present and future. *Journal of Sustainable Development in Africa*, 17(1), pp.1-13.

Azhar, M., Suhartoyo, S., ALW, L.T., Suharso, P. and Herawati, V.E., 2018. Protection of traditional fishermen in the granting of fishery licenses in Indonesia. In *E3S Web of Conferences* (Vol. 47, p. 07003). EDP Sciences.

Bagienski, S. and Kuhn, G., 2019. The crossroads of magic and wellbeing: a review of wellbeing-focused magic programs, empirical studies, and conceivable theories. *International Journal of Wellbeing*, 9(2).

Barrett, D. and Twycross, A., 2018. Data collection in qualitative research. *Evidence-Based Nursing*, 21(3), pp.63-64.

Barsoum, M., 2022. The Importance of Qualitative and Phenomenological Research Methods in Business Studies. *Monarch Business School Research Paper Series*, 1(1).

Basheka, B.C. and Auriacombe, C.J., 2020. Contextualising the Regeneration of Africa's Indigenous Governance and Management Systems and Practices. *Administratio Publica*, 28(3), pp.223-243.

Basurto, X., Bennett, A., Weaver, A.H., Dyck, S.R.V. and Aceves-Bueno, J.S., 2013. Cooperative and noncooperative strategies for small-scale fisheries' self-governance in the globalization era: implications for conservation. *Ecology and Society*, 18(4).

Batista, A.A.D.S. and Francisco, A.C.D., 2018. Organizational sustainability practices: A study of the firms listed by the corporate sustainability index. *Sustainability*, 10(1), p.226.

Battiste, M. and Youngblood, J., 2000. *Protecting Indigenous knowledge and heritage: A global challenge*. ubc Press.

- Battiste, M., 2016. Research ethics for protecting Indigenous knowledge and heritage: Institutional and researcher responsibilities. *In Ethical futures in qualitative research* (pp. 111-132). Routledge.
- Baumanova, M., Smejda, L. and Rütther, H., 2019. Pre-colonial origins of urban spaces in the west African Sahel: Street networks, trade, and spatial plurality. *Journal of Urban History*, 45(3), pp.500-516.
- Bazeley, P., 2019. Using qualitative data analysis software (QDAS) to assist data analysis. *Handbook of Research Methods in Health Social Sciences*. Springer, Singapore.
- Beinart, W. and Dubow, S., 2013. Introduction: The historiography of segregation and apartheid. *In Segregation and apartheid in twentieth century South Africa* (pp. 13-36). Routledge.
- Beinart, W., 2008. *The Rise of Conservation in South Africa: settlers, livestock, and the environment*, pp.1770-1950. Oxford University Press.
- Bekkers, V. and Tummers, L., 2018. Innovation in the public sector: Towards an open and collaborative approach. *Revue Internationale des Sciences Administratives*, 84(2), pp.215-220.
- Belhabib, D., Sumaila, U.R. and Pauly, D., 2015. Feeding the poor: contribution of West African fisheries to employment and food security. *Ocean & Coastal Management*, 111, pp.72-81.
- Béné, C., 2003. When fishery rhymes with poverty: a first step beyond the old paradigm on poverty in small-scale fisheries. *World development*, 31(6), pp.949-975.
- Béné, C., 2006. *Small-scale fisheries: assessing their contribution to rural livelihoods in developing countries* (Vol. 1008, pp. 1-57). Rome, Italy: Food and Agriculture Organization of the United Nations.
- Bennett, B.S., 2019. Women chiefs and precolonial Tswana patriarchy. *Botswana Notes and Records*, 51.
- Bennett, E., 2002. The challenges of managing small-scale fisheries in West Africa. *CEMARE Report*, 7334, p.61.
- Bennett, N.J. and Dearden, P., 2014. From measuring outcomes to providing inputs: Governance, management, and local development for more effective marine protected areas. *Marine Policy*, 50, pp.96-110.

Berghofer, P., 2018. Husserl's conception of experiential justification: What it is and why it matters. *Husserl Studies*, 34(2), pp.145-170.

Bergman, N., Markusson, N., Connor, P., Middlemiss, L. and Ricci, M., 2010. Bottom-up, social innovation for addressing climate change. *Energy transitions in an interdependent world: what and where are the future social science research agendas*, Sussex, pp.25-26.

Berkes, F., George, P. and Preston, R.J. (1991) Co-management: The evolution in Theory and Practice of the Joint Administration of Living Resources. *Alternatives: Perspectives on Society, Technology and Environment*. Vol. 18(2) pp. 12-18.

Bettinger, K., Fisher, M. and Miles, W., 2014. The art of contestation and legitimacy: Environment, customary communities, and activism in Indonesia. In *Occupy the Earth: Global Environmental Movements* (Vol. 15, pp. 195-224). Emerald Group Publishing Limited.

Bevitt, K. (2020) Gender included from the “get go” in global small-scale fisheries study (online). Available on: <https://www.worldfishcentre.org> (Accessed on 13 February 2021).

Bhorat, H., Thornton, A. and Van der Zee, K., 2017. Socio-economic determinants of crime in South Africa: an empirical assessment.

Bin, Y.A.N.G., Zhang, F., Xue, W.A.N.G., Anlu, L.O.N.G., Lingli, R.A.O. and Yunyan, L.I.U., 2022. Review on the Theory of Ecological Environment Damage Assessment. *Meteorological & Environmental Research*, 13(2).

Birnbaum, S., 2016. Environmental co-governance, legitimacy, and the quest for compliance: When and why is stakeholder participation desirable?. *Journal of Environmental Policy & Planning*, 18(3), pp.306-323.

Bischoff, I., 2013. The political economy of EU-funds: Evidence from Poland. *Jahrbücher für Nationalökonomie und Statistik*, 237(3), pp.72-82.

Bishop, P.A. and Herron, R.L., 2015. Use and misuse of the Likert item responses and other ordinal measures. *International journal of exercise science*, 8(3), p.297.

Blake, J., 2021. Where Heritage Meets Bioethics: Indigenous Human Remains and Genetic Prospecting.

Bloomfield, J. and Fisher, M.J., 2019. Quantitative research design. *Journal of the Australasian Rehabilitation Nurses Association*, 22(2), pp.27-30.

- Blühdorn, I. and Deflorian, M., 2019. The collaborative management of sustained unsustainability: On the performance of participatory forms of environmental governance. *Sustainability*, 11(4), p.1189.
- Bøås, M., 2019. Environmental Policy in the African Development Bank and the Asian Development Bank. In *Handbook of Global Economic Policy* (pp. 1-30). Routledge.
- Bobbio, L., 2019. *Designing effective public participation*. *Policy and Society*, 38(1), pp.41-57.
- Boccagni, P. and Schrooten, M., 2018. Participant observation in migration studies: An overview and some emerging issues. *Qualitative research in European migration studies*, pp.209-225.
- Boeren, E., 2018. The methodological underdog: A review of quantitative research in the key adult education journals. *Adult Education Quarterly*, 68(1), pp.63-79.
- Bonanomi M. and Van Baalen, S., 2019. Epistemology for interdisciplinary research—shifting philosophical paradigms of science. *European journal for philosophy of science*, 9, pp.1-28.
- Bonanomi, S., Colombelli, A., Malvarosa, L., Cozzolino, M. and Sala, A., 2017. Towards the introduction of sustainable fishery products: The bid of a major Italian retailer. *Sustainability*, 9(3), p.438.
- Boslaugh, S., 2007. An introduction to secondary data analysis. *Secondary data sources for public health: A practical guide*, pp.2-10.
- Bowen, G.A., 2009. Document analysis as a qualitative research method. *Qualitative research journal*, 9(2), pp.27-40.
- Branch, G.M., May, J., Roberts, B., Russell, E. and Clark, B.M., 2002. Case studies on the socio-economic characteristics and lifestyles of subsistence and informal fishers in South Africa. *South African Journal of Marine Science*, 24(1), pp.439-462.
- Brannen, J., 2017. Combining qualitative and quantitative approaches: an overview. *Mixing methods: Qualitative and quantitative research*, pp.3-37.
- Braun, V. and Clarke, V., 2019. Reflecting on reflexive thematic analysis. *Qualitative research in sport, exercise and health*, 11(4), pp.589-597.
- Braun, V. and Clarke, V., 2021. One size fits all? What counts as quality practice in (reflexive) thematic analysis?. *Qualitative research in psychology*, 18(3), pp.328-352.

- Brewer, T.D. and Moon, K., 2015. Towards a functional typology of small-scale fisheries co-management informed by stakeholder perceptions: a coral reef case study. *Marine Policy*, 51, pp.48-56.
- Brister, E., 2016. Disciplinary capture and epistemological obstacles to interdisciplinary research: lessons from central African conservation disputes. *Studies in history and philosophy of science part C: studies in history and philosophy of biological and biomedical sciences*, 56, pp.82-91.
- Britton, E. and Coulthard, S., 2013. Assessing the social wellbeing of Northern Ireland's fishing society using a three-dimensional approach. *Marine Policy*, 37, pp.28-36.
- Britz, P., 2015. The history of South African inland fisheries policy with governance recommendations for the democratic era. *Water Sa*, 41(5), pp.624-632.
- Brockington, D. and Wilkie, D., 2015. Protected areas and poverty. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 370(1681), p.20140271.
- Brown, S., 2008. Religion and fisheries management in coastal North Carolina.
- Brownscombe, J.W., Hyder, K., Potts, W., Wilson, K.L., Pope, K.L., Danylchuk, A.J., Cooke, S.J., Clarke, A., Arlinghaus, R. and Post, J.R., 2019. The future of recreational fisheries: advances in science, monitoring, management, and practice. *Fisheries Research*, 211, pp.247-255.
- Bryman, A., 2004. Triangulation and measurement. Retrieved from Department of Social Sciences, Loughborough University, Loughborough, Leicestershire: [www. referenceworld. com/sage/socialscience/triangulation. pdf](http://www.referenceworld.com/sage/socialscience/triangulation.pdf).
- Bugajak, G., 2020. "Reason and faith". The problem of the separation of disciplines. *Studia Philosophiae Christianae*, 56(S2), pp.139-157.
- Burns, P., 1999. Mixed method research: Instruments, validity, reliability and reporting findings. *Theory and practice in language studies*, 3(2), p.254.
- Busilacchi, S., Russ, G.R., Williams, A.J., Sutton, S.G. and Begg, G.A., 2013. The role of subsistence fishing in the hybrid economy of an indigenous community. *Marine Policy*, 37, pp.183-191.
- Carbonetti, B., Pomeroy, R. and Richards, D.L., 2014. Overcoming the lack of political will in small scale fisheries. *Marine policy*, 44, pp.295-301.

Carcary, M., 2020. The research audit trail: Methodological guidance for application in practice. *Electronic Journal of Business Research Methods*, 18(2), pp.166-177.

Carisson, L. and Berkes, F. (2005) Co-management: Concepts and Methodological implications. *Journal of Environmental Management*. Vol. 75(2) pp. 65-76.

Carroll, K.K., 2014. An introduction to African-centered sociology: Worldview, epistemology, and social theory. *Critical Sociology*, 40(2), pp.257-270.

Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J. and Neville, A.J., Triangulation, D.S., 2014, September. The use of triangulation in qualitative research. *In Oncology nursing forum* (Vol. 41, No. 5, p. 545).

Casey, R.G. and Wong, K.Y., 2020. Document-analysis systems and techniques. *In Image Analysis Applications* (pp. 1-36). CRC Press.

Castañeda, G., Chávez-Juárez, F. and Guerrero, O.A., 2018. How do governments determine policy priorities? Studying development strategies through spillover networks. *Journal of Economic Behavior & Organization*, 154, pp.335-361.

Casteel, A. and Bridier, N.L., 2021. Describing Populations and Samples in Doctoral Student Research. *International Journal of Doctoral Studies*, 16(1).

Cech, E.A., Metz, A., Smith, J.L. and DeVries, K., 2017. Epistemological dominance and social inequality: Experiences of Native American science, engineering, and health students. *Science, Technology, & Human Values*, 42(5), pp.743-774.

Cernea, M.M. and Schmidt-Soltau, K., 2003. The end of forcible displacements? Conservation must not impoverish people. *Policy matters*, 12.

CGIAR (2017) Why gender equality matters in fisheries and aquaculture (online). Available on: <https://www.fish.cgiar.org> (Accessed on 20 January 2021).

Chabay, I., Renn, O., Van Der Leeuw, S. and Droy, S., 2021. Transforming scholarship to co-create sustainable futures. *Global Sustainability*, 4, p.e19.

Chakravorty, T., 2015. Marginalisation and Women of Fishing Community: An Experience from India. *Applied Ethics*, p.51.

- Chalong, B., 2019. Public Participation in Implementation of Strategic Policy: A Case Study of Ranong Province. *The Euraseans: Journal on global socio-economic dynamics*, (4 (17)), pp.07-15.
- Chang, M.Y. and Hsu, L.L., 2006. Qualitative research: an introduction to focus group methodology and its application. *Hu li za zhi The Journal of Nursing*, 53(2), pp.67-72.
- Chapman, J.M. and Schott, S., 2020. Knowledge coevolution: generating new understanding through bridging and strengthening distinct knowledge systems and empowering local knowledge holders. *Sustainability Science*, 15(3), pp.931-943.
- Charles, A., Westlund, L., Bartley, D.M., Fletcher, W.J., Garcia, S., Govan, H. and Sanders, J., 2016. Fishing livelihoods as key to marine protected areas: insights from the World Parks Congress. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 26, pp.165-184.
- Chatterjee, A., Czajka, L. and Gethin, A., 2020. *Estimating the distribution of household wealth in South Africa* (No. 2020/45). WIDER Working Paper.
- Chigevenga, R., 2022. Decolonising research methodologies in the Global South: Experiences of an African social scientist. *African Journal of Social Work*, 12(4), pp.199-206.
- Chilisa, B and Tsheko, GN (2014) Mixed Methods in Indigenous Research: Building Relationships for Sustainable Intervention Outcomes. *Journal of Mixed Methods Research* 8(3) 222–233.
- Choi, Y.D., 2007. Restoration ecology to the future: a call for new paradigm. *Restoration ecology*, 15(2), pp.351-353.
- Christopher, A.J., 1990. Apartheid and urban segregation levels in South Africa. *Urban Studies*, 27(3), pp.421-440.
- Chuenpagdee, R. and Jentoft, S., 2018. Transforming the governance of small-scale fisheries. *Maritime studies*, 17(1), pp.101-115.
- Chuenpagdee, R. and Jentoft, S., 2019. Transdisciplinarity for small-scale fisheries governance. *Analysis and practice. Cham: Springer Nature*.
- Church, R.M., 2002. The effective use of secondary data. *Learning and motivation*, 33(1), pp.32-45.

Churchill, S.D., 2018. Explorations in teaching the phenomenological method: Challenging psychology students to “grasp at meaning” in human science research. *Qualitative Psychology*, 5(2), p.207.

Cilesiz, S., 2009. Educational computer use in leisure contexts: A phenomenological study of adolescents’ experiences at Internet cafes. *American Educational Research Journal*, 46(1), pp.232-274.

Clark, A., Holland, C., Katz, J. and Peace, S., 2009. Learning to see: lessons from a participatory observation research project in public spaces. *International journal of social research methodology*, 12(4), pp.345-360.

Clark, B.M. (2006) Climate Change: A looming challenge for fisheries management in Southern Africa. *Marine Policy*. Vol. 30(1) pp. 84-95.

Clarkson, M.B., 2016. A stakeholder framework for analysing and evaluating corporate social performance (pp. 243-274). *University of Toronto Press*. [https://doi, 10\(9781\)](https://doi.org/10.9781), pp.4-13.

Claxton, N.X. and de France, C.R., 2018. With roots in the water: Revitalizing Straits Salish reef net fishing as education for well-being and sustainability. In *Indigenous and Decolonizing Studies in Education* (pp. 215-223). Routledge.

Cohen, J., 2013. *Statistical power analysis for the behavioral sciences*. Academic press.

Cohen, P.J., Allison, E.H., Andrew, N.L., Cinner, J., Evans, L.S., Fabinyi, M., Garces, L.R., Hall, S.J., Hicks, C.C., Hughes, T.P. and Jentoft, S., 2019. Securing a just space for small-scale fisheries in the blue economy. *Frontiers in Marine Science*, 6, p.171.

Connelly, L.M., 2016. Trustworthiness in qualitative research. *Medsurg nursing*, 25(6), p.435.

Converse, M., 2012. Philosophy of phenomenology: How understanding aids research. *Nurse researcher*, 20(1).

Cooke, S.J., Lapointe, N.W.R., Martins, E.G., Thiem, J.D., Raby, G.D., Taylor, M.K., Beard Jr, T.D. and Cowx, I.G., 2021. Failure to engage the public in issues related to inland fishes and fisheries: Strategies for building public and political will to promote meaningful conservation. *Journal of Fish biology*, 83(4), pp.997-1018.

Cooke, S.J., Nguyen, V.M., Chapman, J.M., Reid, A.J., Landsman, S.J., Young, N., Hinch, S.G., Schott, S., Mandrak, N.E. and Semeniuk, C.A., 2021. Knowledge co-production: A pathway to effective fisheries management, conservation, and governance. *Fisheries*, 46(2), pp.89-97.

Coulthard, S., Johnson, D. and McGregor, J.A., 2011. Poverty, sustainability and human wellbeing: a social wellbeing approach to the global fisheries crisis. *Global Environmental Change*, 21(2), pp.453-463.

Creswell, J.W., 2013. Steps in conducting a scholarly mixed methods study.

Creswell, J.W., 2018. *Nitel araştırma yöntemleri: Beş yaklaşıma göre nitel araştırma ve araştırma deseni*. Siyasal kitabevi.

Crush, J. and Riley, L., 2018. Rural bias and urban food security. *In Urban food systems governance and poverty in African cities* (pp. 42-55). Routledge.

Cucuzza, M., Stoll, J.S. and Leslie, H.M., 2021. Evaluating the theoretical and practical linkages between ecosystem-based fisheries management and fisheries co-management. *Marine Policy*, 126, p.104390.

DAFF, 2019. Current problems in the management of marine fisheries. *science*, 316(5832), pp.1-13.

Dahabreh, I.J. and Hernán, M.A., 2019. Extending inferences from a randomized trial to a target population. *European journal of epidemiology*, 34, pp.719-722.

