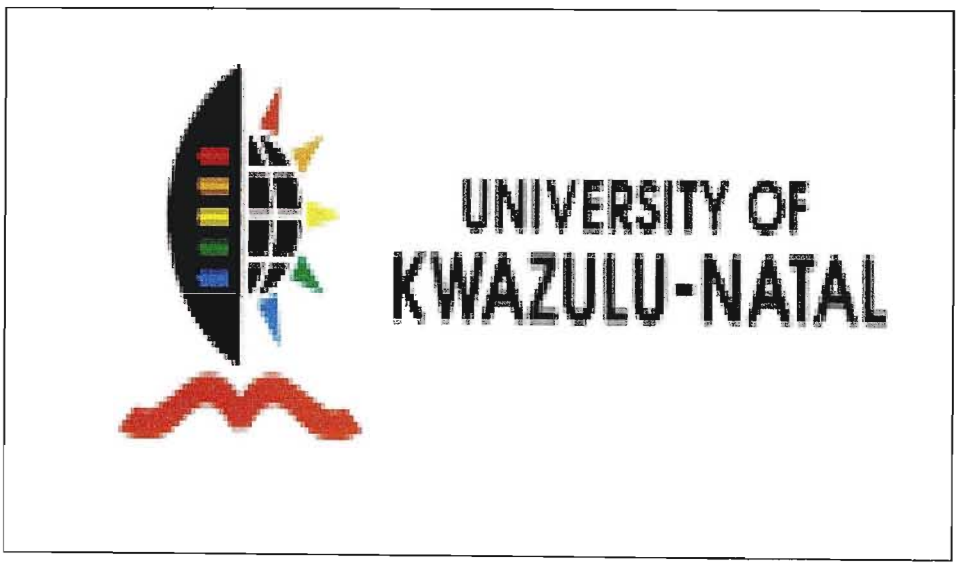
SMALL-SCALE TIMBER GROWERS' PARTICIPATION IN THE DEVELOPMENT OF NATIONAL PRINCIPLES, CRITERIA, INDICATORS AND STANDARDS FOR SUSTAINABLE FOREST MANAGEMENT IN SOUTH AFRICA

By

Steven Zama Ngubane



Submitted in partial fulfilment of the academic requirements for the
Masters in Agriculture Degree in the
Centre for Environment Agriculture and Development,
School of Environmental Sciences,
University of KwaZulu-Natal,

Pietermaritzburg
2005

This study was conducted within the South African national project:

"THE DEVELOPMENT OF PRINCIPLES, CRITERIA, INDICATORS AND STANDARDS FOR SUSTAINABLE FOREST MANAGEMENT IN SOUTH AFRICA"

Undertaken by the:

Institute of Natural Resources (INR)

Undertaken for the:

Department of Water Affairs and Forestry (DWAF)

Supported by the:

United Kingdom, Department for International Development (DFID)

DFID Department for International Development

ABSTRACT

The aim of this study was to engage small-scale timber growers in the development of national principles, criteria, indicators and standards (PCI&S) for sustainable forest management (SFM) in South Africa (SA).

To ensure effective participation of small-scale timber growers in the development PCI&S, an overview of sustainable and small-scale forestry was explored. Furthermore, because of the importance of globalisation on the SFM concept, its conceptual framework and small-scale forestry development in relation to SFM were investigated.

Participatory rural appraisal (PRA) methods, and PCI&S evaluation and development processes were used to engage small-scale timber growers by identifying and integrating their perceptions into the process of SFM standards development. These small-scale timber growers' perceptions focused on social, economic, environment and policy issues.

The study indicates that the views of small-scale timber growers regarding SFM do not vary significantly from those held globally. However, they demonstrate that local conditions determined issues of relevance and importance to this specific group. The results further support the view that there is value in combining both top-down and bottom-up approaches in developing an appropriate set of PCI&S. This is critical because the perceptions of small-scale timber growers for SFM are scale sensitive.

Finally, the results supported the view that there is a need to give attention to and strengthen socio-economic issues versus those of the physical environment to improve inequalities of the past, and influence future decisions.

FOREWORD

The study presented in this dissertation was conducted in association with the 'national project to develop principles, criteria, indicators and standards (PCI&S) for sustainable forest management (SFM) in South Africa', between August 2001 and September 2002, under the lead supervision of Mr. Michael Underwood supported by Ms Jenny Mander and Ms Fonda Lewis.

This study represents original work by the author, unless otherwise specified or except where acknowledgement is given. It has not been previously submitted in any form, for any degree or diploma to any other university.

Signed.....

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ACKNOWLEDGEMENTS

I am most indebted to my supervisor, Mr. Michael Underwood of the School of Agricultural Sciences & Agribusiness, University of KwaZulu-Natal, Pietermaritzburg, and co-supervisors, Ms Jenny Mander and Ms Fonda Lewis both of the Institute of Natural Resources, Pietermaritzburg, who all offered excellent advice and guidance to make this study possible.

Special thanks is owed to members of the National Project, namely Mr. Mike Howard, Mr. Cori Ham, Mr. Stephen Berrisford, Mr. Dominic Mitchell, Dr Coert Geldenhuys, Mrs. Cathy Oelofse, Dr Hyton Adie, Mr. Myles Mander, Ms Jenny Mander, and Ms Fonda Lewis for their efforts, support and advice throughout the study.

I am grateful to the International Centre for Research in Agroforestry (ICRAF) for the financial support it made available to me. Thanks is also extended to ICRAF employees, particularly Prof. August Temu, for their timeous efforts in administering the funding of the study.

My sincere thanks to the Institute of Natural Resources and Department of Water Affairs and Forestry for giving me an opportunity to conduct the study in association with the national project, 'the development PCI&S for SFM in South Africa'.

In addition, my thanks go to members of the rural communities (KwaMbonambi and Enseleni) and their elected working group who participated in the focus group discussions and workshops, and to Sappi Project Grow (Mr. Bheki Gumede), NCT Forestry (Mr. Vusi Dladla and Mr. Sizwe Mtengu), and Mondi Khulanathi (Mr. Paus Mthembu and Mr. Gideon Cele) for their timeous comments and advice.

Prof. Charles Breen, Mr. Dave Cox, Mr. Duncan Hay, Ms Nicci Diedericks, Prof. Frits Rijkenberg, Ms Monique Salomon and Rev. Sidney Luckett are thanked for their invaluable support and encouragement.

Finally, I am most indebted to my family, especially Ms Puleng Monatisa, and to my colleagues and friends, especially Mr. Sakhile Ngcobo, Mr. Fundi Ndlovu, Mr. Gift Antonio and Mr. Bheka Memela, for their encouragement and support during the study period, and most of all to the Lord for giving me strength, wisdom and courage in difficult times during the study, especially dealing with the loss of my father and with the condition of my son.

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LIST OF ACRONYMS AND ABBREVIATIONS

CBDS	Convention on Biological Diversity Secretariat
CCFM	Canadian Council of Forest Ministers
C&I	Criteria and Indicators
CIFOR	Centre for International Forestry Research
CSFM	Committee for Sustainable Forest Management
DAFS	Department of Agriculture and Forestry
DEA	Department of Environment Affairs
DEAT	Department of Environmental Affairs and Tourism
DWAF	Department of Water Affairs and Forestry
EC	Eastern Cape Province
EFI	European Forest Institute
EGEL	Expert Group on Environmental Law
FMU	Forest Management Unit
FOA	Forest Owners Association
FSA	Forestry South Africa
FSC	Forest Stewardship Council
ICRAF	International Centre for Research in Agroforestry
IFF	Intergovernmental Forum on Forests
INR	Institute of Natural Resources
IPF	Intergovernmental Panel on Forests
ISO	International Standards Organization
ITTO	International Tropical Timber Organization
KZN	KwaZulu-Natal Province
MAF	Ministry of Agriculture and Forestry
MFC	McClain Forest Company
NEMA	National Environmental Management Act 107 of 1998
NFA	National Forest Act 84 of 1998
NFAP	National Forest Action Program of 1997
NFTP	Non-forest Timber Products

NGO	Non-governmental Organization
OECD	Organization for Economic Cooperation and Development
OSAF	Oregon Society of American Foresters
PCI&S	Principles, Criteria, Indicators and Standards
PFM	Participatory Forest Management
SA	South Africa
SAF	Society of American Foresters
SFM	Sustainable Forest Management
SPM	Sustainable Plantation Management
UK DFID	United Kingdom, Department for International Development
UNCED	United Nations Conference on Environment and Development
UNCHE	United Nations Conference on the Human Environment
UNEP	United Nations Environmental Programme
USDA	United States' Department of Agriculture
WCED	World Commission on Environment and Development
WPSFD	White Paper on Sustainable Forest Development of 1997

CHAPTER ONE

THE GENERAL INTRODUCTION

1.1 Background of the study

Globally, natural forests are being depleted at an alarming rate (Prabhu *et al.*, 1999). In South Africa (SA), there are approximately 500 000 ha of natural forest left, mainly in small isolated patches (European Forest Institute [EFI], 2000). In order to address the intense pressure on forest resources and the associated environmental degradation caused by forest operations, widespread attention has been focused on devising ways to define, measure, analyse and monitor the sustainability of forests worldwide (Prabhu *et al.*, 1999). The South African response to this challenge has resulted in the formulation of an appropriate policy published as The White Paper on Sustainable Forest Development of 1997 which is supported by The National Forests Act 84 of 1998.

The forestry industry in SA ranges from major corporate sector companies, namely Sappi and Mondi, to independent small-scale timber growers. The classification of growers into large and small-scale depends on a combination of factors, including the total area under plantation and the extent of socio-economic dependence of the grower on trees (Van der Zel, 2000; Brown, 1999; Department of Primary Industries and Energy [DPIE], 2000). The dependence of growers on trees is governed by factors such as tree species under cultivation and rotation period, the different age groups of trees, the technical level of operation and the long-term security of the forestry enterprise (Dladla, 2002 *pers. comm.*; Van der Zel, 2000).

This study describes a small-scale timber grower as an owner and/or manager of a forest plantation that ranges from 0-50 hectares in size with tree species predominantly of short-term maturity (Addo and Lewis, 2000; Ham and Theron,

1999; Department of Water Affairs and Forestry [DWAF], 1997a). However, a grower who owns a plantation of up to 200 hectares in size, predominantly of short-term maturity, established on tribal land and employs a low-scale technical operation, is also considered a small-scale timber grower.

It is a declared national objective to increase the yield of commercial plantations through improved silvicultural practices and tree breeding (EFI, 2000). The Province of KwaZulu-Natal (KZN) has witnessed a rapidly increasing number of small-scale timber growers through schemes such as Sappi's Project Grow and Mondi's Khulanathi Project (Boake, 1996; Cellier, 1994). Sappi has estimated that one third (approximately 200 000 tonnes) of its annual production in the near future may be derived from their Project Grow Scheme (Addo and Lewis, 2000). Furthermore, the small-scale timber grower sector is likely to continue growing, with opportunities in the provinces of KZN and the Eastern Cape (EC) having the greatest potential for further afforestation in SA (DWAF, 1997a).

The literature on the small-scale timber grower sector's growth emphasises that community forestry has the potential to contribute to the national goals of equitable growth, sustainable development, full employment and poverty alleviation (DWAF, 1997a). In addition, although the individual small-scale timber grower's environmental concerns may be marginal, owing to the size of operations in a watershed, the cumulative impact may be highly significant. Thus, the continuous increase in the number of the small-scale timber grower sector demonstrates the significance of this category on the debate about sustainable forestry development in SA (Ham and Theron, 1999).

In order to promote and guide best forest practices, sustainable forest management guidelines have been developed (Prabhu *et al.*, 1999). For the purpose of the study, SFM is defined as the stewardship and use of forests and their regeneration capacity, vitality and potential to fulfil, now and in future, relevant ecological,

economic and social functions, at local, national and global levels, and that does not cause damage to other ecosystems (DWAF, 1997a; Ministry of Agriculture and Forestry [MAF], 1993).

Prabhu *et al.* (1999) recommended that, in order to implement SFM successfully, the development of site-specific and field-verifiable measures (that is, standards) that reflect the condition of forests are required. A standard is defined as a set of principles, criteria, indicators and standards (PCI&S), or at least some combination of these levels, that serves as a tool to promote SFM, as a basis for monitoring and reporting or as a reference for the assessment of actual forest management or is defined as benchmarks against which an indicator can be assessed and measured. It is from the latter definition that a term standard is interchangeably used with terms such as norm and/or verifier (Lammerts van Bueren and Blom, 1997). There are couple of challenges associated with a standard development and/or administration including:

- Experience indicates that the development processes of such standards tend to be biased towards localised environmental concerns as well as social and economic interests (Nortje *et al.*, 2001);
- The Department of Water Affairs and Forestry (DWAF) through the National Forest Action Programme (NFAP) of 1997 acknowledged that there was lack of an effective policy and/or institutional framework for support to rural communities.

It is necessary therefore to address the local cumulative effects and/or outcomes of forestry management activities in the small-scale timber grower community. The abovementioned challenges are the primary reasons behind engaging with small-scale timber growers on the process to develop national principles, criteria, indicators and standards (PCI&S) for SFM. Together, PCI&S are defined as a "tool that can be used to collect and organize information in a manner that is useful in conceptualising, evaluating and implementing SFM" (Stork *et al.*, 1997).

In order to facilitate the small-scale timber growers' engagement, this study was undertaken in KZN and in association with the national project for developing PCI&S for SFM in SA. The Institute of Natural Resources (INR) led consortium conducted the national project on behalf of DWAF, supported by the United Kingdom's Department of International Development (UK DFID). This multi-disciplinary consortium provided ongoing guidance during workshops and interactions throughout this study. It should be noted that while the topic seem to suggest that the national project, and this study, were to develop the entire tool (i.e. PCI&S), the terms of reference are specifically on the development of criteria and indicators that are linked to certain principles (see paragraph below) governing the national project.

The national project was conducted throughout the country (i.e. in five provinces where plantation forest operations are prominent; namely, KZN, Mpumalanga, Eastern Cape, Western Cape and Limpompo Province).

An important and unusual in an international context, feature of the national criteria and indicators development process is that it was guided and supported by legislation, in the form of the National Forests Act 84 of 1998 and to a lesser extent, by the National Environmental Management Act 107 of 1998 (INR, 2002). Both Acts provide a set of principles for SFM and sustainable environmental management respectively that needed to be addressed by PCI&S for SFM (see Appendix 1). Such principles can not be changed by anyone except the Minister and should be endorsed by Parliament. Furthermore, standards in legislative terms are prescribed as minimum requirements, and thus, a number of other legislations relevant to forestry, including the Conservation of Agricultural Resources Act 43 of 1983 and National Water Act 36 of 1998, needed to be internalized in the PCI&S framework (see Appendix 2 for a complete list of legislations). In addition, it was central in the PCI&S development process to ensure support and commitment from all stakeholders through the integration of their perceptions for SFM. Small-scale timber

growers are an important stakeholder's group in this regard, and thus, this study dealing with their participation in the process.

1.2 The aims of the study

The aim of the study was to undertake a case study to ensure the participation of small-scale timber growers, through the identification and integration of their perceptions in the development of national PCI&S for SFM in SA.