Davis, A., Javernick-Will, A. and Cook, S.M., 2019. The use of qualitative comparative analysis to identify pathways to successful and failed sanitation systems. *Science of the Total Environment*, 663, pp.507-517.

Dawadi, S., Shrestha, S. and Giri, R.A., 2021. Mixed-methods research: A discussion on its types, challenges, and criticisms. *Journal of Practical Studies in Education*, 2(2), pp.25-36.

de Oliveira, J.A.P., 2019. Intergovernmental relations for environmental governance: Cases of solid waste management and climate change in two Malaysian States. *Journal of environmental management*, 233, pp.481-488.

de Oliveira, T.M., Amaral, L. and Pacheco, R.C.D.S., 2019. Multi/inter/transdisciplinary assessment: A systemic framework proposal to evaluate graduate courses and research teams. *Research Evaluation*, 28(1), pp.23-36.

de Vivero, J.L.S., Mateos, J.C.R. and del Corral, D.F., 2008. The paradox of public participation in fisheries governance. The rising number of actors and the devolution process. *Marine policy*, 32(3), pp.319-325.

Delius, P., 2018. Mistaking Form for Substance: Reflections on the key dynamics of pre-colonial polities and their implications for the role of chiefs in contemporary South Africa. *Journal of Southern African Studies*, 47(2), pp.1-18.

Denzin, N.K., 2012. Triangulation 2.0. *Journal of mixed methods research*, 6(2), pp.80-88.

Department of Agriculture, Forestry and Fisheries (2016) Status of the South African marine fishery resources (online). Available on: <https://www.daff.gov.za> (Accessed on 23 February 2021).

Department of Forestry and Fisheries (2012). Towards sustainability in world fisheries: South African Fisheries.

Department of Forestry and Fisheries (2014). Fishery resources in South Africa: Sector Performance.

Derrington, M.L. and Campbell, J.W., 2018. High-stakes teacher evaluation policy: US principals' perspectives and variations in practice. *Teachers and Teaching*, 24(3), pp.246-262.

Desboulets, L.D.D., 2018. A review on variable selection in regression analysis. *Econometrics*, 6(4), p.45.

DeVault, M.L., 2019. Institutional ethnography: A mode of inquiry and a strategy for change. In *Researching social problems* (pp. 83-101). Routledge.

Devine, P., 2003. Secondary data analysis. *The AZ of Social Research*. SAGE.

Devos, Y., Maesele, P., Reheul, D., Van Speybroeck, L. and De Waele, D., 2005. Ethics in the societal debate on genetically modified organisms: A (re) quest for sense and sensibility. *Journal of agricultural and environmental ethics*, 21, pp.29-61.

Diaz, J.F.K.B., 2020. *A Phenomenological Inquiry into the Experience of Fear for Pacific Islanders of Guam the Pursuit of Political Self Determination, 2008-2018* (Doctoral dissertation, Union Institute and University).

Dilshad, R.M. and Latif, M.I., 2013. Focus group interview as a tool for qualitative research: An analysis. *Pakistan Journal of Social Sciences (PJSS)*, 33(1).

Domegan, C. and Fleming, D., 2007. *Marketing research in Ireland: Theory and practice*. Gill & Macmillan.

- Domínguez, L. and Luoma, C., 2020. Decolonising conservation policy: How colonial land and conservation ideologies persist and perpetuate indigenous injustices at the expense of the environment. *Land*, 9(3), p.65.
- Dowling, M., 2007. From Husserl to van Manen. A review of different phenomenological approaches. *International journal of nursing studies*, 44(1), pp.131-142.
- Dwianika, A., Murwaningsari, E. and Suparta, W., 2020. Analysis of water awareness, accountability, and governance to improve sustainability of firm's performance in urban areas. *Geographia technica*, 15(1), pp.35-42.
- Dwivedi, A. and Weerawardena, J., 2018. Conceptualizing and operationalizing the social entrepreneurship construct. *Journal of Business research*, 86, pp.32-40.
- Edmonds, A. and Gudmestad, A., 2018. Operationalizing variables. *Critical reflections on data in second language acquisition*, 51, p.125.
- Efran, J.S., McNamee, S., Warren, B. and Raskin, J.D., 2014. Personal construct psychology, radical constructivism, and social constructionism: A dialogue. *Journal of Constructivist Psychology*, 27(1), pp.1-13.
- Eger, S., 2020. Learning from experience to operationalize integrated coastal and marine management.
- Elo, S. and Kyngäs, H., 2008. The qualitative content analysis process. *Journal of advanced nursing*, 62(1), pp.107-115.
- Elo, S. and Kyngäs, H., 2008. The qualitative content analysis process. *Journal of advanced nursing*, 62(1), pp.107-115.
- Emery, A.R., 2000. *Guidelines: Integrating indigenous knowledge in project planning and implementation*. World Bank.
- ENCA, 2020. Dr Zweli Mkhize tests positive for COVID-19 (online). Available on: <https://www.enca.com/news/dr-zweli-mkhize-tests-positive-covid-19> (Accessed on 20 February 2021)
- Erasmus, M.N., 2020. Western Ascendency and African Capitulation: Antagonism for 'True' Public Administration Epistemology. *Journal of African Foreign Affairs*, 7(2), pp.21-33.

Eriksen, S.S., Akpalu, W. and Vondolia, G.K., 2018. The Fisheries Sector in Ghana: A Political Economy Analysis.

Eriksson, B., Johansson, F. and Blicharska, M., 2019. Socio-economic impacts of marine conservation efforts in three Indonesian fishing communities. *Marine Policy*, 103, pp.59-67.

Eriksson-Zetterquist, U., Hansson, M. and Nilsson, F., 2021. On the use and usefulness of theories and perspectives: A reply to Brunsson. *Scandinavian Journal of Management*, 37(4), p.101178.

Etta, E.E. and Mogu, F.I., 2012. The relevance of proverbs in African epistemology. *Lwati: A Journal of Contemporary Research*, 9(1).

Evans, L., Cherrett, N. and Pemsil, D., 2011. Assessing the impact of fisheries co-management interventions in developing countries: A meta-analysis. *Journal of environmental management*, 92(8), pp.1938-1949.

Faasen, H. and Watts, S., 2007. Local community reaction to the 'no-take' policy on fishing in the Tsitsikamma National Park, South Africa. *Ecological Economics*, 64(1), pp.36-46.

Fabinyi, M., Foale, S. and Macintyre, M., 2015. Managing inequality or managing stocks? An ethnographic perspective on the governance of small-scale fisheries. *Fish and Fisheries*, 16(3), pp.471-485.

Fabrigar, L.R., Wegener, D.T. and Petty, R.E., 2020. A validity-based framework for understanding replication in psychology. *Personality and Social Psychology Review*, 24(4), pp.316-344.

Fache, E. and Pauwels, S., 2020. Tackling coastal "overfishing" in Fiji: advocating for indigenous worldview, knowledge, and values to be the backbone of fisheries management strategies. *Maritime Studies*, 19(1), pp.41-52.

Fairer-Wessels, F.A., 2017. Determining the impact of information on rural livelihoods and sustainable tourism development near protected areas in Kwa-Zulu Natal, South Africa. *Journal of Sustainable Tourism*, 25(1), pp.10-25.

Fan, Y. and Lindshield, S., 2022. Exploring human factors of wildlife conservation along a forest gap using a participatory design-build canopy bridge. *Folia Primatologica*, 1(aop), pp.1-16.

Fang, X., Hou, X., Li, X., Hou, W., Nakaoka, M. and Yu, X., 2018. Ecological connectivity between land and sea: A review. *Ecological research*, 33(1), pp.51-61.

FAO (1995) Code of Conduct for Responsible Fisheries: Rome (online). Available on: <https://www.fao.org> (Accessed on 24 February 2021).

FAO (2006) Literacy and Education in Fishing Communities (online). Available on: <https://www.fao.org> (Accessed on 26 February 2021).

FAO (2016) Fisheries and aquaculture governance (online) Available on: <https://www.fao.org> (Accessed on 24 February 2021).

FAO (2020) Implementing of the 1995 FAO Code of Conduct for Responsible Fisheries: Rome (online). Available on: <https://www.fao.org> (Accessed on 24 February 2021).

FAO Voluntary Guidelines for Securing Sustainable Small-scale Fisheries in the Context of Food Security and Poverty Eradication <http://www.fao.org/3a-i4356en.pdf> Accessed 17 September 2018

FAO., 2015. Socio-Economic and Profitability of Fisheries Enterprises in Kano State, Nigeria.

Fernando, E. and Touriano, D., 2018, November. Development and validation of instruments adoption FinTech services in Indonesia (Perspective of trust and risk). In *2018 International conference on sustainable information engineering and technology (SIET)* (pp. 283-287). IEEE.

Fielding, N.G., 2012. Triangulation and mixed methods designs: Data integration with new research technologies. *Journal of mixed methods research*, 6(2), pp.124-136.

Finegan, C., 2018. Reflection, acknowledgement, and justice: A framework for indigenous-protected area reconciliation. *International Indigenous Policy Journal*, 9(3).

Fink, E., 2020. The Phenomenological Philosophy of Edmund Husserl and Contemporary Criticism 1. In *The phenomenology of Husserl* (pp. 70-139). Routledge.

Finkbeiner, E.M. and Basurto, X., 2015. Re-defining co-management to facilitate small-scale fisheries reform: An illustration from northwest Mexico. *Marine Policy*, 51, pp.433-441.

Fisheries, S., 1997. A Marine Fisheries Policy for South Africa.

Flake, J.K., Davidson, I.J., Wong, O. and Pek, J., 2022. Construct validity and the validity of replication studies: A systematic review. *American Psychologist*, 77(4), p.576.

Fleetwood, S., 2008. Institutions and social structures 1. *Journal for the Theory of Social Behaviour*, 38(3), pp.241-265.

Flick, U., 2015. *Introducing research methodology: A beginner's guide to doing a research project*. Sage.

Flick, U., 2018. *Doing triangulation and mixed methods* (Vol. 8). Sage.

Food and Agriculture Organization of the United Nations, 1995. *Code of Conduct for Responsible Fisheries*. Rome

Food and Agriculture Organization., 2016. *Promoting gender equality and women's empowerment in fisheries and aquaculture*.

Ford, E. and Stewart, B.D., 2019. Building a bridge over troubled waters: An analysis of fishers' trust in UK fisheries management.

Ford, J.D., King, N., Galappaththi, E.K., Pearce, T., McDowell, G. and Harper, S.L., 2020. The resilience of indigenous peoples to environmental change. *One Earth*, 2(6), pp.532-543.

Fraenkel, J.R. and Wallen, N.E., 2003. Observation and interviewing. *How to design and evaluate research in education*, 5, pp.455-463.

Frangoudes, K. and Gerrard, S., 2019. Gender perspective in fisheries: examples from the South and the North. *Transdisciplinarity for Small-Scale Fisheries Governance: Analysis and Practice*, pp.119-140.

Frangoudes, K., Gerrard, S. and Kleiber, D., 2019. Situated transformations of women and gender relations in small-scale fisheries and communities in a globalized world.

Frangoudes, K., Gerrard, S. and Kleiber, D., 2019. Situated transformations of women and gender relations in small-scale fisheries and communities in a globalized world. *Maritime Studies*, 18(3), pp.241-248.

Frazin, R. (2020) Climate change to reduce GDP by 1 percent in 2020: Government analysis (online). Available on: <https://www.thehill.com> (Accessed on 08 February 2021).

Frechette, J., Bitzas, V., Aubry, M., Kilpatrick, K. and Lavoie-Tremblay, M., 2020. Capturing lived experience: Methodological considerations for interpretive phenomenological inquiry. *International Journal of Qualitative Methods*, 19, p.160.

Freitas, C.T., Lopes, P.F., Campos-Silva, J.V., Noble, M.M., Dyball, R. and Peres, C.A., 2020. Co-management of culturally important species: A tool to promote biodiversity conservation and human well-being. *People and Nature*, 2(1), pp.61-81.

Friedlander, A.M., Shackeroff, J.M. and Kittinger, J.N., 2013. Customary marine resource knowledge and use in contemporary Hawai 'i 1. *Pacific Science*, 67(3), pp.441-460.

Friedman, K., Garcia, S.M. and Rice, J., 2018. Mainstreaming biodiversity in fisheries. *Marine Policy*, 95, pp.209-220.

Fu, Y. and Ma, W., 2020. Sustainable urban community development: A case study from the perspective of self-governance and public participation. *Sustainability*, 12(2), p.617.

Fulton, E.A., 2021. Opportunities to improve ecosystem-based fisheries management by recognizing and overcoming path dependency and cognitive bias. *Fish and Fisheries*, 22(2), pp.428-448.

Funge-Smith, S. and Bennett, A., 2019. A fresh look at inland fisheries and their role in food security and livelihoods. *Fish and Fisheries*, 20(6), pp.1176-1195.

Fusch, P., Fusch, G.E. and Ness, L.R., 2018. Denzin's paradigm shift: Revisiting triangulation in qualitative research. *Journal of social change*, 10(1), p.2.

Fushimi, K., 2021. Qualitative Research is not a Unified Paradigm: Implications for the Evaluation of Qualitative Research Studies. *JICA Ogata Sadako Research Institute for Peace and Development*, 15, pp.1-18.

Galappaththi, E.K., Ford, J.D., Bennett, E.M. and Berkes, F., 2021. Adapting to climate change in small-scale fisheries: Insights from indigenous communities in the global north and south. *Environmental Science & Policy*, 116, pp.160-170.

Galappaththi, M., Armitage, D. and Collins, A.M., 2022. Women's experiences in influencing and shaping small-scale fisheries governance. *Fish and Fisheries*, 23(5), pp.1099-1120.

Galappaththi, M., Armitage, D. and Collins, A.M., 2022. Women's experiences in influencing and shaping small-scale fisheries governance. *Fish and Fisheries*, 23(5), pp.1099-1120.

Gammage, L.C. and Jarre, A., 2020. Using structured decision-making tools with marginalised fishers to promote system-based fisheries management approaches in South Africa. *Frontiers in Marine Science*, 7, p.477.

Garcia, S.G., Barclay, K. and Nicholls, R., 2021. Can anti-illegal, unreported, and unregulated (IUU) fishing trade measures spread internationally? Case study of Australia. *Ocean & Coastal Management*, 202, p.105494.

Gelcich, S., Reyes-Mendy, F., Arriagada, R. and Castillo, B., 2018. Assessing the implementation of marine ecosystem-based management into national policies: insights from agenda setting and policy responses. *Marine Policy*, 92, pp.40-47.

Ghose, B., 2014. Fisheries and aquaculture in Bangladesh: Challenges and opportunities. *Annals of Aquaculture and Research*, 1(1), pp.1-5.

Gill, P. and Baillie, J., 2018. Interviews and focus groups in qualitative research: an update for the digital age. *British dental journal*, 225(7), pp.668-672.

Gissi, E., Portman, M.E. and Hornidge, A.K., 2018. Un-gendering the ocean: Why women matter in ocean governance for sustainability. *Marine Policy*, 94, pp.215-219.

Golden Kroner, R.E., Qin, S., Cook, C.N., Krithivasan, R., Pack, S.M., Bonilla, O.D., Cort-Kansinally, K.A., Coutinho, B., Feng, M., Martínez Garcia, M.I. and He, Y., 2019. The uncertain future of protected lands and waters. *Science*, 364(6443), pp.881-886.

Goleman, D. (2020) Social Well-Being (online). Available on: <https://www.econation.co.nz>. (Accessed 20 February 2021).

Gómez, S. and Maynou, F., 2021. Balancing ecology, economy and culture in fisheries policy: Participatory research in the Western Mediterranean demersal fisheries management plan. *Journal of Environmental Management*, 291, p.112728.

González-Mon, B., Bodin, Ö., Crona, B., Nenadovic, M. and Basurto, X., 2019. Small-scale fish buyers' trade networks reveal diverse actor types and differential adaptive capacities. *Ecological Economics*, 164, p.106338.

Gopal, N., Edwin, L. and Meenakumari, B., 2014. Transformation in gender roles with changes in traditional fisheries in Kerala, India.

Gopal, N., Hapke, H.M., Kusakabe, K., Rajaratnam, S. and Williams, M.J., 2020. Expanding the horizons for women in fisheries and aquaculture. *Gender, Technology and Development*, 24(1), pp.1-9.

Gough, A., Russell, C. and Whitehouse, H., 2017. Moving gender from margin to center in environmental education. *The Journal of Environmental Education*, 48(1), pp.5-9.

Graneheim, U.H., Lindgren, B.M. and Lundman, B., 2017. Methodological challenges in qualitative content analysis: A discussion paper. *Nurse education today*, 56, pp.29-34.

- Green, D. and Raygorodetsky, G., 2010. Indigenous knowledge of a changing climate. *Climatic Change*, 100(2), p.239.
- Green, E., 2013. Production systems in pre-colonial Africa. *The History of African Development*, pp.1-13.
- Groenland, E., 2018. Employing the matrix method as a tool for the analysis of qualitative research data in the business domain. *International Journal of Business and Globalisation*, 21(1), pp.119-134.
- Gronsbell, J., Liu, M., Tian, L. and Cai, T., 2020. Efficient estimation and evaluation of prediction rules in semi-supervised settings under stratified sampling. *arXiv preprint arXiv:2010.09443*.
- Guest, G., MacQueen, K.M. and Namey, E.E., 2012. Validity and reliability (credibility and dependability) in qualitative research and data analysis. *Applied thematic analysis*, 79, p.106.
- Guest, G., Namey, E., Taylor, J., Eley, N. and McKenna, K., 2017. Comparing focus groups and individual interviews: findings from a randomized study. *International Journal of Social Research Methodology*, 20(6), pp.693-708.
- Gupta, J., Pouw, N.R. and Ros-Tonen, M.A., 2015. Towards an elaborated theory of inclusive development. *The European Journal of Development Research*, 27, pp.541-559.
- Gustavsson, M., Frangoudes, K., Lindström, L., Álvarez, M.C. and de la Torre Castro, M., 2021. Gender and Blue Justice in small-scale fisheries governance. *Marine Policy*, 133, p.104743.
- Haddaway, N.R., Kohl, C., Rebelo da Silva, N., Schiemann, J., Spök, A., Stewart, R., Sweet, J.B. and Wilhelm, R., 2017. A framework for stakeholder engagement during systematic reviews and maps in environmental management. *Environmental evidence*, 6(1), pp.1-14.
- Hadita, C., 2020. Regional Autonomy Political Politics of Regional Liability Reports To Regional Representatives In The Implementation Of Local Government. *Nomoi Law Review*, 1(1), p.91.
- Haggan, N. and Neis, B., 2007. The changing face of fisheries science and management. *Fishers' Knowledge in Fisheries Science and Management*, 4, pp.421-432.
- Hajar, S., Tanjung, I.S. and Yenni, E., 2017, October. Empowerment of Coastal Community Through Village Potential. In *International Conference on Public Policy, Social Computing and Development 2017 (ICOPOSDev 2017)* (pp. 297-299). Atlantis Press.