1.3 The objectives of the study

In order to achieve the aim of this study the following set of objectives was identified:

- To share information and knowledge (both local and global perspectives) on SFM issues with small-scale timber growers;
- To identify and capture small-scale timber growers' perceptions of SFM, through the employment of participatory techniques;
- To integrate small-scale timber growers' perceptions into the development of national PCI&S for SFM;
- To keep a detailed record of the process followed in identifying and integrating the perceptions of small-scale timber growers for SFM. This should highlight the transformation from general to specific issues surrounding the development of PCI&S with small-scale timber growers.

1.4 The intended outcomes of the study

- To provide a review of small-scale forestry development and SFM within a global perspective;
- To present discussions on the identification and integration of small-scale timber growers' perceptions on SFM;

- To provide guidelines for use in the development of PCI&S processes as a future potential model to engage small-scale timber growers in key decision-making processes.

1.5 The organization of the thesis

Chapter one gives the background information regarding the study, including the aims, objectives and outcomes of this study. This is necessary in order to understand the context of the environment within which the study is embodied.

Without a sound understanding of the past, the future cannot be explored. For this reason, both chapters two and three provide an overview of SFM and small-scale timber growing conceptual framework respectively. The emphasis is on the evaluation of the development of small-scale and sustainable forestry in the context of South Africa and elsewhere.

Traditional and conventional methodologies fall short in multidisciplinary scenarios and on how to approach them. The identification and integration of small-scale timber growers' perceptions, on the other hand, required an appropriate and comprehensive methodological framework. Chapter four presents such a methodology and also looks at how it was applied.

Chapter five gives an account of the results by presenting small-scale timber growers' perceptions and the resultant PCI&S. Chapter six focuses on discussing these small-scale timber growers' views, their associated challenges and potential interventions to address such challenges. In addition, it reflects on the PCI&S addressing the expressed views.

Finally, chapter seven presents the summary and conclusions, and indicates issues for future evaluation. It concludes by highlighting the limitations of the study.

CHAPTER TWO

THE CONCEPT OF SUSTAINABLE FORESTRY MANAGEMENT: IT'S ORIGINS AND DESCRIPTION

2.1 Introduction

The increasing interdependence between international relations, and the growing complexity of the associated systems, manifest themselves in an expanding concept of security (Steytler, 1997). Although derived from a military discourse, the concept of security has evolved to embrace social, economic and environmental factors (Mische, 1989). In addition, environmental security presupposes a sustainable use of natural resources (Steytler, 1997). For the purpose of this study, sustainable development is defined as a development which continuously and increasingly contributes to a more equitable distribution of economic resources and environmental burden amongst parties sharing a common, but differentiated, responsibility for development that meets the needs of the present without compromising the ability of future generations to meet their own needs (Steytler, 1997). The process of political legitimisation for sustainable development has a long history going back to at least as early as the United Nations Conference on the Human Environment (UNCHE) held in Stockholm in 1972 (Steytler, 1997). For example, the South African State introduced environmental conservation laws as early as the late 19th century (Owen *et al.*, 2000), whose principles were based on long-term resource sustainability. Most recently, the publication of the South African White Paper on Sustainable Forest Development in 1997 and the subsequent National Forest Act in 1998 were linked to the development of international sustainable forestry protocols (Convention of Biological Diversity Secretariat [CBDS], 1992).

Although the discussion about sustainable forestry has been on going, there is, however, little agreement on how it should be constituted and measured. This is very important, since proposals for approaches that might be acceptable for one group

might not be acceptable for others. There is, therefore, a need to explore in detail the development of sustainable forestry. This chapter provides an overview of sustainable forestry development including an SFM conceptual framework.

2.2 The political legitimisation of the sustainable forestry concept

The United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992 was one of the most noticeable milestones because it promoted a holistic view of social, economic and environment issues (CBDS, 1992). Progressively, the international community became aware that the issue of the environment should be seen in terms of its global parameters, and not purely in relation to the specific concerns of a particular group of states (Timoshenko, 1995). During this period, international environment and development legal institutions proliferated, resulting in a multitude of dispersed instruments, conceived with different objectives and independently administered and pursued (Steytler, 1997). The haphazard nature of instruments, generated at the time, necessitated the establishment of new institutions, including the World Commission on Environment and Development (WCED) and the Expert Group on Environmental Law (EGEL). These new institutions were aimed at synthesizing and co-ordinating various environmental and developmental activities (Timoshenko, 1995), including:

- To ensure that future policy-making is more coherent and cost-effective with long-term view;
- To promote technological innovation and stronger involvement of civil society and business in policy formation;
- To tackle challenges of climate change, threats to public health, depletion of natural resources, traffic congestion and land use problems.

The concept of sustainable development, thus gained a measure of political legitimacy (Timosheko, 1995), and began to gradually take its place on the agenda of academic discourse on the fundamentals of the international legal order (Steytler, 1997).

In 1990, the South African Department of Environmental Affairs (DEA) prepared the National Report on Sustainable Development (DEA, 1992), which was submitted to the UNCED. At UNCED, the world's governments reached consensus on the goal of sustainable development and acknowledged the inextricable link between sound environments and sound economics (Owen *et al.,* 2000). Furthermore, at UNCED a number of commitments and agreements concerning forests were adopted, including the following (CBDS, 1992):

- A Statement of Forest Principles;
- An Agenda 21 – 'Combating Deforestation';
- A Biodiversity Convention;
- A Framework Convention on Climate Change.

In addition, UNCED also recognized the need to promote international, regional and global cooperation among states, intergovernmental organizations and the non-governmental sector. This gave rise to the formation, amongst others, of the Intergovernmental Panel on Forests (IPF), which later became known as the Intergovernmental Forum on Forests (IFF) (Oregon Society of American Foresters [OSAF], 2000). The IPF concluded its work in 1997, but the IFF continued until the year 2000.

Progressively, substantial grounds for sustainable development have been established to promote further development of international environmental law. Such development has taken into account the declarations of UNCHE, WCED, EGEL, UNCED, IPF, IFF, as well as the needs and concerns of developing countries. Amongst other developments, has been the general consensus on using a hierarchical system of PCI&S to conceptualise, evaluate and implement SFM (Lammerts van Beuren and Blom, 1997). Furthermore, a number of intergovernmental PCI&S processes have been developed (Owen *et al.*, 2000), including:

- The African Timber Organization (ATO) Standards, which was initiated in 1995 for tropical forests on the continent;

- The Central American Process of Lepatherique (CAPL);
- The Dry Zone Africa Process (DZAP);
- The International Tropical Timber Organization (ITTO) processes which started in 1990;
- The Montreal Process: the criteria and indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests developed by ten States (Australia, Canada, Chile, China, Japan, Korea, Mexico, New Zealand, Russia and USA) in 1995;
- The North Africa and Near East Process (NANEP);
- The Helsinki Process: the Pan-European criteria and indicators for SFM by Ministerial Conference on the Protection of Forests in Europe in 1993;
- The Amazonian Criteria and Indicators: the Tarapato Proposal was started in 1995 as the Amazon Co-operation Treaty.

There have also been a number of non-governmental initiatives aimed at SFM, and for the provision of environmental information about forestry at the level of forest operation (Higman *et al.*, 2000). Some of these initiatives are based on protocols such as those of the International Standards Organisation (ISO), the Centre for International Forestry Research (CIFOR), and others (OSAF, 2000). Other non-governmental initiatives are consumer-driven in origin, such as the certification scheme promoted by the Forest Stewardship Council (FSC) which aims at accrediting wood products which are sourced from proven sustainably managed forests (OSAF, 2000).

The publication of the White Paper on Sustainable Forest Development in 1997 represented the South African government's commitment to facilitate the process of developing PCI&S (Owen *et al.*, 2000). It was, however, the promulgation of the National Forests Act 84 of 1998, which brought about the development of the PCI&S process. In doing so, the South African government, through the Committee for Sustainable Forest Management (CSFM), commissioned a national project to

prepare PCI&S for SFM with the assistance of the United Kingdom government's Department for International Development (UK DFID) (DWAF, 2000; DWAF, 2001). This is the project referred to as 'the development of PCI&S for SFM in SA'.

2.3 A sustainable forest management conceptual framework

Although SFM is conceptually straight forward (as defined in chapter one), its application in practice is more difficult (Higman *et al.*, 2000). While there are divergent views on the scope of SFM, the South African approach is based on the following principles that are within the SFM conceptual definition adopted (DWAF, 1997a; DWAF, 1997b; Department of Environmental and Tourism [DEAT], 1996):

- Forests simultaneously provide a wide range of services and benefits to South Africans, and the sustainable management of forests involves managing forests as ecosystems, including;
  - Recreational, cultural and aesthetic values;
  - Natural resources and habitants; and
  - Economic values, i.e. non-timber forest products, tourism and timber.
- Sustainable forest management involves an integration of environmental benefits and values, socio-economic and cultural benefits to meet human needs, and institutional arrangements to formulate and implement appropriate policies and programmes and to monitor their effectiveness;
- The responsibility for the sustainable management of South Africa's forests lies with the forest community, as well as with other components of South African society. Achieving this responsibility involves minimising the impairment of forest ecosystems, and avoiding irreversible damage due to forest-based human interventions (e.g.: harvesting, reforestation);
- Progress towards the goal of SFM should be measured through the development and implementation of PCI&S that are internationally credible.

2.3.1 Principles, criteria, indicators and standards

Hammond *et al.* (1995) mentions that the term 'indicator' goes back to the Latin verb *indicare*, meaning to disclose or point-out, to announce or make publicly known, or to estimate or put a value on. Indicators provide an important means of communicating information about the progress towards SFM (DEAT, 1996). International initiatives on PCI&S for SFM are usually arranged in a hierarchical framework (see Figure 1). The Tropenbos Institute's hierarchical framework for C&I became the standard in forest monitoring and has been adopted by most forest services (Lammerts van Bueren and Blom, 1997). The framework's elements and levels are briefly defined and illustrated with examples below.

2.3.1.1 Principles

According to Prabhu *et al.* (1999), principles in the context of SFM are seen as providing the primary framework for managing forests in a sustainable fashion. They are fundamental rules, truths or laws that serve as a basis for reasoning and action. They have the character of an objective or attitude concerning the function of the forest ecosystem or concerning a relevant aspect of the social system that interacts with the ecosystem (Lammerts van Bueren and Blom, 1997). In general, principles are explicit elements of a goal. An example of a principle could be (United States' Department of Agriculture [USDA], 2000; USDA, 2001):

- *Principle A. Maintain and enhance ecosystem integrity.*

2.3.1.2 Criteria

Criteria are, hierarchically, the second order of principles that add measurement and operationality to a principle without themselves being direct measures of performance (Prabhu *et al.*, 1999). The roles of criteria are to characterise and/or define the essential elements or sets of conditions and processes that SFM may be assessed against. The level of a criterion shows compliance with a principle of the forest ecosystem (Lammerts van Bueren and Blom, 1997). A linked example of a criterion to the principle above could be (USDA, 2000; USDA, 2001):

- *Criterion A.1 Maintain soil condition and productivity.*

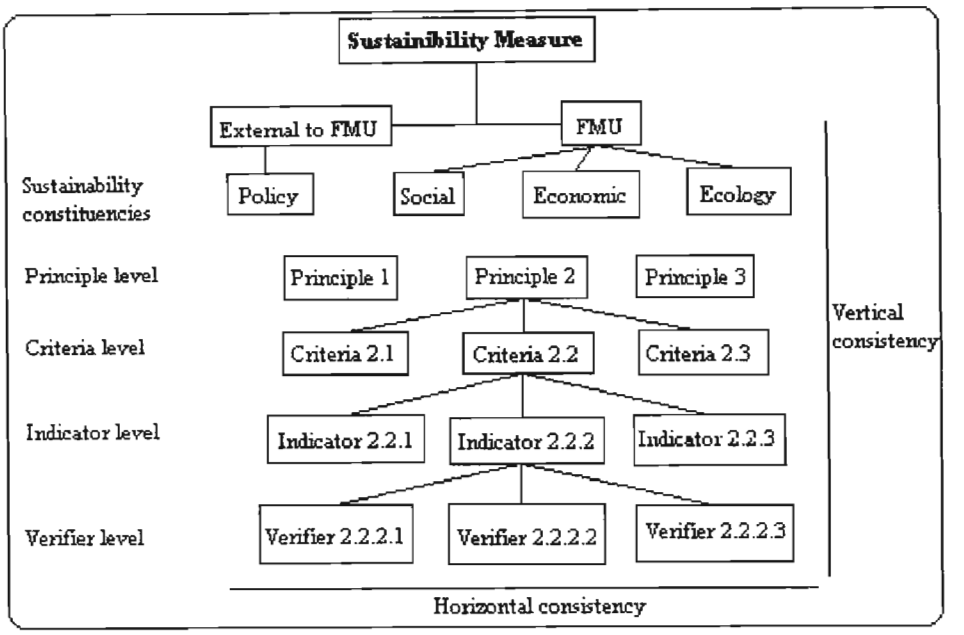

Figure 1. Model of hierarchically correct, and horizontal and vertical consistent standards for SFM

2.3.1.3 Indicators

Indicators are, hierarchically, a level below criteria. They are quantitative, qualitative or descriptive measures that, when periodically evaluated and monitored, show the direction of change (Prabhu *et al.*, 1999). Their function is to attach assessable parameters to criteria, which themselves are seldom possible to measure directly (Lammerts van Bueren and Blom, 1997). Indicators serve as the practical basis for monitoring and reporting tools for management decisions and for assessing to what extent principles are followed and their related criteria fulfilled (Lammerts van Bueren and Blom, 1997). Although the overall monitoring framework provides the guidance or context of assessment and decision-making, indicators are the primary level at which monitoring occurs.

A linked example of an indicator to the criterion above could be (USDA, 2000; USDA, 2001):

- *Indicator A.1.1 Percentage of harvested area with degraded soil quality, including soil compaction, displacement, erosion, puddling and loss of organic material.*

2.3.1.4 Standards or verifiers

Verifiers are, hierarchically, the fourth level and provide the specific details that indicators are measured against in the field (Mendoza *et al.*, 2000). They are the source of information and the reference values for the indicators (IFF, 1999). Verifiers may define the limits of a hypothetical zone from which recovery can still take place (performance threshold or target), and/or may also be defined as procedures needed to determine satisfaction of the conditions postulated in the indicator concerned (means of verification) (Prabhu *et al.*, 1999).

A systematic and documented verification process is needed to objectively obtain and evaluate evidence to determine whether conformity to verifiers has been achieved (Society of American Foresters [SAF], undated). Verification may either be first-, second-, or third-party, as outlined below:

- First-party or self-verification is conducted from within the organization by individuals with appropriate expertise and experience, who are not accountable to those directly responsible for the subject matter being verified;
- Second-party verification is conducted from outside the organisation by an affiliated or interested group such as a forest products trade association, another forestry organization and/or a customer;
- Third-party verification is conducted from outside the organization by an independent group or consultant, which has no financial interest in the organization being verified.