Halim, A., Loneragan, N.R., Wiryawan, B., Fujita, R., Adhuri, D.S., Hordyk, A.R. and Sondita, M.F.A., 2020. Transforming traditional management into contemporary territorial-based fisheries management rights for small-scale fisheries in Indonesia. *Marine Policy*, 116, p.103923.

Hamilton, J., Basurto, X., Smith, H. and Virdin, J., 2021. How does the World Bank shape global environmental governance agendas for coasts? 50 years of small-scale fisheries aid reveals paradigm shifts over time. *Global Environmental Change*, 68, p.102246.

Hamilton-Hart, N. and Stringer, C., 2016. Upgrading and exploitation in the fishing industry: Contributions of value chain analysis. *Marine Policy*, 63, pp.166-171.

Harper, S., Grubb, C., Stiles, M. and Sumaila, U.R., 2017. Contributions by women to fisheries economies: insights from five maritime countries. *Coastal Management*, 45(2), pp.91-106.

Harper, S., Grubb, C., Stiles, M. and Sumaila, U.R., 2017. Contributions by women to fisheries economies: insights from five maritime countries. *Coastal Management*, 45(2), pp.91-106.

Harrison, H.L., Rybråten, S. and Aas, Ø., 2018. Hatching knowledge: a case study on the hybridization of local ecological knowledge and scientific knowledge in small-scale Atlantic salmon (*Salmo salar*) cultivation in Norway. *Human ecology*, 46(4), pp.449-459.

Hartley, R.I. and Sturm, P., 1997. Triangulation. *Computer vision and image understanding*, 68(2), pp.146-157.

Harvey, S. and Berry, J., 2022. Toward a meta-theory of creativity forms: How novelty and usefulness shape creativity. *Academy of Management Review*, (ja).

Hauck, M. and Kroese, M. (2006) Fisheries compliance in South Africa: A decade of challenges and reform 1994 – 2004. *Marine Policy*. Vol. 30(1) pp.74-83.

Hauck, M. and Sowman, M. (2001) Coastal and fisheries co-management in South Africa: an overview and analysis. *Marine Policy*. Vol. 25(3) pp. 173-185.

Hays, D.G. and McKibben, W.B., 2021. Promoting rigorous research: Generalizability and qualitative research. *Journal of Counseling & Development*, 99(2), pp.178-188.

Heale, R. and Twycross, A., 2015. Validity and reliability in quantitative studies. *Evidence-based nursing*, 18(3), pp.66-67. 2694-2726.

Heck, S., Béné, C. and Reyes-Gaskin, R., 2007. Investing in African fisheries: building links to the Millennium Development Goals. *Fish and Fisheries*, 8(3), pp.211-226.

Hedtke, R., 2006. The social interplay of disciplinarity and interdisciplinarity. Some introductory remarks. *JSSE-Journal of Social Science Education*.

Heffner, C.C., 2016. Reliability and validity for perceptual flexibility in speech. *Brain and Language*, 226, p.105070.

Hiai, F. and Petz, D., 2014. *Introduction to matrix analysis and applications*. Springer Science & Business Media.

Higgs, P., 2007. Towards an indigenous African epistemology of community in higher education research. *South African Journal of Higher Education*, 21(4), pp.668-679.

Hilborn, R. and Ovando, D. (2014) Reflections on the success of traditional fisheries management. *ICES Journal of Marine Science*. Vol. 71(5) pp. 1040-1046.

Hilborn, R., 2017. Traditional fisheries management is the best way to manage weak stocks. *Proceedings of the National Academy of Sciences*, 114(50), pp.E10610-E10610.

Hobbs, S.J., 2013. Alpha level adjustments for multiple dependent variable analyses and their applicability—a review. *International Journal of Sports Science and Engineering*, 7(1), pp.17-20.

Holl, A.F., 2023. Traditions and Cultural Heritage: Genesis, Reproduction, and Preservation. *Traditions and Cultural Heritage: Genesis, Reproduction, and Preservation*, pp.1-15.

Horemans, B. and Kebe, M. (2006) Enhancing the Economic Contributions of Fisheries to West and Central African Nations (online). Available on: <https://www.fao.org> (Accessed on 26 January 2021).

Hornberger, B. and Rangu, S., 2020. Designing inclusion and exclusion criteria.

Hosch, G., 2009. Analysis of the implementation and impact of the FAO Code of Conduct for Responsible Fisheries since 1995. FAO Fisheries and Aquaculture Circular, (C1038), p.I.

Howlett, C.F., 1991. *The American peace movement: References and resources*. GK Hall.

Howlett, M. and Rayner, J., 2007. Design principles for policy mixes: Cohesion and coherence in 'new governance arrangements'. *Policy and Society*, 26(4), pp.1-18.

- Howlett, M., 2018. Policy instruments and policy design choices: Selecting substantive and procedural tools in public policymaking. *In Routledge handbook of policy design* (pp. 77-86). Routledge.
- Howlett, M., Mukherjee, I. and Woo, J.J., 2015. From tools to toolkits in policy design studies: The new design orientation towards policy formulation research. *Policy & Politics*, 43(2), pp.291-311.
- Hsieh, H.F. and Shannon, S.E., 2005. Three approaches to qualitative content analysis. *Qualitative health research*, 15(9), pp.1277-1288.
- Hudson, B., Hunter, D. and Peckham, S., 2019. Policy failure and the policy-implementation gap: can policy support programs help?. *Policy design and practice*, 2(1), pp.1-14.
- Huffman, T., 2012. Ritual space in pre-colonial farming societies in southern Africa. *Ethnoarchaeology*, 4(2), pp.119-146.
- Hughes, T.P., Bellwood, D.R., Folke, C., Steneck, R.S. and Wilson, J., 2005. New paradigms for supporting the resilience of marine ecosystems. *Trends in ecology & evolution*, 20(7), pp.380-386.
- Hull, S., Babalola, K. and Whittal, J., 2019. Theories of land reform and their impact on land reform success in Southern Africa. *Land*, 8(11), p.172.
- Huls, H., Abdulahad, S., Mackus, M., Van de Loo, A.J., Roehrs, T., Roth, T. and Verster, J.C., 2018. Inclusion and exclusion criteria of clinical trials for insomnia. *Journal of Clinical Medicine*, 7(8), p.206.
- Hurtado, S., 2015. The transformative paradigm. *Critical approaches to the study of higher education: A practical introduction*, 285.
- Hussain, M.G., Failler, P., Karim, A.A. and Alam, M.K., 2017. Review on opportunities, constraints and challenges of blue economy development in Bangladesh. *Journal of Fisheries and Life Sciences*, 2(1), pp.45-57.
- Hyslop, J., 2005. Political corruption: Before and after apartheid. *Journal of Southern African Studies*, 31(4), pp.773-789.]
- Ide, T., Kristensen, A. and Bartusevičius, H., 2021. First comes the river, then comes the conflict? A qualitative comparative analysis of flood-related political unrest. *Journal of Peace Research*, 58(1), pp.83-97.

Ikhane, P.A., 2018. How not to do African epistemology. *Synthesis philosophica*, 33(1), pp.225-236.

Imai, K., 2011. Multivariate regression analysis for the item count technique. *Journal of the American Statistical Association*, 106(494), pp.407-416.

Iovan, M., 2010. The Role of Spiritual Values and Beliefs in the Historical Development of Peoples. *Cultura International Journal of Philosophy of Culture and Axiology*, 7(1), pp.150-166.

Isaacs, M., 2013. Small-scale fisheries governance and understanding the snoek (*Thyrsites atun*) supply chain in the Ocean View fishing community, Western Cape, South Africa. *Ecology and Society*, 18(4).

Isaacs, M., Hara, M. and Raakjær, J., 2007. Has reforming South African fisheries contributed to wealth redistribution and poverty alleviation?. *Ocean & Coastal Management*, 50(5-6), pp.301-313.

Isaacs, M., Hara, M.M., Dennis, T.L., Rouhani, Q.A., Mannarino, C. and Jaffer, N., 2022. A Situational Analysis of Small-Scale Fisheries in South Africa: From Vulnerability to Viability.

Islam, M.M., Kar, C., Kundu, G.K., Mondal, G. and Khan, M.S., 2018. Current status and barriers to fisheries comanagement: Evidences from an Oxbow lake of Bangladesh. *Bangladesh Journal of Zoology*, 46(2), pp.105-116.

Islam, M.S., Swapan, M.S.H. and Haque, S.M., 2013. Disaster risk index: How far should it take account of local attributes?. *International journal of disaster risk reduction*, 3, pp.76-87.

Iyamu, T., 2018. Collecting qualitative data for information systems studies: The reality in practice. *Education and Information Technologies*, 23(5), pp.2249-2264.

Jabali, W., Wamukota, A. and Fulanda, B., 2020. The role of indigenous knowledge in the management of marine resources: a case study of Kuruwitu and Mkunguni fishing areas in Kenya. *Western Indian Ocean Journal of Marine Science*, 19(1), pp.19-31.

Jadidzadeh, A., Falvo, N. and Dutton, D.J., 2020. Cost savings of Housing First in a non-experimental setting. *Canadian Public Policy*, 46(1), pp.23-36.

Jägerskog, A., 2021. *Land acquisitions: how will they impact transboundary waters*. Stockholm: Stockholm International Water Institute.

Jahan, Y., 2020. Qualitative, Quantitative, or Mixed Methods? A Systematic Scoping Review on Methodological Applications in Ageing and Dementia Studies.

January, J., 2008. Funding priorities: big barriers to small-scale fisheries. *Conservation biology*, 22(4), pp.1-23.

Jentoft, S. and Johnsen, J.P., 2015. The dynamics of small-scale fisheries in Norway: From adaptamentality to governability. In *Interactive Governance for Small-Scale Fisheries* (pp. 705-723). Springer, Cham.

Jerardino, A., Branch, G.M. and Navarro, R., 2008. *Human impact on precolonial west coast marine environments of South Africa* (pp. 279-296). University of California Press: Berkeley.

Jimoh, A.K., 2018. Traditional Epistemology and the Elusive Attempt to Define Knowledge. *PLASU JOURNAL OF GENERAL STUDIES*, 1(1), p.1.

Johnson, R.B. and Onwuegbuzie, A.J., 2004. Mixed methods research: A research paradigm whose time has come. *Educational researcher*, 33(7), pp.14-26.

Johnson, S.M., Reyuw, B.M., Yalon, A., McLean, M. and Houk, P., 2020. Contextualizing the social-ecological outcomes of coral reef fisheries management. *Biological Conservation*, 241, p.108288.

Johnston, C.M., Wallis, M., Oprescu, F.I. and Gray, M., 2017. Methodological considerations related to nurse researchers using their own experience of a phenomenon within phenomenology. *Journal of advanced nursing*, 73(3), pp.574-584.

Jones, S.R., 2010. The nature and uses of theory. *Student services: A handbook for the profession*, 5, pp.149-167.

Jull, J., Giles, A. and Graham, I.D., 2017. Community-based participatory research and integrated knowledge translation: advancing the co-creation of knowledge. *Implementation science*, 12(1), pp.1-9.

Junjie, M. and Yingxin, M., 2022. The Discussions of Positivism and Interpretivism. *Online Submission*, 4(1), pp.10-14.

Kadirbeyoglu, Z., 2017. The impact of power and civic engagement in the decentralized management of natural resources: The case of Turkey. *Public Administration and Development*, 37(4), pp.277-291.

Kalina, M.R., Mbereko, A., Maharaj, B. and Botes, A., 2019. Subsistence marine fishing in a neoliberal city: a political ecology analysis of securitization and exclusion in Durban, South Africa. *Journal of Political Ecology*, 26(1), pp.363-380.

Kallonga, E., Rodgers, A., Nelson, F., Ndoinyo, Y. and Nshala, R., 2003, April. Reforming environmental governance in Tanzania: natural resource management and the rural economy. In *Non-Commissioned Paper presented at the inaugural Tanzanian biennial development forum 24th–25th April*.

Kanu, A.C. and Agu, P.A., 2019. Need for awareness of global warming, climate change and efforts towards curbing the concern: Implication for curriculum design in Science, Technology and Engineering Programmes. *International Journal of Innovative Scientific & Engineering Technologies Research*, 7(2), pp.33-41.

Karatas, A. and Karataş, E., 2016. Environmental education as a solution tool for the prevention of water pollution. *Survey in Fisheries Sciences*, 3(1), pp.61-70.

Kassymova, G.K., Stepanova, G.A., Stepanova, O.P., Menshikov, P.V., Arpentieva, M.R., Merezhnikov, A.P. and Kunakovskaya, L.A., 2018. Self-development management in educational globalization. *harmony*, 3(4), pp.171-176.

Kebede, M.T. and Gubale, A.G., 2016. Fishery management problems in Ethiopia: Natural and human induced impacts and the conservation challenges. *Reviews in Fisheries Science & Aquaculture*, 24(4), pp.305-313.

Kebede, M.T. and Gubale, A.G., 2016. Fishery management problems in Ethiopia: natural and human induced impacts and the conservation challenges. *Reviews in Fisheries Science & Aquaculture*, 24(4), pp.305-313.

Keet, A., 2014. Epistemic 'othering' and the decolonisation of knowledge. *Africa Insight*, 44(1), pp.23-37.

Kelly, M., 2021. Epistemology, epistemic belief, personal epistemology, and epistemics: A review of concepts as they impact information behavior research. *Journal of the Association for Information Science and Technology*, 72(4), pp.507-519.

Keyes, C.M. (1998) Social Well-Being. *Social Psychology Quarterly*. Vol. 61(2) pp.121-140.

Khakzad, S. and Griffith, D., 2016. The role of fishing material culture in communities' sense of place as an added-value in management of coastal areas. *Journal of Marine and Island Cultures*, 5(2), pp.95-117.

Khalidi, K., 2017. Quantitative, qualitative or mixed research: which research paradigm to use?. *Journal of Educational and Social Research*, 7(2), pp.15-15.

Kimani, P., Wamukota, A., Manyala, J.O. and Mlewa, C.M., 2020. Analysis of constraints and opportunities in marine small-scale fisheries value chain: A multi-criteria decision approach. *Ocean & Coastal Management*, 189, p.105151.

Kimani, P., Wamukota, A., Manyala, J.O. and Mlewa, C.M., 2020. Factors influencing financial performance in marine small-scale fisheries value chain in Kenya. *Marine Policy*, 122, p.104218.

Kinzig, A.P., 2001. Bridging disciplinary divides to address environmental and intellectual challenges. *Ecosystems*, pp.709-715.

Kittinger, J.N. (2013) Human dimensions of small-scale and traditional fisheries in the Asia-Pacific region. *Pacific Science*, 67(3), pp. 315-325.

Kittinger, J.N. (2013) Participatory Fishing Community Assessments to Support Coral Reef Fisheries Comanagement1. *Pacific Science*, 67(3), pp. 361-381.

Kittinger, J.N., 2013. Human dimensions of small-scale and traditional fisheries in the Asia-Pacific region. *Pacific Science*, 67(3), pp.315-325.

Kittinger, J.N., 2013. Participatory Fishing Community Assessments to Support Coral Reef Fisheries Comanagement1. *Pacific Science*, 67(3), pp.361-381.

Kittinger, J.N., Finkbeiner, E.M., Ban, N.C., Broad, K., Carr, M.H., Cinner, J.E., Gelcich, S., Cornwell, M.L., Koehn, J.Z., Basurto, X. and Fujita, R., 2013. Emerging frontiers in social-ecological systems research for sustainability of small-scale fisheries. *Current Opinion in Environmental Sustainability*, 5(3-4), pp.352-357.

Kleiber, D., Frangoudes, K., Snyder, H.T., Choudhury, A., Cole, S.M., Soejima, K., Pita, C., Santos, A., McDougall, C., Petrics, H. and Porter, M., 2017. Promoting gender equity and equality through the small-scale fisheries guidelines: experiences from multiple case studies. In *The small-scale fisheries guidelines* (pp. 737-759). Springer, Cham.

Kleinheksel, A.J., Rockich-Winston, N., Tawfik, H. and Wyatt, T.R., 2020. Demystifying content analysis. *American journal of pharmaceutical education*, 84(1).

- Kleinschmidt, H., Sauer, W.H.H. and Britz, P., 2003. Commercial fishing rights allocation in post-apartheid South Africa: reconciling equity and stability. *African Journal of Marine Science*, 25, pp.25-35.
- Koenane, M.L.J., 2018. The role and significance of traditional leadership in the governance of modern democratic South Africa. *Africa Review*, 10(1), pp.58-71.
- Konyango, T.O., Ngugi, P.K., Rotich, G. and Orwa, G., 2018. Influence of Public Participation on Policy Implementation in Kenya. *Journal of Entrepreneurship & Project management*, 2(1), pp.15-31.
- Koralagama, D., Gupta, J. and Pouw, N., 2017. Inclusive development from a gender perspective in small scale fisheries. *Current Opinion in Environmental Sustainability*, 24, pp.1-6.
- Kraus, M.W., Park, J.W. and Tan, J.J., 2017. Signs of social class: The experience of economic inequality in everyday life. *Perspectives on Psychological Science*, 12(3), pp.422-435.
- Krejcie, R.V. and Morgan, D.W., 1970. Determining sample size for research activities. *Educational and psychological measurement*, 30(3), pp.607-610.
- Kyngäs, H., 2020. Qualitative research and content analysis. *The application of content analysis in nursing science research*, pp.3-11.
- Kyngäs, H., Kääriäinen, M. and Elo, S., 2020. The trustworthiness of content analysis. *The application of content analysis in nursing science research*, pp.41-48.
- Kyvelou, S.S.I. and Ierapetritis, D.G., 2020. Fisheries sustainability through soft multi-use maritime spatial planning and local development co-management: Potentials and challenges in Greece. *Sustainability*, 12(5), p.2026.
- Laffoley, D., Baxter, J.M., Day, J.C., Wenzel, L., Bueno, P. and Zischka, K., 2019. Marine protected areas. In *World seas: An environmental evaluation* (pp. 549-569). Academic Press.
- Lakens, D., 2022. Sample size justification. *Collabra: psychology*, 8(1), p.33267.
- Lakens, D., 2022. Sample size justification. *Collabra: Psychology*, 8(1), p.33267.
- Lam, M.E. and Pitcher, T.J., 2012. The ethical dimensions of fisheries. *Current Opinion in Environmental Sustainability*, 4(3), pp.364-373.