A linked example of a verifier to the indicator above could be (USDA, 2000; USDA, 2001):

- *Standard A.1.1.1 Less than 25% soil degradation total within harvested areas by ecotype.*

Although, in the examples of PCI&S above, each principle has one criterion, indicator and standard, in reality, each criterion relates to a key element of sustainability in forestry, and may be characterized by one or more related quantitative, qualitative and/or descriptive indicators. Thus, no single criterion or indicator will comprise a measure of sustainability, rather each needs to be considered in the context of other C&I over time to reflect the trend toward SFM (Owen *et al.*, 2000). Therefore, C&I can be considered as a network or web to capture key information on management activities and trends, rather than a complete dataset of every aspect related to the management of forests (Prabhu *et al.*, 1999).

2.3.2 Pressure, state and response indicators

A widely used framework for environmental indicators arises from a simple set of questions (Hammond *et al.*, 1995):

- What is happening to the state of the environment or natural resources?;
- Why is it happening?;
- What are we doing about it?

Indicators of change or trends in the physical or biological state of the natural world (*state indicators*) answer the first question. Indicators of pressures or stresses from human activities that cause environmental change (*pressure indicators*) answer the second question. Measures of the policies adopted in response to environmental problems (*response indicators*) answer the third question (see Figure 2).

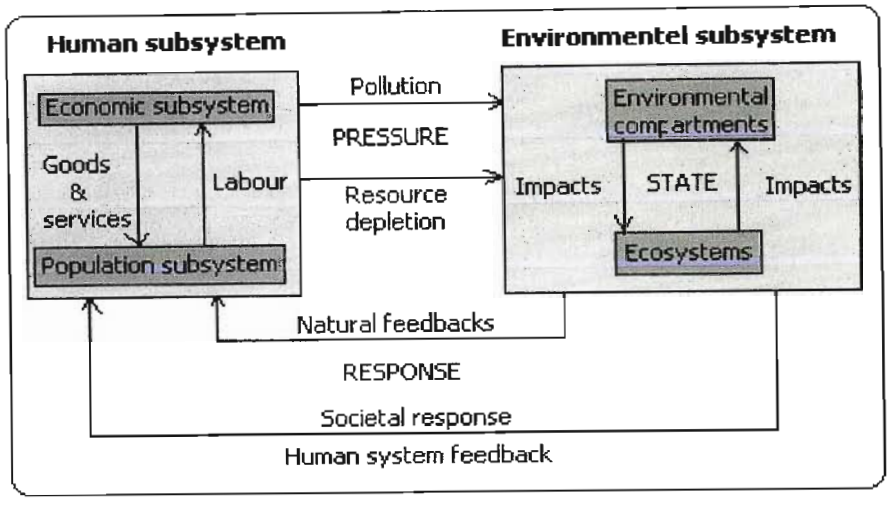

Figure 2. Pressure – State – Response Framework for Indicators (Hammond *et al.*, 1995)

A pressure – state – response indicator framework follows the causes – effects – social responses logic that was developed by the Organization for Economic Co-operation and Development (OECD) from earlier work done by the Canadian Government (OECD, 1993). It is a framework that is globally accepted, and adopted to develop environmental and sustainable development indicators at all levels (Hammond *et al.*, 1995; Ministry of Agriculture and Forestry [MAF], 1996).

2.3.3 Input and outcome indicators

Traditionally, natural resource agencies have focused on evaluating outputs, the number of projects completed, dollars spent, or widgets placed to connote achievements (Whitty *et al.*, 2000). Such traditional approaches have recently been challenged by many institutions because focusing on outputs does not necessarily translate into outcomes or results. For that reason, Whitty *et al.* (2000) proposed that each agency or government should adopt outcome-based tracks within each management programme whereby entities (companies, landowners, communities, etc) would be held accountable for achieving goals and objectives, but be free to choose how to accomplish the desired ends.

Outcome-based programmes are fundamentally different from traditional approaches. Rather than micro-managing entities on how compliance is achieved, governments' primary role(s) in outcome-based programmes include (Whitty *et al.*, 2000):

- Setting clear goals, objectives and interim benchmarks;
- Providing technical assistance and incentives to help entities to develop their own customized, least-cost path to achieve the objectives. An entity decides on its own, how to allocate resources to achieve the needed outcomes;
- Monitoring progress in verifying that interim objectives and benchmarks are met to assure compliance.

In addressing some questions about participation, Whitty *et al.* (2000), stated that bottom-up approaches are key cornerstones of outcome-based programmes. Theoretically, this means that outcome-based programmes are informed by, and reflect the societal knowledge and perceptions. This in turn should facilitate acceptance of such outcomes by the society. The participation of small growers is a fundamental cornerstone of the present study, concerned with the integration of their perceptions into the national SFM programme.

2.3.4 The value of criteria and indicators in sustainable forest management

Accepting SFM as a management paradigm carries with it the necessity and responsibility of monitoring the progress toward achieving its goals and objectives and the maintenance of forest related values (McClain, 1998). The question then, is, how is it known that a good job is being done to maintain our ecosystem sustainably for the present and future generations. Prabhu *et al.* (1999) suggests that, in order to implement SFM successfully, a development of site-specific and field-verifiable measures that reflect the conditions of forests are required. The concept of developing C&I for SFM is also aimed at facilitating communication and providing necessary information for decision-making, policy and planning (Hammond *et al.*,

1995). Criteria and indicators are derived from environmental data, and are not an end in themselves, but rather a tool to better organize, synthesize, and use information to assess trends and changes in the condition of the forests (DEAT, 1996).

In line with the adopted definition, sustainability involves, at a minimum, the interaction between economic, social and ecological factors (Hammond *et al*, 1995). Progressing towards this state, however, means directing and converging policy and decision-making attention on these factors. Similarly, it would be extremely important to monitor and assess results and/or the impact of such policies and decisions (DEAT, 1996). To this end, criteria and indicators can become valuable tools for measuring, monitoring and communicating information about the environment, and the activities that affect it. In this instance, such C&I should, therefore, focus public attention, and influence national and/or international policy decisions (Hammond *et al.*, 1995). That is, they should point and provide information, and improve understanding, decision-making and leadership in environmental management. In short, Hammond *et al.* (1995), and Bourke and Wijewardana (1999) summed up the use and value of C&I as follows:

- To monitor and assess conditions and trends from a local to a global scale;
- To assess the effectiveness of policy-making;
- To mark progress against a stated bench-mark;
- To monitor changes in public attitude and behaviour;
- To ensure understanding, participation and transparency in information transfer between interested and affected parties;
- To forecast and project trends;
- To provide early warning information.

2.3.5 Scale of criteria and indicators implementation

Criteria and indicators need to accommodate unique geographical, social, economic and ecological conditions at various levels and scales (Higman *et al.*, 2000). National C&I sets are usually developed for application at local, provincial and national levels

(Lewis, 2002). These C&I should allow a local, provincial and national manager and policy maker to react appropriately to the pressures being exerted on forests, and implement flexible and responsive management measures (INR, 2001). The present study only focused on a local level and related issues as presented and discussed in chapter five and six respectively.

As part of the international sustainable development, a number of C&I processes have been initiated. These C&I are applied at the national and/or regional levels. They are national C&I which have been developed and agreed to internationally. Baharuddin & Samula (1996) argue, that despite being broad in nature, many nations are using these internationally established C&I as a foundation to develop their domestic standards in order to:

- Enhance an awareness, knowledge and appreciation for the measurement of progress towards SFM;
- Provide a more complete set of C&I to better serve the needs of that nation;
- Foster the political support necessary to achieve SFM;
- Develop the social capital necessary for SFM.

2.4 The relationship between criteria and indicators, and certification

There are mixed conceptions derived from literature dealing with the relationship between C&I and certification, on whether or not there is actually a relationship between the two. In order to provide clarity on this question, C&I and certification purposes, functions and originality are explored here. As discussed earlier, C&I are tools designed to measure, assess and demonstrate progress towards SFM, at a given scale over time. Criteria and indicators are not an end in themselves, but, rather act as early cautioners. Furthermore, they can be input or outcome based. On the other hand, certification is a process to certify an achievement of predefined forest management standards for a given area and at a given point in time (Bourke and Wijewardana, 1999). In other words, it is upon an achievement of a prescribed management tool that an entity becomes certified (Owen *et al.*, 2000). Therefore,

certification is an end-result of a successful and lasting implementation of SFM practices (Higman *et al.*, 2000; Owen *et al.*, 2000).

2.5 Conclusions

There have been considerable developments in the debate about the SFM concept in recent years. This has further given rise to knowledge generation about the most desirable attributes of SFM. However, there is still considerable antagonism amongst stakeholders on how to respond to such SFM attributes. There is, therefore, a need for continued deliberation in seeking converging measures. Concurrent to the political debate, there has been agreement in that SFM is constituted of social, economic and ecological factors. In other words, the SFM definition no longer refers only to the sustainable production of timber, but considers the environment in a broader sense. While this might be so, there are some confusion about the relative importance of the various issues and how they should be implemented. This is where C&I become a useful tool to provide the much needed generic guidance.

CHAPTER THREE

DEVELOPMENT OF SMALL-SCALE TIMBER GROWER ACTIVITY IN SOUTH AFRICA

3.1 Introduction

The last decade has witnessed the development of small-scale timber growing at a rapidly increasing rate in rural communities of SA. Small-scale timber growing is aimed at engaging rural communities in forestry and facilitating local development. However, to understand small-scale timber growing in its entirety, an investigation of its origins is necessary. For this reason, an overview of small-scale timber growing development, its institutional arrangements and support are considered in this chapter. Furthermore, sustainable small-scale forestry management is explored, and finally, some concluding remarks are made.

3.2 An overview of small-scale timber growing development

South Africa is not naturally a forest country: even at their peak, natural forests accounted for less than 1.5% (1 500 000 ha) of the total surface area (EFI, 2000). Overexploitation as a result of commercial use, a rapidly increasing population, deforestation and fire, has caused extensive degradation of the natural resource base throughout SA (EFI, 2000). Owing to such detrimental impact, woodlots were established in 1893 in King Williams Town by the State to provide firewood and building material for rural blacks (Gandar, 1994; Cairns, 1995). In addition, commercial plantations of pine, gum and wattle were initiated three years later (1896), when the State planted trees in the Knysna area and Eastern Cape (DWAF, 1995).

South Africa has 1 351 402 ha of plantations, mainly timber which is used for pulp, sawn timber, mining timber, panel products, poles, charcoal and firewood (Forestry South Africa [FSA], 2002a). According to the year 2000 statistics, SA was able to

meet 90% of its domestic demand for commercial forest products (EFI, 2000). However, this situation is unlikely to remain in a satisfactory state if demand continues to increase. This is borne-out from past experiences, such as in Korea where consumption of paperboards increased from 13 kg to 100 kg per capita between 1970 and 1990 and in Sweden where the consumption increased from 195 kg to 225 kg per capita over the same time frame (Scotcher, 1995). Such changes indicate that the South African economic growth and development is likely to result in similar trends, where the current annual paper consumption is 42 kg per capita (Edwards, 2003 *pers. comm.*). Thus, if future needs are to be met, an extension of the resource base has to be explored. In contrast, the implementation of the 'wetland and/or riparian habitats: a practical procedure for identification and delineation' recently endorsed by DWAF will add to the reduction of the timber planted area.

There is little scope for extending the area under commercial plantations, since competition for water-use and the limitation of land availability, has resulted in legal and physical restrictions on planting respectively (Forest Owners Association [FOA], 1998). In contrast, Christie and Gander (1995), and Ham and Theron (1999) mentioned that the average increase of the number of small-scale timber growers versus hectares under plantation in KZN was such that there is an ever-increasing number of new small growers entering forestry through Project Grow, Lima, Khulanathi, Wattle Growers and others schemes (see Table 1 below).

Table 1. Growing number of small-scale timber growers, and their plantations in KZN (Ngubane, 2002a *pers. comm.*; Cele, 2002a *pers. comm.*; Dladla, 2002 *pers. comm.*; Ngubane, 2002b *pers. comm.*; and Mack, 2003 *pers.comm.*)

COMPANY	NO. OF GROWERS (1995)	HECTARES PLANTED (1995)	NO. OF GROWERS (1998)	HECTARES PLANTED (1998)	NO. OF GROWERS (2001)	HECTARES PLANTED (2001)
SAPPI Project Grow	1 538	3 058	2 315	6 213	3 802	10 791
LIMA	1 600	1 084	3 742	2 061	4 710	3 742
Mondi Khulanathi	1 553	1 039	2 810	5 804	2 912	6 021
Independent growers	364	746	?	?	4 320	?
Wattle growers	1 900	7 772	?	?	2 860	?
Total	**7 735**	**11 699**	?	?	**18 604**	?

Such small-scale timber grower schemes are regarded as non-viable in commercial terms, i.e. an average plantation size for small-scale timber growers range between one and two hectares. Compared to a benchmark of a minimum of eight hectares for an economic entity, these schemes are unsustainable from a pure business perspective, and form part of the principles' social responsibility programmes (see section 3.3). This, however, indicates a growing trend in the commercial timber industry to link-up with communities as business partners in a quest to expand timber resources. Othusitse (1997) mentioned that small-scale timber grower schemes such as the Sappi Project Grow might be important vehicles in facilitating the attainment of timber requirements for the future. Furthermore, there are approximately forty thousand hectares (40 000 ha) available in rural communities of KZN for potential afforestation aimed at promoting development of small-scale timber growers (Perkins, 2004).

3.3 The institutional arrangements and support for small-scale timber growers

The institutional arrangements and support for small-scale timber growers is located within contract, individual or community, and/or mixed farming (Cairns, 1995; Gregersen, *et al.*, 1989).

3.3.1 Contract farming

Contract farming is a symbiotic relationship between a private firm and/or an agribusiness and a farmer or grower (Cairns, 1995). The contract specifies several conditions and obligations for both parties (Glover and Kusterer, 1989). For instance, while a firm supplements its production with an assured volume of consistent quality, a grower basically secures relevant support and a market through a contract. These elements are reflected in the following small-scale timber programmes:

- SAPPI – *The Project Grow Small-scale Timber Grower Scheme* was established in 1983 and has more than 3 200 members on the KZN north coast assisting small-scale timber growers with interest free loans, technical

information, extension services and markets for timber (Gumede, 2002 *pers. comm.*);

- MONDI – *The Khulanathi Small-scale Timber Grower Scheme* was established in 1988 and has more than 2 900 members in the northern part of KZN assisting small-scale timber growers with interest loans, technical information and markets for timber (Cele, 2002a *pers. comm.*);
- LIMA Rural Development Foundation – administering the *SAPPI Project Grow Scheme* on the KZN south coast on an outsourced basis. LIMA established and administered this grower scheme to serve the SAPPI SAICOR Mill in 1989 and had more than 4 000 members (Mack, 2003 *pers. comm.*). However, due to the contract termination between SAPPI and LIMA early in 2003, SAPPI assumed administration of the scheme from that point on;
- Wattle Growers Association (WGA) – *The Phezukomkhono Small-scale Timber Grower Scheme* was established in 1994 and looks after the interests of small-scale wattle growers (Feely, 2003 *pers. comm.*). Small-scale wattle growers were originally initiated by the KwaZulu Department of Agriculture and Forestry, and were incorporated under WGA in 1993 (Ngubane, 2002b *pers. comm.*). The scheme has more than 2 800 members and has representation on the Board of Directors for the WGA (Ngubane, 2002b *pers. comm.*). It supports members with loans, technical information and a market for bark;
- NCT Forestry Cooperative (NCT) – *The Independent Small-scale Timber Grower Support Programme* was established in 1999 purely to broker and market timber for its members (Dladla, 2002 *pers. comm.*). NCT is a major shareholder of the Central Timber Cooperative (CTC) which marketed approximately 150 000, 270 000 and 290 000 tons of timber on behalf of small-scale timber growers during the 2001, 2002 and 2003 financial years, respectively, in Richards Bay (Dladla, 2003 *pers. comm.*). The NCT support programme secures markets for independent small-scale timber growers

and those associated with the WGA (Dladla, 2002 *pers. comm.*). The programme has more than 3 000 members, is represented on the NCT Board of Directors, and supports its members with technical information and markets for timber (Dladla, 2003 *pers. comm.*).