Lamberth, S.J. and Turpie, J.K., 2003. The role of estuaries in South African fisheries: economic importance and management implications. *African Journal of Marine Science*, 25, pp.131-157.

Latulippe, N. and Klenk, N., 2020. Making room and moving over: knowledge co-production, Indigenous knowledge sovereignty and the politics of global environmental change decision-making. *Current Opinion in Environmental Sustainability*, 42, pp.7-14.

Lawal, A.L., 2021. Popper's Philosophy of Science, Indigenous Knowledge System and the Quest for Sustainable Development in Africa. *BODIJA JOURNAL| A Philosophico-Theological Journal*, 11.

Lawless, S., Cohen, P.J., Mangubhai, S., Kleiber, D. and Morrison, T.H., 2021. Gender equality is diluted in commitments made to small-scale fisheries. *World Development*, 140, p.105348.

Lawless, S., Cohen, P.J., Mangubhai, S., Kleiber, D. and Morrison, T.H., 2021. Gender equality is diluted in commitments made to small-scale fisheries. *World Development*, 140, p.105348

LeBaron, G. and Lister, J., 2021. The hidden costs of global supply chain solutions. *Review of International Political Economy*, pp.1-27.

Lemon, L.L. and Hayes, J., 2020. Enhancing trustworthiness of qualitative findings: Using Leximancer for qualitative data analysis triangulation. *The Qualitative Report*, 25(3), pp.604-614.

Léopold, M., Thébaud, O. and Charles, A., 2019. The dynamics of institutional innovation: crafting co-management in small-scale fisheries through action research. *Journal of environmental management*, 237, pp.187-199.

Leshoele, M., 2020. AFCFTA and Regional Integration in Africa: Is African Union Government a Dream Deferred or Denied?. *Journal of Contemporary African Studies*, pp.1-15.

Letseka, M., 2000. African philosophy and educational discourse. *African voices in education*, 23(2), pp.179-193.

Lewis, S.G., Alifano, A., Boyle, M. and Mangel, M., 2017. Human rights and the sustainability of fisheries. In *Conservation for the anthropocene ocean* (pp. 379-396). Academic Press.

Linke, S. and Bruckmeir, H. (2015) Co-management in Fisheries – Experiences and changing approaches in Europe. *Ocean and Coastal Management*. Vol. 104(1) pp. 170-181.

- Linke, S., Hadjimichael, M., Mackinson, S. and Holm, P., 2020. Knowledge for fisheries governance: Participation, integration and institutional reform. *Collaborative Research in Fisheries: Co-creating Knowledge for Fisheries Governance in Europe*, pp.7-25.
- Loeb, S., Dynarski, S., McFarland, D., Morris, P., Reardon, S. and Reber, S., 2017. Descriptive Analysis in Education: A Guide for Researchers. NCEE 2017-4023. *National Center for Education Evaluation and Regional Assistance*.
- Lombay, C.G., Belinario, F., Pomeroy, R., Pedrajas, J., Tirona, R.S., Box, S., Domondon, P.R. and Balbido-Ramirez, K., 2019. Building household economic resilience to secure a future for near shore fishers in the Philippines. *Marine Policy*, 99, pp.334-342.
- López de la Lama, R., de la Puente, S., Sueiro, J.C. and Chan, K.M., 2021. Reconnecting with the past and anticipating the future: A review of fisheries-derived cultural ecosystem services in pre-Hispanic Peru. *People and Nature*, 3(1), pp.129-147.
- Lopez, K.A. and Willis, D.G., 2004. Descriptive versus interpretive phenomenology: Their contributions to nursing knowledge. *Qualitative health research*, 14(5), pp.726-735.
- Lowatcharin, G., 2017. Local government consolidation: lessons from selected countries. *Thai Journal of Public Administration*, 15(2), pp.57-57.
- Lowatcharin, G., Crumpton, C.D. and Pacharoen, S., 2018. Intergovernmental relations in a world of governance: A consideration of international experiences, challenges, and new directions. *Asia-Pacific Social Science Review*, 19(4), pp.44-55.
- Lowe, B.S., Jacobson, S.K., Anold, H., Mbonde, A.S. and Lorenzen, K., 2019. The neglected role of religion in fisheries management. *Fish and Fisheries*, 20(5), pp.1024-1033.
- Lundströmer, J., Karlsson, B. and Berlin, M., 2020. Strategies for deployment of reproductive material under supply limitations—a case study of Norway spruce seed sources in Sweden. *Scandinavian Journal of Forest Research*, 35(8), pp.495-505.
- Lutabingwa, J., Sabela, T. and Mbatha, J.S., 2006. Traditional leadership and local governments in South Africa: shared governance is possible. *Politeia*, 25(1), pp.73-88.
- Lynch, A.J., Elliott, V., Phang, S.C., Claussen, J.E., Harrison, I., Murchie, K.J., Steel, E.A. and Stokes, G.L., 2020. Inland fish and fisheries integral to achieving the Sustainable Development Goals. *Nature Sustainability*, 3(8), pp.579-587.

Lynch, R. (2009) *Strategic Management: Concepts and Cases*: 13th Edition. Boston: Pearson Education

Mackay, M., Jennings, S., van Putten, E.I., Sibly, H. and Yamazaki, S., 2018. When push comes to shove in recreational fishing compliance, think 'nudge'. *Marine Policy*, 95, pp.256-266.

Mahi, B.R., 2010. Intergovernmental relations and decentralization in Indonesia: new arrangements and their impacts on local welfare. *Economics and Finance in Indonesia*, 58(2), pp.149-172.

Maia, H.A., Morais, R.A., Siqueira, A.C., Hanazaki, N., Floeter, S.R. and Bender, M.G., 2018. Shifting baselines among traditional fishers in São Tomé and Príncipe islands, Gulf of Guinea. *Ocean & Coastal Management*, 154, pp.133-142.

Mainiero, L.A. and Tromley, C.L. (2004) *Developing Managerial Skills in Organisational Behaviour*: 2nd Edition. New Delhi: Prentice-Hall

Makinen, T., Salmi, P.E.K.K.A., Salmi, J.U.H.A.N.I. and Kettunen, J.U.H.A.N.I., 2008. Institutional sustainability of aquaculture and fishing-a case of the Archipelago Sea Region, Finland. In *American Fisheries Society Symposium* (Vol. 49, No. 1, p. 81). American Fisheries Society.

Makoti, M.Z. and Odeku, O.K., 2021. Co-operative Governance in South Africa: Impetus for Fostering Effective Inter-Governmental Relationships. *African Journal of Public Affairs*, 12(2), pp.43-60.

Malvarosa, L., Murillas, A., Lehuta, S., Nielsen, J.R., Macher, C., Goti, L., Motova, A., Doering, R., Haraldson, G., Accadia, P. and Hamon, K.G., 2019. Sustainability Impact Assessment (SIA) in fisheries: Implementation in EU fishing regions. *Marine Policy*, 101, pp.63-79.

Manetsi, T., 2007. *Can intangibles be tangible?. Safeguarding intangible heritage in the new South Africa: Towards formulating policy for the conservation and sustainable management for living heritage* (Master's thesis, University of Cape Town).

Mangubhai, S. and Lawless, S. (2020) Exploring gender inclusion in small-scale fisheries management and development in Melanesia. *Marine Policy*. Vol. 123(3) pp.1-18.

Mangubhai, S. and Lawless, S., 2021. Exploring gender inclusion in small-scale fisheries management and development in Melanesia. *Marine Policy*, 123, p.104287.

- Mankuebe, K. and Manicom, D., 2020. Public participation in public policy making: the case of the Lesotho National Decentralisation Policy. *Journal of Public Administration*, 55(3), pp.370-384.
- Manyungwa, C.L., Hara, M.M. and Chimatiro, S.K., 2019. Women's engagement in and outcomes from small-scale fisheries value chains in Malawi: Effects of social relations. *Maritime Studies*, 18(3), pp.275-285.
- Marín, A. and Berkes, F., 2010. Network approach for understanding small-scale fisheries governance: The case of the Chilean coastal co-management system. *Marine Policy*, 34(5), pp.851-858.
- Martins, F.S., da Cunha, J.A.C. and Serra, F.A.R., 2018. Secondary data in research—uses and opportunities. *PODIUM sport, leisure and tourism review*, 7(3).
- Martins, I.M., Gammage, L.C., Jarre, A. and Gasalla, M.A., 2019. Different but similar? Exploring vulnerability to climate change in Brazilian and South African small-scale fishing communities. *Human Ecology*, 47(4), pp.515-526.
- Maruyama, J., 2018. From "Displaced Peoples" to "Indigenous Peoples": Experiences of The!Xun and Khwe San in South Africa. *African study monographs. Supplementary issue.*, 54, pp.137-154.
- Marx, A., Rihoux, B. and Ragin, C., 2014. The origins, development, and application of Qualitative Comparative Analysis: the first 25 years. *European Political Science Review*, 6(1), pp.115-142.
- Mascia, M.B., Claus, C.A. and Naidoo, R., 2010. Impacts of marine protected areas on fishing communities. *Conservation Biology*, 24(5), pp.1424-1429.
- Maserumule, M.H., 2009. *Good Governance in the New Partnership for Africa's Development (NEPAD): A Public Administration Perspective* (Doctoral dissertation, University of South Africa).
- Masoga, M.A. and Shokane, A.L., 2019. Indigenous knowledge systems and environmental social work education: Towards environmental sustainability. *Southern African Journal of Environmental Education*, 35.
- Mathebula, N.E., 2018. Pondering over the Public Administration discipline: a move towards African epistemology. *Bangladesh e-Journal of Sociology*, 15(2), pp.17-25.

Maurović, I., Liebenberg, L. and Ferić, M., 2020. A review of family resilience: Understanding the concept and operationalization challenges to inform research and practice. *Child Care in Practice*, 26(4), pp.337-357.

May, P.J. and Winter, S.C., 2009. Politicians, managers, and street-level bureaucrats: Influences on policy implementation. *Journal of Public Administration Research and Theory*, 19(3), pp.453-476.

Maylam, P., 2017. *South Africa's racial past: The history and historiography of racism, segregation, and apartheid*. Routledge.

Mayo, M., Kakarika, M., Mainemelis, C. and Deuschel, N.T., 2017. A metatheoretical framework of diversity in teams. *Human Relations*, 70(8), pp.911-939.

Mazhar, S.A., Anjum, R., Anwar, A.I. and Khan, A.A., 2021. Methods of data collection: A fundamental tool of research. *Journal of Integrated Community Health (ISSN 2319-9113)*, 10(1), pp.6-10.

McCallum, K.J., Jackson, D., Walthall, H. and Aveyard, H., 2019. A focused mapping review and synthesis of current practice in qualitative end of life research with the bereaved. *Nurse Researcher*, 27(3).

McClanahan, T.R., Glaesel, H., Rubens, J. and Kiambo, R., 1997. The effects of traditional fisheries management on fisheries yields and the coral-reef ecosystems of southern Kenya. *Environmental Conservation*, 24(2), pp.105-120.

McEwen, N., 2021. Negotiating Brexit: power dynamics in British intergovernmental relations. *Regional Studies*, 55(9), pp.1538-1549.

McLafferty, I., 2004. Focus group interviews as a data collecting strategy. *Journal of advanced nursing*, 48(2), pp.187-194.

McLaughlin, M.W., 1987. Learning from experience: Lessons from policy implementation. *Educational evaluation and policy analysis*, 9(2), pp.171-178.

McNamee, S., 2018. Far from “anything goes”: Ethics as communally constructed. *Journal of Constructivist Psychology*, 31(4), pp.361-368.

McNarry, G., Allen-Collinson, J. and Evans, A.B., 2019. Reflexivity and bracketing in sociological phenomenological research: Researching the competitive swimming lifeworld. *Qualitative Research in Sport, Exercise and Health*, 11(1), pp.138-151.

McNeill, A., Clifton, J. and Harvey, E.S., 2019. Specialised recreational fishers reject sanctuary zones and favour fisheries management. *Marine Policy*, 107, p.103592.

McNeill, A., Clifton, J. and Harvey, E.S., 2019. Specialised recreational fishers reject sanctuary zones and favour fisheries management. *Marine Policy*, 107, p.103592.

McNulty, D. (2019) Community-Based Fisheries Management (online) Available on: <https://www.thefishproject.weebly.com> (Accessed on 24 February 2021).

Méndez-Medina, C., Schmook, B., Basurto, X., Fulton, S. and Espinoza-Tenorio, A., 2020. Achieving coordination of decentralized fisheries governance through collaborative arrangements: A case study of the Sian Ka'an Biosphere Reserve in Mexico. *Marine Policy*, 117, p.103939.

Menon, A., Sowman, M. and Bavinck, M., 2018. Rethinking capitalist transformation of fisheries in South Africa and India. *Ecology and Society*, 23(4).

Merve, K.A.R.A., 2019. A systematic literature review: Constructivism in multidisciplinary learning environments. *International Journal of Academic Research in Education*, 4(1-2), pp.19-26.

Micoulaud-Franchi, J.A., Quiles, C., Fond, G., Cermolacce, M. and Vion-Dury, J., 2014. The covariation of independent and dependant variables in neurofeedback: a proposal framework to identify cognitive processes and brain activity variables. *Consciousness and cognition*, 26, pp.162-168.

Miles, D., 2019. Research Methods and Strategies: Let's Stop the Madness Part 2: Understanding the Difference Between Limitations vs. Delimitations. In *5th Annual 2017 Black Doctoral Network Conference, Atlanta, GA, United States*.

Miller, K., Charles, A., Barange, M., Brander, K., Gallucci, V.F., Gasalla, M.A., Khan, A., Munro, G., Murtugudde, R., Ommer, R.E. and Perry, R.I., 2010. Climate change, uncertainty, and resilient fisheries: institutional responses through integrative science. *Progress in Oceanography*, 87(1-4), pp.338-346.

Miller, R.M., Chan, C.D. and Farmer, L.B., 2018. Interpretative phenomenological analysis: A contemporary qualitative approach. *Counselor Education and Supervision*, 57(4), pp.240-254.

Modell, S., 2015. Theoretical triangulation and pluralism in accounting research: a critical realist critique. *Accounting, Auditing & Accountability Journal*.

Momi, M.M.A., Islam, M.S., Farhana, T., Iqbal, S., Paul, A.K. and Atique, U., 2021. How seasonal fish biodiversity is impacting local river fisheries and fishers socioeconomic condition: A case study in Bangladesh. *Survey in Fisheries Sciences*, 7(2), pp.79-103.

Monday, T.U., 2020. Impacts of interview as research instrument of data collection in social sciences. *Journal of Digital Art & Humanities*, 1(1), pp.15-24.

Monyamane, L. and Bapela, M.P., 2019. Gonggose v Minister of Agriculture, Forestry and Fisheries—a tale of customary rituals and practices in marine protected areas. *Potchefstroom Electronic Law Journal/Potchefstroomse Elektroniese Regsblad*, 22(1).

Moon, M.D., 2019. Triangulation: A method to increase validity, reliability, and legitimation in clinical research. *Journal of emergency nursing*, 45(1), pp.103-105.

Moore, T., McKee, K. and McCoughlin, P., 2015. Online focus groups and qualitative research in the social sciences: their merits and limitations in a study of housing and youth. *People, Place and Policy Online*, 9(1), pp.17-28.

Morales, E.M.Q., Lepofsky, D. and Berkes, F., 2017. Ethnobiology and Fisheries: Learning from the Past for the Present. *Journal of Ethnobiology*, 37(3), pp.369-379.

Moran-Ellis, J., Alexander, V.D., Cronin, A., Dickinson, M., Fielding, J., Sleney, J. and Thomas, H., 2006. Triangulation and integration: processes, claims and implications. *Qualitative research*, 6(1), pp.45-59.

Morea, J.P., 2019. A framework for improving the management of protected areas from a social perspective: The case of Bahía de San Antonio Protected Natural Area, Argentina. *Land Use Policy*, 87, p.104044.

Morrell-Scott, N.E., 2018. Using diaries to collect data in phenomenological research. *Nurse researcher*, 25(4), pp.26-29.

Mrabet, A. and Ellouze, A., 2014. Entrepreneurship and economic growth: meta-analysis. *Impact Journals*, 2(5), pp.57-72.

MRAG (2010) Fisheries and governance (online) Available on: <https://www.mrag.uk> (Accessed on 26 February 2021).

Mthuli, S.A., Ruffin, F. and Singh, N., 2022. ‘Define, Explain, Justify, Apply’(DEJA): An analytic tool for guiding qualitative research sample size. *International Journal of Social Research Methodology*, 25(6), pp .809-821.

- Mukhungulu, M.J., Kimathi, V.A. and K'Odhiambo, K.A., 2017. African philosophy of education: Analysis of the neglected ideals of Nyerere's Ujamaa.
- Mulalap, C.Y., Frere, T., Huffer, E., Hviding, E., Paul, K., Smith, A. and Vierros, M.K., 2020. Traditional knowledge and the BBNJ instrument. *Marine policy*, 122, p.104103.
- Mulder, M.J., Wagenmakers, E.J., Ratcliff, R., Boekel, W. and Forstmann, B.U., 2012. Bias in the brain: a diffusion model analysis of prior probability and potential payoff. *Journal of Neuroscience*, 32(7), pp.2335-2343.
- Muller, S., Hemming, S. and Rigney, D., 2019. Indigenous sovereignties: relational ontologies and environmental management. *Geographical Research*, 57(4), pp.399-410.
- Mullins, J.L., 2010. Management & Organizational Behaviour 9th edition, London. *Financial times pitman publication*.
- Munsaka, E. and Dube, E., 2018. The contribution of indigenous knowledge to disaster risk reduction activities in Zimbabwe: A big call to practitioners. *Jambá: Journal of Disaster Risk Studies*, 10(1), pp.1-8.
- Murombedzi, J., 2003. Pre-colonial and colonial conservation practices in southern Africa and their legacy today. *Unpublished IUCN manuscript*.
- Murunga, M., Partelow, S. and Breckwoldt, A., 2021. Drivers of collective action and role of conflict in Kenyan fisheries co-management. *World Development*, 141, p.105413.
- Nader, L., 2011. Ethnography as theory. *HAU: Journal of ethnographic theory*, 1(1), pp.211-219.
- Nahuelhual, L., Saavedra, G., Blanco, G., Wesselink, E., Campos, G. and Vergara, X., 2018. On super fishers and black capture: Images of illegal fishing in artisanal fisheries of southern Chile. *Marine Policy*, 95, pp.36-45.
- Narayanakumar, R., 2012. Economic efficiency in fishing operations-Technology, exploitation and sustainability issues.
- Nayak, P.K. and Berkes, F., 2019. Interplay between local and global: Change processes and small-scale fisheries. In *Transdisciplinarity for Small-Scale Fisheries Governance* (pp. 203-220). Springer, Cham.

Nayak, P.K., Oliveira, L.E. and Berkes, F. (2014) Resource degradation, marginalization, and poverty in small-scale fisheries: threats to social-ecological resilience in India and Brazil. *Ecology and Society*, 19(2) pp. 374 - 397.

Ncube, B., 2022. Indigenous knowledge perspectives on water management and its challenges in South Africa. In *Current Directions in Water Scarcity Research* (Vol. 4, pp. 227-242). Elsevier.

Ndubisi, E.J., 2014. Nature and function of logic in African epistemology. *IOSR Journal of Humanities and Social Science (IOSR–JHSS)*, 19(11), pp.32-36.

Nel, J.L., Roux, D.J., Driver, A., Hill, L., Maherry, A.C., Snaddon, K., Petersen, C.R., Smith-Adao, L.B., Van Deventer, H. and Reyers, B., 2016. Knowledge co-production and boundary work to promote implementation of conservation plans. *Conservation Biology*, 30(1), pp.176-188.

Nelson, I.A., 2019. Semistructured Life History Calendar Method.

Newstrom, J.W. and Davis, K. (2002) Organisational Behaviour- Human Behaviour at Work: 11th Edition. New Delhi: Tata McGraw-Hill.

Nickerson, C., 2022. Interpretivism paradigm & research philosophy. *Simply Sociology*, 5.

Nilsson, J.A., Fulton, E.A., Johnson, C.R. and Haward, M., 2019. How to sustain fisheries: Expert knowledge from 34 nations. *Water*, 11(2), p.213.

Njaya, F. (2007) Governance challenges for the implementation of fisheries co-management: experiences from Malawi. *International Journal of the Commons*, 1(1), pp. 137-153.

Nomura, I., 2008. Fisheries management: status and challenges.

Nordhaus, W., 2019. Climate change: The ultimate challenge for economics. *American Economic Review*, 109(6), pp.1991-2014.

North Carolina State University (2020) Policies, Regulations and Rules (online). Available on: <https://www.policies.ncsu.edu> (Accessed on 26 February 2021).

Nthane, T.T., Saunders, F., Gallardo Fernández, G.L. and Raemaekers, S., 2020. Toward sustainability of South African small-scale fisheries leveraging ICT transformation pathways. *Sustainability*, 12(2), p.743.

Nunan, D., 1999. *Second Language Teaching & Learning*. Heinle & Heinle Publishers, 7625 Empire Dr., Florence, KY 41042-2978.

Nunan, F., 2020. The political economy of fisheries co-management: Challenging the potential for success on Lake Victoria. *Global Environmental Change*, 63, p.102101.

Nurlaili, N., Hikmah, H., Kurniawan, T. and Widiastuti, R., 2021, February. Strategy for strengthening gender mainstreaming (PUG) in the marine and fisheries sector. In *IOP Conference Series: Earth and Environmental Science* (Vol. 674, No. 1, p. 012090). IOP Publishing.

Ocampo-Diaz, N., Lopez, M.C., Axelrod, M. and Norris, P., 2022. Decentralizing the governance of inland fisheries in the Pacific region of Colombia. *International Journal of the Commons*, 16(1), pp.78-93.

Ocampo-Diaz, N., Lopez, M.C., Axelrod, M. and Norris, P., 2022. Decentralizing the Governance of Inland Fisheries in the Pacific Region of Colombia. *International Journal of the Commons*, 16(1).

Odhiambo, G., 2011. Women and higher education leadership in Kenya: A critical analysis. *Journal of Higher Education Policy and Management*, 33(6), pp.667-678.

Ogungbure, A.A., 2014. Towards an Internalist Conception of Justification in African Epistemology. *Thought and Practice*, 6(2), pp.39-54.

O'Leary, J., 2014. Health outcomes associated with polypharmacy in community-dwelling older adults: a systematic review. *Journal of the American Geriatrics Society*, 62(12), pp.2261-2272.

Olivier, P. (2015) What are fisheries? (online). Available on: <https://www.waterbearerfoundation.com>. (Accessed on 30 January 2021)

Onyemelukwe, N. and Fatuase, A., 2020. African Proverbs as Conveyors of African Philosophy.

Onyiriuba, L., Okoro, E.O. and Ibe, G.I., 2020. Strategic government policies on agricultural financing in African emerging markets. *Agricultural Finance Review*, 80(4), pp.563-588.

Otto, S.A., Simons, S., Stoll, J.S. and Lawson, P., 2016. Making progress on bycatch avoidance in the ocean salmon fishery using a transdisciplinary approach. *ICES Journal of Marine Science*, 73(9), pp.2380-2394.

Oyanedel, R., Gelcich, S. and Milner-Gulland, E.J., 2020. A synthesis of (non-) compliance theories with applications to small-scale fisheries research and practice. *Fish and Fisheries*, 21(6), pp.1120-1134.

Palmer, M.A., Zedler, J.B. and Falk, D.A., 2016. Ecological theory and restoration ecology. *Foundations of restoration ecology*, pp.3-26.

Paoletti, J., Bisbey, T.M., Zajac, S., Waller, M.J. and Salas, E., 2021. Looking to the middle of the qualitative-quantitative spectrum for integrated mixed methods. *Small Group Research*, 52(6), pp.641-675.

Parry, S., Eve, Z. and Myers, G., 2022. Exploring the Utility and Personal Relevance of Co-Produced Multiplicity Resources with Young People. *Journal of Child & Adolescent Trauma*, 15(2), pp.427-439.

Partridge, D.G., 2021. Rapid feedback on hospital onset SARS-CoV-2 infections combining epidemiological and sequencing data. *Elife*, 10, p.e65828.

Pascoe, S., Cannard, T., Dowling, N.A., Dichmont, C.M., Breen, S., Roberts, T., Pears, R.J. and Leigh, G.M., 2019. Developing harvest strategies to achieve ecological, economic and social sustainability in multi-sector fisheries. *Sustainability*, 11(3), p.644.

Pascual-Fernández, J.J., Pita, C., Josupeit, H., Said, A. and Garcia Rodrigues, J., 2019. Markets, distribution and value chains in small-scale fisheries: a special focus on Europe. *In Transdisciplinarity for small-scale fisheries governance* (pp. 141-162). Springer, Cham.

Patino, C.M. and Ferreira, J.C., 2018. Inclusion and exclusion criteria in research studies: definitions and why they matter. *Jornal Brasileiro de Pneumologia*, 44, pp.84-84.

Peat, G., Rodriguez, A. and Smith, J., 2019. Interpretive phenomenological analysis applied to healthcare research. *Evidence-Based Nursing*, 22(1), pp.7-9.

Penniman, L., 2018. *Farming while black: Soul fire farm's practical guide to liberation on the land*. Chelsea Green Publishing.

Perlaviciute, G. and Squintani, L., 2020. Public participation in climate policy making: toward reconciling public preferences and legal frameworks. *One Earth*, 2(4), pp.341-348.

Perry, R.I., Ommer, R.E., Allison, E.H., Badjeck, M.C., Barange, M., Hamilton, L., Jarre, A., Quiñones, R.A. and Sumaila, U.R., 2010. Interactions between changes in marine ecosystems and human communities. *Marine ecosystems and global change*, pp.221-252.

- Peterson, L., Homer, A.L. and Wonderlich, S.A., 1982. The integrity of independent variables in behavior analysis. *Journal of applied behavior analysis*, 15(4), pp.477-492
- Petzold, J., Andrews, N., Ford, J.D., Hedemann, C. and Postigo, J.C., 2020. Indigenous knowledge on climate change adaptation: A global evidence map of academic literature. *Environmental Research Letters*, 15(11), p.113007.
- Petzold, J., Andrews, N., Ford, J.D., Hedemann, C. and Postigo, J.C., 2020. Indigenous knowledge on climate change adaptation: A global evidence map of academic literature. *Environmental Research Letters*, 15(11), p.113007.
- Phellas, C.N., Bloch, A. and Seale, C., 2011. Structured methods: interviews, questionnaires and observation. *Researching society and culture*, 3(1), pp.23-32.
- Pieraccini, M. and Cardwell, E. (2016) Towards deliberative and pragmatic co-management: a comparison between inshore fisheries authorities in England and Scotland. *Environmental Politics*. Vol. 25(4) pp. 729-748.
- Pilarska, J., 2021. The constructivist paradigm and phenomenological qualitative research design. *Research paradigm considerations for emerging scholars*, pp.64-83.
- Pita, C., e Costa, B.H., Franco, G., Coelho, R., Sousa, I., Gonçalves, E.J., Gonçalves, J.M. and Erzini, K., 2020. Fisher's perceptions about a marine protected area over time. *Aquaculture and Fisheries*, 5(5), pp.273-281.
- Plomp, T., 2013. Educational design research: An introduction. *Educational design research*, pp.11-50.
- Pogge, T.W., 2017. "Assisting" the global poor. In *Global Justice* (pp. 67-95). Routledge.
- Pokki, H., Pellikka, J., Eskelinen, P. and Moilanen, P., 2021. Regional fishing site preferences of subgroups of Finnish recreational fishers. *Scandinavian Journal of Hospitality and Tourism*, 21(4), pp.442-457.
- Pomeroy, R., 2016. Drivers and impacts of fisheries scarcity, competition, and conflict on maritime security. *Marine Policy*, 67, pp.94-104.
- Pomeroy, R., Arango, C., Lomboy, C.G. and Box, S., 2020. Financial inclusion to build economic resilience in small-scale fisheries. *Marine policy*, 118, p.103982.

- Pomeroy, R., Parks, J., Mrakovcich, K.L. and LaMonica, C., 2016. Drivers and impacts of fisheries scarcity, competition, and conflict on maritime security. *Marine Policy*, 67, pp.94-104.
- Posel, D., 1987. The meaning of apartheid before 1948: Conflicting interests and forces within the Afrikaner Nationalist Alliance. *Journal of Southern African Studies*, 14(1), pp.123-139.
- Posselt, J.R. and Nuñez, A.M., 2022. Learning in the wild: Fieldwork, gender, and the social construction of disciplinary culture. *The Journal of Higher Education*, 93(2), pp.163-194.
- Prestrelo, L., Oliveira, R. and Vianna, M., 2019. A new proposal to classify small fishing vessels to improve tropical estuarine fishery management. *Fisheries research*, 211, pp.100-110.
- Priyadarshini, P. and Abhilash, P.C., 2019. Promoting tribal communities and indigenous knowledge as potential solutions for the sustainable development of India. *Environmental Development*, 32, p.100459.
- Purcell, M.E., 2019. Beyond referendums and 'Austerity': public participation policy enactment in 'new' UK governance spaces. *International Journal of Public Policy*, 15(3-4), pp.206-224.
- Quintana, A.C. and Basurto, X., 2021. Community-based conservation strategies to end open access: The case of Fish Refuges in Mexico. *Conservation Science and Practice*, 3(1), p.e283.
- Rachman, Y.B., 2017. The use of traditional conservation methods in the preservation of ancient manuscripts: A case study from Indonesia. *Preservation, Digital Technology & Culture*, 46(3), pp.109-115.
- Radhakrishnan, G., 2013. Non-experimental research designs: Amenable to nursing contexts. *Asian Journal of Nursing Education and Research*, 3(1), p.25.
- Rahman, M.M., Alam, M.A., Rahman, M.M., Mamun, M. and Alam, A., 2020. Challenges of artisanal fishermen: a case study from Sonadia Island, Bangladesh. *Knowledge Management, Governance and Sustainable Development: Lessons and Insights from Developing Countries. India: Routledge. <https://dx.doi.org/10.2139/ssrn.3773504>*.
- Rahman, M.S., 2020. The advantages and disadvantages of using qualitative and quantitative approaches and methods in language “testing and assessment” research: A literature review.
- Ramadhan, S., Sukma, E. and Indriyani, V., 2019, August. Environmental education and disaster mitigation through language learning. *In IOP conference series: Earth and environmental science* (Vol. 314, No. 1, p. 012054). IOP Publishing.

Rarai, A., Parsons, M., Nursey-Bray, M. and Crease, R., 2022. Situating climate change adaptation within plural worlds: The role of Indigenous and local knowledge in Pentecost Island, Vanuatu. *Environment and Planning E: Nature and Space*, 5(4), pp.2240-2282.

Raskin, J.D., 2001. On relativism in constructivist psychology. *Journal of Constructivist Psychology*, 14(4), pp.285-313.

Reef Resilience (2016) South African Small-Scale Fisheries Project Links Fishing Coop to Markets and Models Value Chain Innovation for new Fishery Law (online). Available on: <https://www.reefresilience.org> (Accessed on 20 February 2021).

Retnoningtyas, H., Yulianto, I., Soemodinoto, A., Herdiana, Y., Kartawijaya, T., Natsir, M. and Haryanto, J.T., 2021. Stakeholder participation in management planning for grouper and snapper fisheries in West Nusa Tenggara Province, Indonesia. *Marine Policy*, 128, p.104452.

Reyad, S., Madbouly, A., Chinnasamy, G., Badawi, S. and Hamdan, A., 2020, June. Inclusion of Mixed Method Research in Business Studies: Opportunity and Challenges. *In Proceedings of the European Conference on Research Methods for Business & Management Studies* (pp. 248-256).

Reyes-García, V. and Benyei, P., 2019. Indigenous knowledge for conservation. *Nature Sustainability*, 2(8), pp.657-658.

Roach, V. and Salisbury, C., 2021. Promoting systemic, statewide inclusion from the bottom up. In *Theory Into Practice* (pp. 279-286). Routledge.

Roberts, P.M., Burroughs, L.C. and Moge, A.Y.O., 2019. The Potential for Fisheries Co-Management in the Somali Region. *One Earth Future: Secure Fisheries*.

Robertson, T., Greenhalgh, S., Korovulavula, I., Tikoibua, T., Radikedike, P. and Stahlmann-Brown, P., 2020. Locally managed marine areas: Implications for socio-economic impacts in Kadavu, Fiji. *Marine Policy*, 117, p.103950.

Rochwulaningsih, Y., Sulistiyono, S.T., Masruroh, N.N. and Maulany, N.N., 2019. Marine policy basis of Indonesia as a maritime state: The importance of integrated economy. *Marine Policy*, 108, p.103602.

Rodrigues, J.G. and Villasante, S., 2016. Disentangling seafood value chains: Tourism and the local market driving small-scale fisheries. *Marine Policy*, 74, pp.33-42.

Rogerson, C.M. and Rogerson, J.M., 2019. Tourism, local economic development and inclusion: evidence from Overstrand Local Municipality, South Africa. *Geo Journal of Tourism and Geosites*, 25(2), pp.293-308.

RSA, 1998. Marine Living Resources Act for South Africa No. 18 of 1998.

RSA, 2012. Policy for the Small-Scale Fisheries Sector in South Africa.

Rubin, A., Babbie, G., 2011. Validation of the evidence-based practice process assessment scale-short version. *Research on Social Work Practice*, 21(2), pp.200-211.

Russeng, S.S., Saleh, L.M., Awaluddin, M. and Mallongi, A., 2020. Intervention model for barotrauma diseases to improve health and safety diving behaviors in traditional fishermen in small islands in Makassar, Indonesia. *Sys Rev Pharm*, 11(9), pp.597-600.

Rutakumwa, R., Mugisha, J.O., Bernays, S., Kabunga, E., Tumwekwase, G., Mbonye, M. and Seeley, J., 2020. Conducting in-depth interviews with and without voice recorders: a comparative analysis. *Qualitative Research*, 20(5), pp.565-581.

SADC (2003) SADC: The Mission Statement for Southern African Region: Economic Development. Vol. 1(1) pp. 1-45

SADC (2012) Fisheries (online) Available on: <https://www.sadc.int> (Accessed on 22 February 2020).

SADC (2016) SADC: Fisheries Fact Sheet. Vol. 1(1) pp. 1-9

Saguin, K., Ramesh, M. and Howlett, M., 2018. Policy work and capacities in a developing country: Evidence from the Philippines. *Asia Pacific Journal of Public Administration*, 40(1), pp.1-22.

Salam, A., 2018, March. Technological adaptation in traditional fisheries: way to survive. In *IOP Conference Series: Earth and Environmental Science* (Vol. 139, No. 1, p. 012038). IOP Publishing.

Salawu, M.D., Arowolo, M.O., Abdulsalam, S.O., Isiaka, R.M., Jimada-Ojuolape, B., Olumide, M.L. and Gbolagade, K.A., 2020. A chi-square-SVM based pedagogical rule extraction method for microarray data analysis. *International Journal of Advances in Applied Sciences*, 9(2), pp.93-100.

Saleem, I., Lamarque, E. and Hasan, R., 2021. State and self-regulation for better governance: an implication of collibration. *International Journal of Law and Management*, 63(2), pp.172-194.

Salkind, N., 2010. Primary data source. *Encyclopedia of Research Design*, 2455.

Sall, A. and Nauen, C.E., 2017. Supporting the small-scale fisheries guidelines implementation in Senegal: alternatives to top-down research. *The Small-Scale Fisheries Guidelines: Global Implementation*, pp.609-634.

Sandilands, D. ((2014). Univariate Analysis. In: Michalos, A.C. (eds) *Encyclopedia of Quality of Life and Well-Being Research*. Springer, Dordrecht. https://doi.org/10.1007/978-94-007-0753-5_3108

Sari, D.A.A. and Latifah, E., 2021, April. Revitalization of traditional fisheries rights of indigenous people in sustainable fisheries management in Indonesia. In *IOP Conference Series: Earth and Environmental Science* (Vol. 724, No. 1, p. 012117). IOP Publishing.