Furthermore, the principles of these programmes also assist small-scale timber growers with the establishment of their committees and/or co-operatives. These small-scale timber growers' institutional organisations become important channels for forestry related negotiations, consultation and information dissemination (Feely, 2003 *pers. comm.*). In addition, small growers are assisted with training and/or capacity building in silvicultural practices, including planting, thinning, pruning, fire control and committee's administration (Ngubane, 2002b *pers. comm.*).

3.3.2 Social forestry

Social forestry is defined as any immediate involvement of local people in a forestry activity to provide the means of livelihoods so that rural populations can supply, or have better access to, certain basic needs in the form of essential forest and tree products, and generate income (Department of Forestry, 1978). This takes cognisance and embraces a spectrum of situations ranging from woodlots in areas which are short of wood and other forest products for local needs, the growing of trees at the farm level to provide cash crops and the processing of forest products at the household, artisan or small industry level to generate income, to the activities of forest dwelling communities (Department of Forestry, 1978). The aforementioned small-scale timber grower schemes and/or programmes also resemble social forestry principles in that owners also use unmarketable timber for other purposes like firewood, fencing and building (Masuku, 2003 *pers. comm.*).

3.4 Sustainable small-scale forestry management

While the production and institutional support for small-scale timber growers in SA is competitive, SFM has not been absorbed and practiced as expected compared to

other big forestry entities. In other words, the growth and development of small-scale growing activities has not culminated into a capacity that would enable them to observe SFM. Sustainable small-scale forestry management needs to be explored and developed because small-scale timber grower activity is an important component in the South African forestry industry, and elsewhere in the world. This is looked at more closely in the following sections.

3.4.1 Background

Since their establishment, SFM standards' institutions have always placed equal emphasis and importance on good forest management practices for all forests owners and/or managers. However, by early 1999, of the 15 million hectares of forests under sustainable management, small-scale forestry only constituted 1 % of the total (Thornber, 1999). Amongst other reasons, this was due to the fact that economies of scale were such that managers of larger forest units make a lower investment per hectare (of time and money) to obtain and maintain SFM, than managers of smaller forest units, due to the associated fixed costs (Higman and Nussbaum, 2002). In other countries, small timber enterprises make up the majority of forested land and/or possess a high opportunity for extension (Camino, 2001). The collective impact of supporting small forest owners on SFM can therefore have considerable implications on the livelihoods of many thousands of communities and environments around the world. These are critical, localised issues that SFM needs to consider. Higman and Nussbaum (2002) mention that important challenges for SFM initiatives now include the development of strategies to embrace a broader array of forest operations, and to support and help foster resource protection and the provision of instruments for all to recognize these forest stewards. There are three main issues that appear to cause problems for small forest owners wishing to adopt SFM and these are cost, compliance and access (see section 3.4.2).

3.4.2 Challenges facing small-scale timber growers on SFM

3.4.2.1 Sustainable forest management cost

It is clear from an analysis of the total costs associated with SFM for a range of forest organisations, that the cost per hectare or cubic metre decreases with the increasing size of the entity being assessed (Nussbuam *et al.*, 2001). There are minimum costs to the SFM process, below which it is not possible to reduce with the decreasing size of the entity being assessed (Camino, 2001). The exact figure for this minimum varies between countries, scale and assessing bodies, but an amount of R6.30 per hectare on average is probably an absolute low for full assessment without subsidy (Marias, 2004 *pers. comm.*). Beyond doubt, for a small forest owner, this is very high. In addition, to the costs of SFM assessment, there are also costs associated with compliance (Nussbuam *et al.*, 2001). This is a more complex area. It is clearly a real issue, since SFM assessing bodies have examples where they have required improvements that certainly had associated costs prior to any assessment of small forest entities. However, it can be argued that if the costs are associated with implementing good forestry practices then they are necessary costs. There is a problem, however, if such requirements for compliance are inappropriate for a small forest entity. This is deliberated in the following and second challenge.

3.4.2.2 Compliance with sustainable forest management principles

The second problem faced by small forest owners is that of understanding and implementing the requirements of the standards. This can be divided into two interpretations:

- Firstly, SFM standards are too long, complicated and use complex language (Nussbaum *et al.*, 2001). Remarks by assessing bodies and others leave no doubt that, for many small forest owners, this is a huge barrier (Camino, 2001). In addition, where standards complication may have been overcome, the next immediate problem is the type of language used;
- Secondly, some requirements are inappropriate, irrelevant and/or not feasible for small forest owners' to implement (Higman and Nussbaum,

2002). These could be requirements at landscape or higher-level values, which cannot be fulfilled individually on a small-scale.

3.4.2.3 Access to sustainable forest management information

The third prevalent problem is that small forest owners are finding it difficult to gain access to information on SFM (Nussbaum *et al.*, 2001; Camino, 2001). This is particularly a challenge in regions where SFM has not been investigated locally. In such cases, small forest owners wishing to explore SFM would have no option but to contact foreign organisations, probably in another language, in order to proceed. Experience shows that the result of this is likely to be a failure of small forest owners to make contact with such bodies (Nussbaum *et al.*, 2001). Based on this argument, it would appear that a lack of a local SFM capacity could be, or is, a barrier for small forest owners in other regions.

3.4.3 Sustainable small-scale forestry management initiatives

In response to the potential challenges faced by small forest owners, a number of initiatives have already been undertaken, including:

- Identifying small-scale timber growers as an important stakeholders group in the South African national project for the development of PCI&S for SFM. This is an important undertaking as engaging small-scale timber growers in the process would improve and facilitate (INR, 2001):
    - better information and experience sharing about small-scale forestry at all levels;
    - small-scale timber growers' participation in the national standards setting process.
- A Small and Low Impact Managed Forests (SLIMF) initiative is being undertaken internationally by the Forest Stewardship Council (FSC) using group models (FSC, 2003). This is a promising programme because, by forming a group and engaging in SFM as a single entity, small forest owners gain some economies of scale enjoyed by larger competitors. There are two

types of group schemes, namely conventional and resource manager programmes (Nussbaum *et al.*, 2001):

- the conventional group is comprised of a group manager who defines the requirements for membership and then co-ordinates and monitors the activities of group members. Here, each member of the group is responsible for managing his or her own forest;
- the resource manager, on the other hand, actually manages the members' forests on their behalf. It is claimed that the resource manager option is somewhat simpler to manage and certify.

While these, and other initiatives, are aimed at addressing some of small forest owners' challenges, they are by no means comprehensive and an end in themselves. Thus, there is still a need for more and well-orchestrated interventions.