Sarpong, D.B. (2005) *The Social and Economic Contribution of Fisheries to GDP and Rural Development in Ghana* (online). Available on: <https://www.researchgate.net> (Accessed on 25 January 2021).

Savage, G.T., Bunn, M.D., Gray, B., Xiao, Q., Wang, S., Wilson, E.J. and Williams, E.S., 2010. Stakeholder collaboration: Implications for stakeholder theory and practice. *Journal of business ethics*, 96(1), pp.21-26.

Schnitzer, S.A., 2018. Testing ecological theory with lianas. *New Phytologist*, 220(2), pp.366-380.

Schreiber, M.A., Chuenpagdee, R. and Jentoft, S., 2022. Blue justice and the co-production of hermeneutical resources for small-scale fisheries. *Marine Policy*, 137, p.104959.

Schuhbauer, A. and Sumaila, U.R. (2016) Economic viability and small-scale fisheries – A review. *Ecological Economics*. Vol. 124(2) pp. 69-75.

Schwandt, T.A., 1994. Constructivist, interpretivist approaches to human inquiry. *Handbook of qualitative research*, 1(1994), pp.118-137.

Senanayake, S.G.J.N., 2006. Indigenous knowledge as a key to sustainable development.

Serdar, C.C., Cihan, M., Yücel, D. and Serdar, M.A., 2021. Sample size, power and effect size revisited: simplified and practical approaches in pre-clinical, clinical and laboratory studies. *Biochemia medica*, 31(1), pp.27-53.

Serkisson, H.Y., 2019. Management of Fisheries: Economic opportunities. *Policy matters*, p.1-13.

Shah, R.H. and Bukhari, R., 2019. Strengthening the role of women in fisheries and aquaculture. *Journal of Entomology and Zoology Studies*, 7(3), pp.648-654.

Shrestha, J., 2019. P-Value: A true test of significance in agricultural research.

Sidney, M.S., 2017. Policy formulation: design and tools. In *Handbook of public policy analysis* (pp. 105-114). Routledge.

Signé, L., 2017. Policy implementation—A synthesis of the study of policy implementation and the causes of policy failure. *OCP Policy Center*, pp.9-26.

Siles, J., Prebble, M., Wen, J., Hart, C. and Schuttenberg, H., 2019. Advancing Gender in the Environment: Gender in Fisheries-A Sea of Opportunities. *IUCN and USAID. Washington, USA: USAID. 68pp.*

Simovic, S., Milic-Askrabic, J., Vuleta, G., Ibric, S. and Stupar, M., 1999. The influence of processing variables on performance of O/W emulsion gels based on polymeric emulsifier (Pemulen® TR-2NF). *International journal of cosmetic science*, 21(2), pp.119-125.

Simpson, L., 2002. Indigenous environmental education for cultural survival. *Canadian Journal of Environmental Education (CJEE)*, 7(1), pp.13-25.

Sithole, M.P., 2005. The secular basis of traditional leadership in KwaZulu-Natal. *Alternation*, 2005(2), pp.102-122.

Sithole, M.P., 2011. Wrestling with intellectual hegemony: The dwarfed status of knowledge production in South Africa. *Africa in Focus: Governance in the 21st century*, pp.81-89.

Sjöstedt, M. and Jagers, S.C., 2014. Democracy and the environment revisited: The case of African fisheries. *Marine Policy*, 43, pp.143-148.

Sloman, K.N., 2010. Research trends in descriptive analysis. *The Behavior Analyst Today*, 11(1), p.20.

Sogolo, G., 1993. Foundations of African philosophy: A definitive analysis of conceptual issues in African thought.

Sowman, M. and Sunde, J., 2018. Social impacts of marine protected areas in South Africa on coastal fishing communities. *Ocean & coastal management*, 157, pp.168-179.

Sowman, M., 2006. Subsistence and small-scale fisheries in South Africa: A ten-year review. *Marine Policy*, 30(1), pp.60-73.

Sowman, M., 2011. New perspectives in small-scale fisheries management: challenges and prospects for implementation in South Africa. *African Journal of Marine Science*, 33(2), pp.297-311.

Sowman, M., Sunde, J., Raemaekers, S. and Schultz, O., 2014. Fishing for equality: Policy for poverty alleviation for South Africa's small-scale fisheries. *Marine Policy*, 46, pp.31-42.

Spaargaren, G. and Mol, A.P., 2020. Sociology, environment, and modernity: ecological modernization as a theory of social change. In *The Ecological Modernisation Reader* (pp. 56-79). Routledge.

Sparby, T., 2022. Micro-phenomenological self-inquiry. *Phenomenology and the Cognitive Sciences*, pp.1-20.

Stahl, N.A. and King, J.R., 2020. Expanding approaches for research: Understanding and using trustworthiness in qualitative research. *Journal of Developmental Education*, 44(1), pp.26-28.

Staller, K.M., 2021. Big enough? Sampling in qualitative inquiry. *Qualitative Social Work*, 20(4), pp.897-904.

Standing, A., 2008. Corruption and industrial fishing in Africa. U4 Issue.

Statistics South Africa, (2019). South African Traditional Leadership (online). Available on: <https://www.statssa.gov.za/?cat=22> (Accessed on 13 February 2021).

Steenbergen, D.J., Fabinyi, M., Barclay, K., Song, A.M., Cohen, P.J., Eriksson, H. and Mills, D.J., 2019. Governance interactions in small-scale fisheries market chains: Examples from the Asia-Pacific. *Fish and Fisheries*, 20(4), pp.697-714.

Stella, U.M., Abdu, K., Kulthum, N. and Neema-Abooki, P., 2017. Gender issues in project planning and management. *PM World J*, 6(4), pp.1-13.

Stephanie, M.M.E., Herna, F.M.E., Monah, N.L. and Eyong, J.A., 2021. Economic Analysis of Fish Traders Access to Formal Finance in Cameroon. *Review of Socio-Economic Perspectives*, 6(202183), pp.67-78.

Stephenson, R.L., Benson, A.J., Brooks, K., Charles, A., Degnbol, P., Dichmont, C.M., Kraan, M., Pascoe, S., Paul, S.D., Rindorf, A. and Wiber, M., 2017. Practical steps toward integrating economic, social and institutional elements in fisheries policy and management. *ICES Journal of Marine Science*, 74(7), pp.1981-1989.

Stephenson, R.L., Wiber, M., Paul, S., Angel, E., Benson, A., Charles, A., Chouinard, O., Edwards, D., Foley, P., Lane, D. and McIsaac, J., 2019. Integrating diverse objectives for sustainable fisheries in Canada. *Canadian Journal of Fisheries and Aquatic Sciences*, 76(3), pp.480-496.

Stetsenko, A., 2020. Hope, political imagination, and agency in Marxism and beyond: Explicating the transformative worldview and ethico-ontoepistemology. *Educational Philosophy and Theory*, 52(7), pp.726-737.

Stock, P. and Burton, R.J., 2011. Defining terms for integrated (multi-inter-trans-disciplinary) sustainability research. *Sustainability*, 3(8), pp.1090-1113.

Stolorow, R.D., Orange, D.M. and Atwood, G.E., 2001. Cartesian and post-Cartesian trends in relational psychoanalysis. *Psychoanalytic Psychology*, 18(3), p.468.

Stolp, M., 2020. Artistic research as African epistemology. In *Arts Research Africa Conference Proceedings* (pp. 144-252).

Stratton, S.J., 2021. Population research: convenience sampling strategies. *Prehospital and disaster Medicine*, 36(4), pp.373-374.

Suddick, K.M., Cross, V., Vuoskoski, P., Galvin, K.T. and Stew, G., 2020. The work of hermeneutic phenomenology. *International Journal of Qualitative Methods*, 19, p.1609406920947600.

Suddick, K.M., Cross, V., Vuoskoski, P., Galvin, K.T. and Stew, G., 2020. The work of hermeneutic phenomenology. *International Journal of Qualitative Methods*, 19, p.16

Sullivan, A.M., 2015. Cultural heritage & new media: a future for the past. *J. Marshall Rev. Intell. Prop. L.*, 15, p.604.

- Sunde, J. and Erwin, K., 2020. *Cast out: The systematic exclusion of the KwaZulu Natal Subsistence Fishers from the fishing rights regime in South Africa Policy Research Report*. SDCEA Policy Research Report.
- Sunde, J., Sowman, M., Smith, H. and Wicomb, W., 2013. Emerging proposals for tenure governance in small-scale fisheries in South Africa. *Land Tenure Journal*, (1), pp.117-144.
- Sunde, J., Sowman, M., Smith, H. and Wicomb, W., 2013. Emerging proposals for tenure governance in small-scale fisheries in South Africa. *Land Tenure Journal*, (1), pp.117-144.
- Sundler, A.J., Lindberg, E., Nilsson, C. and Palmér, L., 2019. Qualitative thematic analysis based on descriptive phenomenology. *Nursing open*, 6(3), pp.733-739.
- Sürücü, L. and Maslakçı, A., 2020. Validity and reliability in quantitative research. *Business & Management Studies: An International Journal*, 8(3), pp.
- Swart, L.A., Kramer, S., Ratele, K. and Seedat, M., 2019. Non-experimental research designs: Investigating the spatial distribution and social ecology of male homicide. *Research Methods in the Social Sciences*, 19, pp.20-35.
- Sweetman, D., Badiee, M. and Creswell, J.W., 2010. Use of the transformative framework in mixed methods studies. *Qualitative inquiry*, 16(6), pp.441-454.
- Sykes, A.O., 1993. An introduction to regression analysis.
- Szymkowiak, M. and Rhodes-Reese, M. (2020) Addressing the gender data gap and illuminating women's participation in fisheries (online). Available on: <https://www.genderaquafish.org> (Accessed on 12 February 2021).
- Taherdoost, H., 2016. Validity and reliability of the research instrument; how to test the validation of a questionnaire/survey in a research. *How to test the validation of a questionnaire/survey in a research (August 10, 2016)*.
- Tang, M., Wang, D. and Guerrien, A., 2020. A systematic review and meta-analysis on basic psychological need satisfaction, motivation, and well-being in later life: Contributions of self-determination theory. *PsyCh journal*, 9(1), pp.5-33.
- Tariq, M.I., 2015. Predictive variables for agile development merging cloud computing services. *IEEE Access*, 7, pp.99273-99282.

- Tariq, M.U., 2015. Operationalizing variables in theoretical frameworks: a comparative analysis. *Durresamin journal*, 1(1), pp.2-11.
- Teh, L.C. and Pauly, D., 2018. Who brings in the fish? The relative contribution of small-scale and industrial fisheries to food security in Southeast Asia. *Frontiers in Marine Science*, 5, p.44
- Tenngart Ivarsson, C. and Grahn, P., 2012. Differently designed parts of a garden support different types of recreational walks: Evaluating a healing garden by participatory observation. *Landscape research*, 37(5), pp.519-537.
- Tharakan, J., 2015. Integrating indigenous knowledge into appropriate technology development and implementation. *African Journal of Science, Technology, Innovation and Development*, 7(5), pp.364-370.
- Theofanidis, D. and Fountouki, A., 2018. Limitations and delimitations in the research process. *Perioperative Nursing-Quarterly scientific, online official journal of GORNA*, 7(3 September-December 2018), pp.155-163.
- Thomann, E., 2020. Qualitative comparative analysis for comparative policy analysis. In *Handbook of research methods and applications in comparative policy analysis* (pp. 254-276). Edward Elgar Publishing.
- Thomann, E., Hupe, P. and Sager, F., 2018. Serving many masters: Public accountability in private policy implementation. *Governance*, 31(2), pp.299-319.
- Thompson, K.L., Lantz, T. and Ban, N., 2020. A review of Indigenous knowledge and participation in environmental monitoring. *Ecology and Society*, 25(2).
- Tierney, E., McEvoy, R., Hannigan, A. and MacFarlane, A.E., 2018. Implementing community participation via interdisciplinary teams in primary care: an Irish case study in practice. *Health Expectations*, 21(6), pp.990-1001.
- Tilley, A., Hunnam, K.J., Mills, D.J., Steenbergen, D.J., Govan, H., Alonso-Poblacion, E., Roscher, M., Pereira, M., Rodrigues, P., Amador, T. and Duarte, A., 2019. Evaluating the fit of co-management for small-scale fisheries governance in Timor-Leste. *Frontiers in Marine Science*, 6, p.392.
- Török, P. and Helm, A., 2017. Ecological theory provides strong support for habitat restoration. *Biological Conservation*, 206, pp.85-91.

Triangulation, D.S., 2014, September. The use of triangulation in qualitative research. In *Oncology nursing forum* (Vol. 41, No. 5, p. 545).

Triantafillou, P., 2020. Trapped in the complexity bowl? Public governance and the liberal art of governing. *International Journal of Public Administration*, 43(14), pp.1228-1236.

Tseng, T.I., El-Sabaawi, M.E., Kantar, Pantel, H., Srivastava, S., and Ware, O., 2020. Effect of South African colonisation: Socio-economic impacts. *Journal of Social Science. The*, 98(3), pp.1220- 1278.

Tshabalala, N.G., 2014. Crime and unemployment in South Africa; Revisiting an established causality: Evidence from the KwaZulu Natal Province. *Mediterranean Journal of Social Sciences*, 5(15), pp.519-519.

Udefi, A., 2014. The rationale for an African epistemology: A critical examination of the Igbo views on knowledge, belief, and justification. *Canadian Social Science*, 10(3), pp.108-117.

Uittenbroek, C.J., Mees, H.L., Hegger, D.L. and Driessen, P.P., 2019. The design of public participation: who participates, when and how? Insights in climate adaptation planning from the Netherlands. *Journal of Environmental Planning and Management*, 62(14), pp.2529-2547.

Union, A., 2014. Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa. *African Union. Interafrican Bureau for Animal Resources*.

Union, A., 2014. Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa. *African Union. Interafrican Bureau for Animal Resources*.

United Nations, 2018. The 2030 Agenda and the Sustainable Development Goals

United Nations, 2018. Transforming Our World: The 2030 Agenda for Sustainable Development

Upright, P.A. and Forsythe, S.A., 2021. A review of qualitative research in sport management: utilizing a descriptive case study design. *Ky. SHAPE J*, 58, pp.64-70.

Urquhart, J. and Acott, T., 2014. A sense of place in cultural ecosystem services: The case of Cornish fishing communities. *Society & Natural Resources*, 27(1), pp.3-19.

Uwihangana, C., Hakizamungu, A., Rutikanga, C., Bangwanubusa, T. and Kalinganire, C., 2020. Social Work Practice in Rwanda.

- Vaivio, J. and Sirén, A., 2010. Insights into method triangulation and “paradigms” in interpretive management accounting research. *Management Accounting Research*, 21(2), pp.130-141.
- Valentine, K.D., Kopcha, T.J. and Vagle, M.D., 2018. Phenomenological methodologies in the field of educational communications and technology. *Tech Trends*, 62(5), pp.462-472.
- Valenzuela-Moguillansky, C. and Vásquez-Rosati, A., 2019. An analysis procedure for the micro-phenomenological interview. *Constructivist Foundations*, 14(2), pp.123-145.
- Van der Waldt, G., 2017. Theories for research in Public Administration. *African Journal of Public Affairs*, 9(9), pp.183-202.
- Van Draanen, J., Tsang, C., Mitra, S., Karamouzian, M. and Richardson, L., 2020. Socioeconomic marginalization and opioid-related overdose: a systematic review. *Drug and alcohol dependence*, 214, p.108127.
- Van der Walt, J.L., 2020. Interpretivism-constructivism as a research method in the humanities and social sciences-more to it than meets the eye. *International Journal of Philosophy and Theology*, 8(1), pp.59-68.
- Van Holt, T., Weisman, W., Johnson, J.C., Kall, S., Whalen, J., Spear, B. and Sousa, P. (2016) A Social Well-Being in Fisheries Tool (SWIFT) to Help Improve Fisheries Performance. *Sustainability*. Vol. 8(8) pp. 667-670.
- Van Sittert, L., 2002. “Those who cannot remember the past are condemned to repeat it”: Comparing fisheries reforms in South Africa. *Marine Policy*, 26(4), pp.295-305.
- Van Stam, G., 2019. Why do foreign solutions not work in Africa? Recognising alternate epistemologies. *Roaming Africa: Migration, resilience and social protection*, pp.55-82.
- Vatn, A., 2015. Markets in environmental governance. From theory to practice. *Ecological Economics*, 117, pp.225-233.
- Vigoda, E., 2002. From responsiveness to collaboration: Governance, citizens, and the next generation of public administration. *Public administration review*, 62(5), pp.527-540.
- Wanyonyi, I.N., Macharia, D., Heenan, A. and Mangi, S.C., 2018. Using participatory methods to assess data poor migrant fisheries in Kenya. *Human Dimensions of Wildlife*, 23(6), pp.569-586.

- Ware, L., 2020. Before and After Segregation and Apartheid: A Comparative Analysis. *The Thinker*, 85(3), pp.63-73.
- Weeratunge, N., Béné, C., Siriwardane, R., Charles, A., Johnson, D., Allison, E.H., Nayak, P.K. and Badjeck, M.C., 2014. Small-scale fisheries through the wellbeing lens. *Fish and Fisheries*, 15(2), pp.255-279.
- Williamson, I.O., 2006. The phenomenology of fit: linking the person and environment to the subjective experience of person-environment fit. *Journal of applied psychology*, 91(4), p.802.
- Winther, J.G., Dai, M., Rist, T., Hoel, A.H., Li, Y., Trice, A., Morrissey, K., Juinio-Meñez, M.A., Fernandes, L., Unger, S. and Scarano, F.R., 2020. Integrated ocean management for a sustainable ocean economy. *Nature ecology & evolution*, 4(11), pp.1451-1458.
- Witbooi, E., 2006. Law and fisheries reform: legislative and policy developments in South African fisheries over the decade 1994–2004. *Marine Policy*, 30(1), pp.30-42.
- Wood, L.M., Sebar, B. and Vecchio, N., 2020. Application of rigour and credibility in qualitative document analysis: Lessons learnt from a case study. *The qualitative report*, 25(2), pp.456-470.
- Woodhead, A.J., Abernethy, K.E., Szaboova, L. and Turner, R.A., 2018. Health in fishing communities: A global perspective. *Fish and Fisheries*, 19(5), pp.839-852.
- World Health Organization, 2020. *Mental health and psychosocial considerations during the COVID-19 outbreak, 18 March 2020* (No. WHO/2019-nCoV/MentalHealth/2020.1). World Health Organization.
- Worldbank (2020) African Program for Fisheries (online) Available on: <https://www.worldbank.org> (Accessed on 23 February 2021).
- Wright, J., 2017. Southern Africa before colonial times. In *Oxford Research Encyclopedia of African History*.
- Wright, L.S., 2022. Small no-take areas benefit hard corals more than regulation through fishing permits. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 32(7), pp.1209-1216.
- Wu, J., Chen, H., Wang, H., He, Q. and Zhou, K., 2020. Will the opening community policy improve the equity of green accessibility and in what ways?—Response based on a 2-step floating catchment area method and genetic algorithm. *Journal of Cleaner Production*, 263, p.121454.

Yildirim, S. and Kaplan, M., 2020. Seafood Security and Sustainability through Sustainable Development: A Review of Turkish Seafood Market. *Developing Sustainable Food Systems, Policies, and Securities*, pp.16-36.

Young, M.A., Foale, S. and Bellwood, D.R., 2016. Why do fishers fish? A cross-cultural examination of the motivations for fishing. *Marine Policy*, 66, pp.114-123.

Young, T., Porensky, L. and Veblem, K.E. (2014) Ecological restoration. Encyclopedia Britannica (online). Available on: <https://www.britannica.com> (Accessed on 23 February 2021).

Yüksel, P. and Yıldırım, S., 2015. Theoretical frameworks, methods, and procedures for conducting phenomenological studies in educational settings. *Turkish online journal of qualitative inquiry*, 6(1), pp.1-20.

Yusuf, H.N., 2011. *Religion, Culture and Fisheries Co-management: A Case of Kuruwitu Beach Village in North Coast Kenya* (Doctoral dissertation, MSc. Thesis, Institute of Social Studies, The Hague. c) What guidelines (eg rules, by-laws etc.) are in place to ensure stakeholder participation).

Zamzami, L. and Effendi, N., 2020, October. Marine Resource Conservation for Sustainable food security in Indonesia. In *IOP Conference Series: Earth and Environmental Science* (Vol. 583, No. 1, p. 012039). IOP Publishing.

Zeller, D., Booth, S. and Pauly, D., 2006. Fisheries contributions to the gross domestic product: underestimating small-scale fisheries in the Pacific. *Marine Resource Economics*, 21(4), pp.355-374.

Zhou, X., Zhao, X., Zhang, S. and Lin, J., 2019. Marine ranching construction and management in East China Sea: Programs for sustainable fishery and aquaculture. *Water*, 11(6), p.1237.

Zingraff-Hamed, A., Hüesker, F., Lupp, G., Begg, C., Huang, J., Oen, A., Vojinovic, Z., Kuhlicke, C. and Pauleit, S., 2020. Stakeholder mapping to co-create nature-based solutions: who is on board?. *Sustainability*, 12(20), p. 8625.

Zohrabi, M., 2013. Mixed method research: Instruments, validity, reliability and reporting findings. *Theory and practice in language studies*, 3(2), p.254.

Zulu, L.C. and D'Alessandro, C. eds., 2018. *Africa in the Post-2015 Development Agenda: A Geographical Perspective*. Routledge

ANNEXURE 1



PARTICIPANTS NEEDED FOR A STUDY ABOUT SOCIO-ECONOMIC CHALLENGES AND OPPORTUNITIES FOR TRADITIONAL FISHERS IN KWAZULU-NATAL.

A UKZN Researcher is looking for volunteers to participate in a research study about traditional fishers.

Who do we need?

- Participants who are 18 years or older.
- Participant shall include Izinduna, local fishermen/ fisherwomen and community members with fishing knowledge.

Potential benefits of the study

- Unlock ocean economy for traditional fishers.
- Uphold cultures and traditions for traditional fishers.

Dates & times for participation are flexible and subjected to the availability for participants.

Contact for more information

Cell: 081 389 6627

Email: 203512868@stu.ukzn.ac.za



ANNEXURE 2



KUNXUSWA ABANGABAMBA IQHAZA KUCWANINGO OLUMAYELANA NEZENHLALO NEZOMNOTHO KUBADOBI BEZINHLANZI ESIFUNDAZWENI SAKWAZULU-NATAL.

Umcwaningi wase-UKZN unxusa abantu abangalekelela kucwaningo olumayelana nabadobi bezinhlanzi.

Obani abadingekayo?

- Ilunga lomphakathi elineminyaka engaphezulu kwa-18.
- Izinduna, abadobi bendowo kanye namalungu omphakathi anolwazi mayelana nomkhakha wezokudoba

Imivuzo yalolucwaningo.

- Ukuvuleka komnotho kumkhakha wezokudoba.
- Ukusimama kwamasiko nemvelaphi yabahlali.

Usuku nesikhathi luzogagulwa amavolontiya alolucwaningo.

Imininingwane egcwele iyatholakala kule nombolo yocingo ethi: 081 389 6627



ANNEXURE 3

Draft Survey

PROPOSED TOPIC: An African epistemological analysis of socio-economic challenges and opportunities of traditional fishing communities in KwaZulu-Natal coastal areas, South Africa

SECTION A: DEMOGRAPHIC INFORMATION

1. Your age at your last birthday (please tick)

20 – 29 years	
30 – 39 years	
40 – 49 years	
50 years and older	

2. Gender (please tick)

Male	
Female	

3. What sphere of government is your organisation perform its functions

National government		Provincial government		Local Government	
---------------------	--	-----------------------	--	------------------	--

4. What is your level of management in your organization?

Middle Management		Senior Management		Executive Management	
-------------------	--	-------------------	--	----------------------	--

5. How long have been involved in fishery sector? (Please tick)

1 - 5 years	
6 – 10 years	
11– 15 years	
16 years and above	

6. How long have been working specifically with traditional fishers?

1 - 5 years	
6 – 10 years	
11– 15 years	
16 years and above	

7. How have you been involved in traditional fisheries?

YES		NO	
-----	--	----	--

- **SECTION B:** What are the complexities driving socio-economic barriers and opportunities for traditional fisheries in KZN, South Africa?

INSTRUCTIONS: A list of key points about traditional fisheries. Please indicate your view on each sentence given below.

Please use the following key to indicate your answer by placing a tick \checkmark in the appropriate block.

1= strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree

	RATING	1	2	3	4	5
1	Traditional fishing communities suffer from low levels of education.					
2	Women are still completely excluded from fishing operations which perpetuate gender inequality.					
3	Government have initiatives that seek to remedy gender inequalities in traditional fisheries.					
4	Traditional fisheries are subjected to historical legacies that exclude them from economic participation.					
5	Traditional fishermen/fisherwomen do not legally enjoy fishing rights in the ocean and cannot compete with bigger fishing companies.					
6	The traditional fishing production systems should be connected to international systems so that traditional fisheries can be introduced to the global market to break the socio-economic barriers.					
7	Traditional fishing communities are lacking market power and alternative income sources.					
8	Traditional fishers do not have access to financial institutions for financial assistance.					
9	The budgets allocated to fisheries deemed sufficient for government to carry out its mission.					
10	Government grants traditional fishers licenses to fish.					
11	The coastal fishing communities are vulnerable to poverty because of limited job opportunities.					
12	The coastal fishing communities are affected by high unemployment and crime rate.					
13	Creation of job opportunities through traditional fisheries can socially uplift coastal communities.					

SECTION C: • How evidence-based knowledge co-created with study participants overcome barriers and advantage opportunities for traditional fisheries in KZN, South Africa?

INSTRUCTIONS: A list of key legislations and policies about the fishing industry are listed below. Please indicate your view on each sentence given below.

Please use the following key to indicate your answer by placing a tick in the appropriate block.

**1 = not important 2 = slightly important 3 = moderately important 4 = important
5 = very important**

	RATING	1	2	3	4	5
1	The Small-Scale Fishery Policy is the policy conducive/sufficient to enabling policy implementation for the betterment of traditional fishers?					
2	There is a formal policy implementation mechanism that is consultative and inclusive of traditional fishers.					
3	There is an incorporation of African ways of knowing in the implementation of the Small-Scale Fishery Policy.					
4	Government has programmes that promotes and protects indigenous knowledge systems for traditional fisheries.					
5	There are existing forums that manage governance of Indigenous Knowledge Systems for traditional fisheries.					
6	Government invest in research and development to capture indigenous knowledge from traditional fishers.					
7	The Small-Scale Fishery Policy acknowledges the functions by traditional leadership in areas under traditional authorities.					
8	Government promotes involvement of traditional leadership in the management of traditional fisheries.					

SECTION D: In what ways can any gaps found in the implementation of Small Scale Fisheries policy in South Africa be filled to enhance socio-economic benefits and sustainable livelihoods of the traditional fishery sector?

INSTRUCTIONS: A list of key points about the traditional fisheries. Please indicate your view on each sentence given below.

Please use the following key to indicate your answer by placing a tick \checkmark in the appropriate block.

1= strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree

	RATING	1	2	3	4	5
1	The local economy excludes participation of traditional fishers.					
2	There are government forums which formally and regularly meet with traditional fishers to address issues.					
3	There is poor management, corruption, inequality and red-tapping in government structures pertaining to traditional fisheries.					
4	Poor compliance of fishing sector with the national laws regulating the fishing industry and ineffective and inefficient enforcement.					
5	Absence of a synergy between traditional fisheries, economic and environmental sectors in the implementation of fisheries programmes.					
6	There are serious conflicts (economic, social and environmental conflict) between all different types of fisheries? (small scale, traditional and commercial)					
7	Government has over the last ten years effectively reduced incidence of such conflicts.					
8	Government is perceived as a promoter for traditional fisheries.					
9	Government has functional programmes which seek to drive economic and social development for traditional fisheries.					
10	Government conducts awareness and education campaigns that empower tradition fishers.					

SECTION E: How effective is the functionality of governance and institutional framework for the fishery industry in KZN, South Africa as it pertains to African ways of knowing?

INSTRUCTIONS: A list of key points about the traditional fisheries. Please indicate your view on each sentence given below.

Please use the following key to indicate your answer by placing a tick \checkmark in the appropriate block.

1= strongly disagree 2 = disagree 3 = neutral 4 = agree 5 = strongly agree

	RATING	1	2	3	4	5
1	Traditional fisheries are not well recognized and properly managed by government.					
2	There is slow progress in establishing recognised institutional forums and management systems for traditional fisheries which recognises traditional leadership.					
3	Fishery governance systems exclude African ways of knowing which promotes Indigenous Knowledge Systems.					
4	The modernization of fishery sector has negatively impacted the culture and traditions for traditional fishers.					
5	The indigenous knowledge or African ways of knowing for traditional fishers is threatened by dominance of commercial fisheries.					
6	There is need to open more avenues for women to enjoy the benefits of the fishing activities without dislodging the socio-cultural structures.					
7	Poor compliance of fishing sector with the national laws regulating the fishing industry and ineffective and inefficient enforcement.					
8	Absence of a link between traditional fisheries and other sectors in the implementation of fisheries programmes					
9	There are minimal government efforts to combat corruption in the fishery sector.					
10	There is lack of accountability in the fishery sector.					
11	There is minimal transparency in the governance of fishery sector					
12	The ocean economy mainly focusses in commercial fisheries and lack equity and inclusiveness of traditional fisheries.					

SECTION F: What evidence-based policy framework and interventions for environmental sustainability to improve the operations of the traditional fisheries in KZN, South Africa can be co-created with study participants?

INSTRUCTIONS: A list of suggestions about improving the status quo of the traditional fisheries. Please indicate your view on each sentence given below.

Please use the following key to indicate your answer by placing a tick in the appropriate block.

**1 = not important 2 = slightly important 3 = moderately important 4 = important
5 = very important**

	RATING	1	2	3	4	5
1	Government encourages engagement and discussions around the role of Small-Scale Fisheries Policy to manage the coastal environment.					
2	The interactive governance should enable the empowerment of traditional fisheries to adopt environmental sustainable methods of fishing.					
3	The Small-Scale Fishery Policy support African ways of managing the biophysical environment.					
4	There is a need to take historical legacies into cognizance in an attempt to facilitate change to the existing environment of traditional fisheries in South Africa.					
5	The Small-Scale Fishery Policy provides for the conservation of the marine ecosystem.					
6	The Small-Scale Fishery Policy has clear objectives for environmental goals.					
7	The Small-Scale Fisheries Policy is aligned with other national and provincial environmental policies.					
8	The Small-Scale Fisheries Policy plays a critical role in utilization and protection of environmental indigenous knowledge.					
9	Small-Scale Fisheries Policy contributes towards sustainable job creation and increased investment in the fishing industry.					
10	The Small-Scale Fishery Policy assists to combat illegal, unregulated and unreported fishing activities.					

ANNEXURE 4

Draft Questionnaire (Traditional fishermen/women)

<p>PROPOSED TOPIC: An African epistemological analysis of socio-economic challenges and opportunities of traditional fishing communities in KwaZulu-Natal coastal areas, South Africa</p>
--

SECTION A: DEMOGRAPHIC INFORMATION

1. Your age at your last birthday (please tick)

20 – 29 years	
30 – 39 years	
40 – 49 years	
50 years and older	

2. Gender (please tick)

Male	
Female	

3. What is your designation in the community?

Community Leader		Fisheries Leader		Fisherman		Fisherwoman	
------------------	--	------------------	--	-----------	--	-------------	--

4. How long have been involved in traditional fishing? (Please tick)

1 - 5 years	
6 – 10 years	
11– 15 years	
16 years and above	

5. Highest level of education (please tick)

Degree	
Diploma	
Training Certificate	
Secondary Education	
Primary Education	
No Formal Education	

6. Employment Status (pleases tick)

Self-employed	
Employed	
Unemployed	

7. How long have been involved in traditional fishing? (Please tick)

1 - 5 years	
6 – 10 years	
11– 15 years	
16 years and above	

Section B

B1. Do you consider yourself a full or part time fisherman/woman? (Please elaborate)

.....
.....
.....
.....

B2. Explain what do you like about traditional fisheries?

.....
.....
.....
.....

B3. Explain if there are any of your family members who are currently or previously been involved in traditional fisheries.

.....
.....
.....
.....
.....

B4. Describe if there is any kind of support you get from your family regarding traditional fishing.

.....
.....
.....
.....
.....

B5. Explain your proudest moments in your fishing experience.

.....
.....
.....
.....
.....

B6. What are your personal future aspirations as a traditional fisher?

.....
.....
.....
.....
.....

B7. What factors motivated you to become a fisherman/fisherwoman?

.....
.....
.....
.....

B8. Do you have a fishing permit? If yes, how did you obtain it?

.....
.....
.....
.....

SECTION C

- What are the complexities driving socio-economic barriers and opportunities for traditional fisheries in KZN, South Africa?

C1. Explain the economic benefits of fishing that you have witnessed within your community?

.....
.....
.....
.....
.....

C2. Explain what can be done to create more economic opportunities for traditional fishers.

.....
.....
.....
.....
.....

C3. Clarify how you make your income through tradition fishing.

.....
.....
.....
.....
.....

C4. Discuss if traditional fishing can fight poverty and unemployment rate in your community.

.....
.....
.....
.....
.....

C5. Discuss the challenges that are faced by traditional fishers in your area.

.....
.....
.....
.....
.....

C6. What specific challenges do women involved in fishing activities encounter within your community? (For women participants)

.....
.....
.....
.....
.....

C7. To what extent do you think the traditional fisheries are supporting the economic development of your community?

.....
.....
.....
.....

C8. Explain if you satisfied with the level of support you receive from the government, traditional and fisheries leaders?

.....
.....
.....
.....
.....
.....
.....

C9. Explain the kind of support do you want from government.

.....
.....
.....
.....
.....

SECTION D

How evidence-based knowledge co-created with study participants overcome barriers and advantage opportunities for traditional fisheries in KZN, South Africa?

D1. Do you have any knowledge pertaining to the policies governing the traditional fisheries in South Africa?

.....
.....
.....
.....

D2. If yes, can you explain any one of them? If no, what do you understand about the Small-Scale Fisheries Policy?

.....
.....
.....
.....

D3. Have the Small-Scale Fishery Policy helped the way you are conducting your fishing activities in your community?

.....
.....
.....
.....

D4. Explain how Small-Scale Fishery Policy promotes traditional methods of fishing in your community.

.....
.....
.....

D5. Explain how government promotes cultural values for traditional fishers.

.....
.....
.....

D6. Do you think the government has created an efficient legal platform to take control and support traditional fishers at the local level?

.....
.....
.....

D7. What suggestions about policies can you recommend the government adopt to improve traditional fishing communities?

.....
.....
.....
.....

SECTION E

How effective is the functionality of governance and institutional framework for the fishery industry in KZN, South Africa as it pertains to African ways of knowing?

E1. How are the traditional fishing groups in your area administered? Can you explain all the structures and their duties?

.....
.....
.....
.....

E2. Is there any integration of government programmes with Indigenous Knowledge Systems to drive environmental and social change within your fishing community? Motivate your answer.

.....
.....
.....
.....

E3. Discuss how government through governance structures can promote and preserve African ways knowing,

.....
.....
.....
.....

E4. Has the government created an efficient programme to take control and manage governance of traditional fishers in your community?

.....
.....
.....
.....

E5. What do you recommend government do to improve governance systems to change the current status quo for traditional fisheries?

.....
.....
.....
.....

E6. What role do you think the government, traditional and fisheries leaders need to play to affect full participation of women in the fishing industry for women living in traditional fishing communities? (For women participants).

.....
.....
.....
.....

SECTION F

What evidence-based policy framework and interventions for environmental sustainability to improve the operations of the traditional fisheries in KZN, South Africa can be co-created with study participants?

F1. Explain relationship you have with the coastal natural environment.

.....
.....
.....
.....

F2. Discuss how traditional fishers interact with the coastal natural environment.

.....
.....
.....
.....

F3. Discuss how traditional fishers protect the coastal natural environment to promote sustainable living.

.....
.....
.....
.....

F4. What programme can government do to empower of traditional fishers to adopt environmental sustainable methods of fishing?

.....
.....
.....
.....

F5. Discuss if government support African ways of managing the natural environment coastal environment.

.....
.....
.....

F6. What do you think should be done strike a balance between the improvement of traditional fishing communities and environmental sustainability?

.....
.....
.....

ANNEXURE 5

Draft Questionnaire (Traditional leader/induna/inkosi)

<p>PROPOSED TOPIC: An African epistemological analysis of socio-economic challenges and opportunities of traditional fishing communities in KwaZulu-Natal coastal areas, South Africa</p>
--

SECTION A: DEMOGRAPHIC INFORMATION

1. Your age at your last birthday (please tick)

20 – 29 years	
30 – 39 years	
40 – 49 years	
50 years and older	

2. Gender (please tick)

Male	
Female	

3. What is your designation in the community?

Community Leader		Induna		Inkosi	
---------------------	--	--------	--	--------	--

4. How long have you been a traditional community leader/induna/inkosi? (Please tick)

1 - 5 years	
6 – 10 years	
11– 15 years	
16 years and above	

5. Highest level of education (please tick)

Degree	
Diploma	
Training Certificate	
Secondary Education	
Primary Education	
No Formal Education	

6. Employment Status (pleases tick)

Self-employed	
Employed	
Unemployed	

Section B

B1. Do you know about traditional fishing activities in your community? (Please elaborate)

.....
.....
.....
.....

B2. Explain what do you like about traditional fisheries?

.....
.....
.....
.....

B3. Explain if there are any of your family members who are currently or previously been involved in traditional fisheries.

.....
.....
.....
.....

B4. Explain your role in traditional fisheries.

.....
.....
.....
.....

B5. Explain your proudest moments about your community.

.....
.....
.....
.....

B6. What are your personal future aspirations as a traditional leader/induna/inkosi?

.....
.....
.....
.....
.....

B8. Do you decide who gets a fishing permit in your community? If yes, how do you do it?

.....
.....
.....
.....

SECTION C

- What are the complexities driving socio-economic barriers and opportunities for traditional fisheries in KZN, South Africa?

C1. Explain the economic benefits of fishing that you have witnessed within your community?

.....
.....
.....
.....
.....

C2. Explain what can be done to create more economic opportunities for traditional fishers.

.....
.....
.....
.....
.....

C4. Discuss if traditional fishing can fight poverty and unemployment rate in your community.

.....
.....
.....
.....
.....

C5. Discuss the challenges that are faced by traditional fishers in your area.

.....
.....
.....
.....
.....

C6. What challenges do women involved in fishing activities encounter within your community?

.....
.....
.....
.....
.....

C7. To what extent do you think the traditional fisheries are supporting the economic development of your community?

.....
.....
.....
.....

C8. Explain if you satisfied with the level of support you receive from the government?

.....
.....
.....
.....

.....
.....

C9. Explain the kind of support do you want from government for economic development of your community.

.....
.....
.....
.....
.....

SECTION D

How evidence-based knowledge co-created with study participants overcome barriers and advantage opportunities for traditional fisheries in KZN, South Africa?

D1. Do you have any knowledge pertaining to the policies governing the traditional fisheries in South Africa?

.....
.....
.....
.....

D2. If yes, can you explain any one of them? If no, what do you understand about the Small-Scale Fisheries Policy?

.....
.....
.....
.....

D3. Have the Small-Scale Fisheries Policy helped the way you are conducting your fishing activities in your community?

.....
.....
.....
.....

D4. Explain how Small-Scale Fisheries Policy promotes traditional methods of fishing in your community.

.....
.....
.....

D5. Explain how government promotes cultural values for traditional fishers.

.....
.....
.....

D6. Do you think the government has created an efficient legal platform to take control and support traditional fishers at your community?

.....
.....
.....
.....

D7. What suggestions about policies can you recommend the government adopt to improve traditional fishing communities?

.....
.....
.....
.....

SECTION E

How effective is the functionality of governance and institutional framework for the fishery industry in KZN, South Africa as it pertains to African ways of knowing?

E1. How are the traditional fishing groups in your area administered? Can you explain all the structures and their duties?

.....
.....
.....

E2. Is there any integration of government programmes with Indigenous Knowledge Systems to drive environmental and social change within your fishing community? Motivate your answer.

.....
.....
.....

E3. Discuss how government through governance structures can promote and preserve African ways knowing,

.....
.....
.....
.....

E4. Has the government created an efficient programme to take control and manage governance of traditional fishers in your community?

.....
.....
.....
.....

E5. What do you recommend government do to improve governance systems to change the current status quo for traditional fisheries?

.....
.....
.....

E6. What role do you think the government, traditional and fisheries leaders need to play to affect full participation of women in the fishing industry for women living in traditional fishing communities?

.....
.....
.....

SECTION F

What evidence-based policy framework and interventions for environmental sustainability to improve the operations of the traditional fisheries in KZN, South Africa can be co-created with study participants?

F1. Explain relationship you have with the coastal natural environment.

.....
.....
.....
.....

F2. Discuss how traditional fishers interact with the coastal natural environment.

.....
.....
.....
.....

F3. Discuss how traditional fishers protect the coastal natural environment to promote sustainable living.

.....
.....
.....
.....

F4. What programme can government do to empower of traditional fishers to adopt environmental sustainable methods of fishing?

.....
.....
.....
.....

F5. Discuss if government support African ways of managing the natural environment coastal environment.

.....
.....
.....
.....

F6. What do you think should be done strike a balance between the improvement of traditional fishing communities and environmental sustainability?

.....
.....
.....

ANNEXURE 6

Draft Questionnaire (Civil Society)

PROPOSED TOPIC: An African epistemological analysis of socio-economic challenges and opportunities of traditional fishing communities in KwaZulu-Natal coastal areas, South Africa

SECTION A: DEMOGRAPHIC INFORMATION

1. Your age at your last birthday (please tick)

20 – 29 years	
30 – 39 years	
40 – 49 years	
50 years and older	

2. Gender (please tick)

Male	
Female	

3. What is your designation in the community?

Community Leader		Civil society	
---------------------	--	---------------	--

4. Highest level of education (please tick)

Degree	
Diploma	
Training Certificate	
Secondary Education	
Primary Education	
No Formal Education	

5. Employment Status (please tick)

Self-employed	
Employed	
Unemployed	

6. How long have known about traditional fishing in your community? (Please tick)

1 - 5 years	
6 – 10 years	
11– 15 years	
16 years and above	

Section B

B1. Explain why you have an interest in traditional fisheries in your community.

.....
.....
.....
.....

B2. Explain what do you like about traditional fisheries?

.....
.....
.....
.....

B3. Explain if there are any of your family members who are currently or previously been involved in traditional fisheries.

.....
.....
.....
.....

B5. Explain your proudest moments you have about traditional fishing in your community.

.....
.....
.....
.....

B6. What are your personal future aspirations as a community member?

.....
.....
.....
.....

SECTION C

- What are the complexities driving socio-economic barriers and opportunities for traditional fisheries in KZN, South Africa?

C1. Explain the economic benefits of fishing that you have witnessed within your community?

.....
.....
.....
.....
.....

C2. Explain what can be done to create more economic opportunities for traditional fishers.

.....
.....
.....
.....
.....

C3. Clarify how you make your income through tradition fishing.

.....
.....
.....
.....
.....

C4. Discuss if traditional fishing can fight poverty and unemployment rate in your community.

.....
.....
.....
.....
.....

C5. Discuss the challenges that are faced by traditional fishers in your area.

.....
.....
.....
.....
.....

C6. What specific challenges do women involved in fishing activities encounter within your community? (For women participants)

.....
.....
.....
.....
.....

C7. To what extent do you think the traditional fisheries are supporting the economic development of your community?

.....
.....
.....
.....

C8. Explain if you satisfied with the level of support you receive from the government, traditional and fisheries leaders?

.....
.....
.....
.....
.....
.....
.....

C9. Explain the kind of support do you want from government.

.....
.....
.....
.....
.....

SECTION D

How evidence-based knowledge co-created with study participants overcome barriers and advantage opportunities for traditional fisheries in KZN, South Africa?

D1. Do you have any knowledge pertaining to the policies governing the traditional fisheries in South Africa?

.....
.....
.....
.....

D2. If yes, can you explain any one of them? If no, what do you understand about the Small-Scale Fisheries Policy?

.....
.....

D3. Have the Small-Scale Fisheries Policy helped to improve fishing activities in your community?

.....
.....
.....
.....

D4. Explain how Small-Scale Fisheries Policy promotes traditional methods of fishing in your community.

.....
.....
.....

D5. Explain how government promotes cultural values for traditional fishers.

.....
.....
.....
.....
.....

D6. Do you think the government has created an efficient legal platform to take control and support traditional fishers at the local level?

.....
.....
.....

D7. What suggestions about policies can you recommend the government adopt to improve traditional fishing communities?

.....
.....
.....
.....

SECTION E

How effective is the functionality of governance and institutional framework for the fishery industry in KZN, South Africa as it pertains to African ways of knowing?

E1. How are the traditional fishing groups in your area administered? Can you explain all the structures and their duties?

.....
.....
.....
.....

E2. Is there any integration of government programmes with Indigenous Knowledge Systems to drive environmental and social change within your fishing community? Motivate your answer.

.....
.....
.....
.....

E3. Discuss how government through governance structures can promote and preserve African ways knowing,

.....
.....
.....
.....

E4. Has the government created an efficient programme to take control and manage governance of traditional fishers in your community?

.....
.....
.....
.....

E5. What do you recommend government do to improve governance systems to change the current status quo for traditional fisheries?

.....
.....
.....
.....

E6. What role do you think the government, traditional and fisheries leaders need to play to affect full participation of women in the fishing industry for women living in traditional fishing communities?

.....
.....
.....
.....

SECTION F

What evidence-based policy framework and interventions for environmental sustainability to improve the operations of the traditional fisheries in KZN, South Africa can be co-created with study participants?

F1. Explain relationship you have with the coastal natural environment.

.....
.....
.....
.....

F2. Discuss how traditional fishers interact with the coastal natural environment.

.....
.....
.....
.....

F3. Discuss how traditional fishers protect the coastal natural environment to promote sustainable living.

.....
.....
.....
.....

F4. What programme can government do to empower of traditional fishers to adopt environmental sustainable methods of fishing?

.....
.....
.....
.....

F5. Discuss if government support African ways of managing the natural environment coastal environment.

.....
.....
.....
.....

F6. What do you think should be done strike a balance between the improvement of traditional fishing communities and environmental sustainability?

.....
.....
.....
.....

ANNEXURE 7

UKZN HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE (HSSREC)

APPLICATION FOR ETHICS APPROVAL For research with human participants

Information Sheet and Consent to Participate in Research

Date: 03 November 2021

Greetings,

My name is Scelokuhle Mpilenhle Ziqubu. I am a Doctor of Administration degree candidate in School of Management, IT and Governance studying at the University of KwaZulu-Natal, Westville campus, Durban, South Africa.

Email: 203512868@stu.ukzn.ac.za or mpilo12@hotmail.com

Cell: 081 389 6627

You are being invited to consider participating in a study that involves research about challenges and opportunities of the traditional fishing communities along the KZN coastal areas. The aim and purpose of this research is to assess the possible role that could be played by government using African conception of knowledge to empower coastal traditional fishing communities and also promote economic development.

The total of 161 individuals is expected to participate in the study. The quantitative study will enroll 125 surveys with government officials from national, provincial and local spheres of government. The qualitative study is expected to enroll a total of 36 in-depth interviews with traditional fisheries, civil society and Izinduna in three district municipalities, namely, uMkhanyakude, eThekweni and uGu.

The duration of your participation if you choose to participate and remain in the study is expected to be between 30min and 1 hour. The study acknowledges the risks of Covid-19 infections that might be caused by face to face interactions during interviews. Therefore, the interviews will be conducted telephonically and survey will be done online in order to comply with Covid-19 government regulations.

We hope that the study will benefit traditional fishers and rural coastal communities by influencing government to break socio-economic barriers by providing economic opportunities for marginalized population. The study will also attempt to co-create knowledge with study participants to empower coastal traditional fishing communities and to promote economic development and environmental sustainability in alignment with local knowledge.

In the event of any problems or concerns/questions you may contact the researcher at mpilo12@hotmail.com / or 081 389 6627 or the UKZN Humanities & Social Sciences Research Ethics Committee, contact details as follows:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban 4000 KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557- Fax: 27 31 2604609
Email: HSSREC@ukzn.ac.za

Your participation in the study is voluntary and by participating, you are granting the researcher permission to use your responses. You may refuse to participate or withdraw from the study at any time with no negative consequence. There will be no monetary gain from participating in the study. Your anonymity will be maintained by the researcher and the School of Management, I.T. & Governance and your responses will not be used for any purposes outside of this study.

All data, both electronic and hard copy will be securely stored during the study and archived for 5 years. After this time, all data will be destroyed.

If you have any questions or concerns about participating in the study, please contact me or my research supervisor at the numbers listed above.

Sincerely

(Researcher name and signature)

CONSENT TO PARTICIPATE

I have been informed
about the study entitled
.....
.....by
.....
.....
.....

I understand the purpose and procedures of the study (add these again if appropriate).

I have been given an opportunity to ask questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any of the benefits that I usually am entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at 081 389 6627 or mpilo12@hotmail.com.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557 - Fax: 27 31 2604609
Email: HSSREC@ukzn.ac.za

Signature of Participant

Date

**Signature of Witness
(Where applicable)**

Date

**Signature of Translator
(Where applicable)**

Date

ANNEXURE 8

UKZN HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE (HSSREC)

APPLICATION FOR ETHICS APPROVAL For research with human participants

INCWADI YEMVUME YOKWENZA UCWANINGO

Date: 03 November 2021

Sawubona,

Igama lami ngingu Scelokuhle Mpilenhle Ziqubu owenza izifundo zobudokotela (Doctor of Administration) e-University of KwaZulu-Natal, Westville Campus, Durban. Ngiyatholakala kule nombolo yocingo ethi 081 389 6627 noma kwi-email ethi mpilo12@hotmail.com.

Isihloko socwaningo lwami sithi, “ **An African epistemological analysis of socio-economic challenges and opportunities of traditional fishing communities in KwaZulu-Natal coastal areas, South Africa**”. Ngamafuphi-nje ucwaningo engulwenzayo lumayelana nezenhlalo nezomnotho kubadobi bezinhlanzi esifundazweni saKwaZulu-Natal. Lolu cwanningo luhlose ukubheka izingqinamba izibhekene nabadobi bezinhlanzi abahlala ezindaweni zamakhosi eziseduze nolwandle. Ucwaningo luzophinde lubhekisise umthetho ongamele ukudoba kwezihlanzi ukuze kube khona imizamo yokuthuthukisa imboni yezokudoba.

Ngakho-ke, sinesifiso sokuba nengxoxo nawe ngalesi sihloko ukuze sithole ulwazi ulungasiza ukuphuthula lolu cwanningo. Ingxoxo siyanxusa ukuthi yenziwe ngokuxhumana ngocingo ukuze silandele imigomo ye-COVID-19 ebekwe inyuvesi kanye ne-National Disaster Management Act Alert Levels. Ingxoxo ilindeleke ukuthi ingathatha phakathi kwemizuzu ewu-30 no-60.

Ucwaningo luhlose ukubuza imibuzo abantu abuwu-161, kubalwa izikhulu zikahulumeni, abadobi bendawo, Izinduna kanye namalungu omphakathi komasipala womkhandlu eMkhanyakude, eThekwini naso uGu.

Sinethemba ukuthi lolu cwanningo lizosiza uhulumeni ukuthi abe nolwazi lokuthi bangazizakala kanjani abadobi kanye nemiphakathi eyakhelene nolwandle mayelana namathuba emisebenzi. Ucwaningo luzophinde luthathe imibono kumphakathi engasiza ekwakheni amathuba emisebenzi ukuze uhulumeni ezokwazi ukuthatha izinqumo ezizosiza umphakathi.

Iminingwane egcwele itholakala kwinombolo yocingo ethi 081 389 6627 noma e-UKZN Humanities & Social Sciences Research Ethics Committee, kule mininingwane:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban 4000 KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604557- Fax: 27 31 2604609
Email: HSSREC@ukzn.ac.za

Ukuba yingxenye yalolu cwaningo kuyimvumo yakho futhi unika umcwaningi imvumo yokubhala phansi izimpendulo eziphuma kuwena. Ayikho imali ezokhokhwa umcwaningi yokunxephezela. Igama lomuntu ngeke lize lidalulwe kululo cwaningo.

Sincerely

(Researcher name and signature)

ISIMEMEZELO

Igama nesibongo sami u_____ ,
nginolwazi mayelana ngokuquthwe yile ncwadi, futhi ngiyavuma ukuba yingxenye yalolu
cwaningo. Ngiyazi ukuthi nginemvumo yokuhoxa kulolu cwaningo noma yinini.

ISIGNESHA: _____ USUKU: _____

14 November 2021

Scelokuhle Mpilenhle Ziqubu (203512868)
School Of Man Info Tech & Gov
Westville Campus

Dear SM Ziqubu,

Protocol reference number: HSSREC/00003605/2021

Project title: An African epistemological analysis of socio-economic challenges and opportunities of traditional fishing communities in KwaZulu-Natal coastal areas, South Africa

Degree: PhD

Approval Notification – Expedited Application

This letter serves to notify you that your application received on 11 November 2021 in connection with the above, was reviewed by the Humanities and Social Sciences Research Ethics Committee (HSSREC) and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

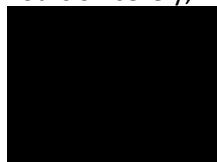
This approval is valid until 14 November 2022.

To ensure uninterrupted approval of this study beyond the approval expiry date, a progress report must be submitted to the Research Office on the appropriate form 2 - 3 months before the expiry date. A close-out report to be submitted when study is finished.

All research conducted during the COVID-19 period must adhere to the national and UKZN guidelines.

HSSREC is registered with the South African National Research Ethics Council (REC-040414-040).

Yours sincerely,



Professor Dipane Hlalele (Chair)

/dd

Humanities and Social Sciences Research Ethics Committee

Postal Address: Private Bag X54001, Durban, 4000, South Africa

Telephone: +27 (0)31 260 8350/4557/3587 **Email:** hssrec@ukzn.ac.za **Website:** <http://research.ukzn.ac.za/Research-Ethics>

Founding Campuses:  Edgewood  Howard College  Medical School  Pietermaritzburg  Westville