3.5 Conclusion

In spite of the apparent on large-scale restrictions, small-scale forestry has a potential to grow in the South African context. In order to ensure its growth and development, small-scale forestry has to acquiesce to the principles of SFM, as do any other entities, irrespective of scale. However, current initiatives aimed at assisting small forest owners' to address their SFM challenges are only partially successful, and not sufficient to remove most barriers. They have focused on creating an enabling environment for small forest owners from an outsiders' perspective by trying to engage them and define relevant standards. There is, however, still a need for initiatives aimed at assisting small forest owners on how to achieve such SFM standards; that is, investigating an appropriate management systems.

CHAPTER FOUR

THE METHODOLOGICAL FRAMEWORK OF THE STUDY

4.1 Introduction

Although the concept of sustainable forest management (SFM) is not new, its principles and the manner in which they are approached remain dispersed. This, however, is not unique to the concept of SFM; other fields such as sustainable agriculture have similar circumstances as well. What is unique though, about SFM, is its holistic perspective (i.e. the intersection between social, economic and environmental factors) for development. Its uniqueness presents a complex situation to be dealt with, and needs a methodological relevance. Such a methodological framework should be able to:

- Facilitate the integration of all factors into a unified and coherent outcome (Ackof, 1997);
- Bring about improvement in areas of people engagement and create a never-ending learning cycle (Checkland and Scholes, 1990).

Considering the conceptual framework for sustainable forestry management and sustainable small-scale forestry given in chapters two and three respectively, the overall study methodology adopted a holistic and participatory approach in engaging small timber growers in the development of principles, criteria, indicators and standards (PCI&S) for SFM in South Africa. This is reflected in the discussion of different components of the methodology, including an evaluation of SFM base information, selection of the study area, principles of best practice for C&I development, participatory rural appraisal (PRA) methods, and deductive and inductive approach for integration of small-scale timber growers' perceptions.

4.2 An evaluation of the sustainable forest management information base

Resource monitoring has increasingly become an important activity of resource management, which is consistent with the intent of sustainable development (McClain, 1998). However, due to the complexities of issues surrounding sustainable development, including a lack of a unanimously agreed definition, monitoring progress toward this state is difficult (Higman *et al.*, 2000). Managers are taking into account public concerns over the manner in which forests are managed, and in turn, are attempting to respond to the multitude of values that the public wishes to see maintained (Hammond *et al.*, 1995). Often, values may compete depending on which public (local, provincial, national and/or international) is requesting the value to be maintained.

> *For example, "the preservation of old growth forests is an issue favoured by international publics, but this may not entirely be consistent with maintaining a healthy forest that provides local community well-being. Managers occasionally face an uninformed public, which can confuse the method of obtaining the value or goal with the value or goal itself. Thus, no clear-cutting becomes a value and goal"* (McClain, 1998, 1).

Progressing toward SFM may also be slowed by changing public values, yet decisions based on currently held views of the public set the stage to achieve long term goals making it difficult to alter outcomes as values change (McClain, 1998). Furthermore, ecosystems change with time, and, less frequently recognized by the public is that, these changes are associated and influenced by complex natural processes that human-beings have no control over (Canadian Council of Forest Ministers [CCFM], 1995). There is, therefore, an inherent risk or probability of achieving something other than the desired goal (McClain, 1998). The question of the acceptability of the outcome then arises. It is here where the concept of PCI&S as an agreed tool to guide progress towards SFM becomes critical.

The base of SFM information used as an input and guide to identify small-scale timber growers' perceptions was one of the outcomes of a literature review from a number of international sources, including publications by the Centre for International Forestry Research (CIFOR). This SFM base information was converted, with the assistance of the national project, into generic issue-clusters that were taken forward to engage and appraise small-scale timber growers' perceptions on SFM (see Table 2). It should be noted that some issue-clusters were not clear-cut and therefore could have been fitted into more than one sustainability pillar, depending on the basis of judgment. This confirms Hammond's *et al.*'s (1995) observation that sustainability involves, at a minimum, the interaction between economic, social and environmental factors.

Table 2. Sustainable forest management generic issue-clusters

Social	Economic	Policy	Environment
Tenure	Globalization	Policy review & reporting	Management & planning
Access to resources	Outputs/profits	Compliance with legislation	Biodiversity
Sites of significance	Value of non-forest timber product (NFTP)	Institutional capacity	Soil vitality
Stakeholder consultation	Waste minimization /optimization	Integrated planning/ cooperation	Water vitality
Health & safety	Employment	Research & development	Security of resource base
Empowerment, education & awareness	Diversification	Local government & traditional authorities	Ecological processes
Participatory management	Rural livelihoods		Promotion of indigenous species
Equity	Provincial development		Forest protection
Public satisfaction	Standing stock/resource base		Resource use
HIV/AIDS	Productivity, quality & quantity		
Disadvantaged groups	Harvest rates		
Impacts of people on forests/forests on people			
Needs			

4.3 The selection of the study area

The selection of the study area was based upon the following criteria:

- An area where small-scale forestry activity is prevalent in KwaZulu-Natal was necessary as a sample for the national PCI&S project;
- An area with small-scale forestry activity that receives particular attention from large companies, such as MONDI and SAPPI, and marketing agents, like NCT and TWK, was necessary to provide possible trends of development;
- Two communities with different profiles in forestry development, and their adjacency to each other to minimize the costs of the study were necessary. That is, one community with a long traceable history of small-scale forestry activity to provide a broad overview of small-scale timber growers' perceptions comparable to another were required.

The study areas were selected to cover a wide range of biophysical, economic and social conditions of the local context. As illustrated in Figure 3 (overleaf), the study was conducted in the KwaMbonambi and Enseleni communities of the Zululand region of KwaZulu-Natal.

4.3.1 KwaMbonambi Community

The KwaMbonambi Community is located about 25 Km North East of Richards Bay in the Zululand area of KwaZulu-Natal Province. This Community has a long history of eucalyptus production (more than 20 years) and is highly regarded as a prominent area for small-scale forestry activity in the province (Mthethwa, 2002 *pers. comm.*; Dladla, 2002 *pers. comm.*). The growers used to buy seedlings from the former KwaZulu Forestry Department at a nominal fee, for the establishment of their plantations. Originally, plantations were established to safeguard the household's land from expropriation by the old apartheid regime because of its long maturity period. For example, it was reported that most (if not all) areas under commercial forestry in KwaMbonambi was expropriated from the community (Mthethwa, 2002

pers. comm.). Thus, while this happened long time ago, the community lives with the historic legacy of being victims, and in hope that one day such resource will be reclaimed for the community's benefits. Due to the extended period over which the trees have been grown, forestry has developed into an established land use in the area.

The establishment of both the Sappi and Mondi schemes, as discussed in chapter three, further contributed to the development of forestry in the community. Mondi has a weighbridge in the community as a collection point for timber (Cele, 2002b *pers. comm.*). Research and development by these companies has resulted in the introduction of hybrid and cloned eucalyptus, which are attractive to small-scale timber growers due to their short maturity period. Aside from the companies purchasing the small-scale timber growers' yield, there are NCT and TWK Co-ops, which also market substantial quantities of timber for small-scale timber growers in the community (Dladla, 2003 *pers. comm.*; Nxumalo, 2004 *pers. comm.*).

4.3.2 Enseleni Community

The Enseleni Community is located about 18 Km North West of Richards Bay in the Zululand area of KwaZulu-Natal Province. Unlike KwaMbonambi, this community does not have a long history of afforestation (Ntshangase, 2002 *pers. comm.*). However, the Enseleni Community has attracted local interest, and both Mondi and Sappi are active in the area, although established woodlots were few at the time of the study. In contrast, sugarcane production in the community currently represents a bigger proportion of land use relative to forestry. The potential capacity for forestry development in the community has not been fully exploited. So, there exists an opportunity for timber companies seeking to expand timber resources in association with communities through existing schemes as discussed in chapter three.

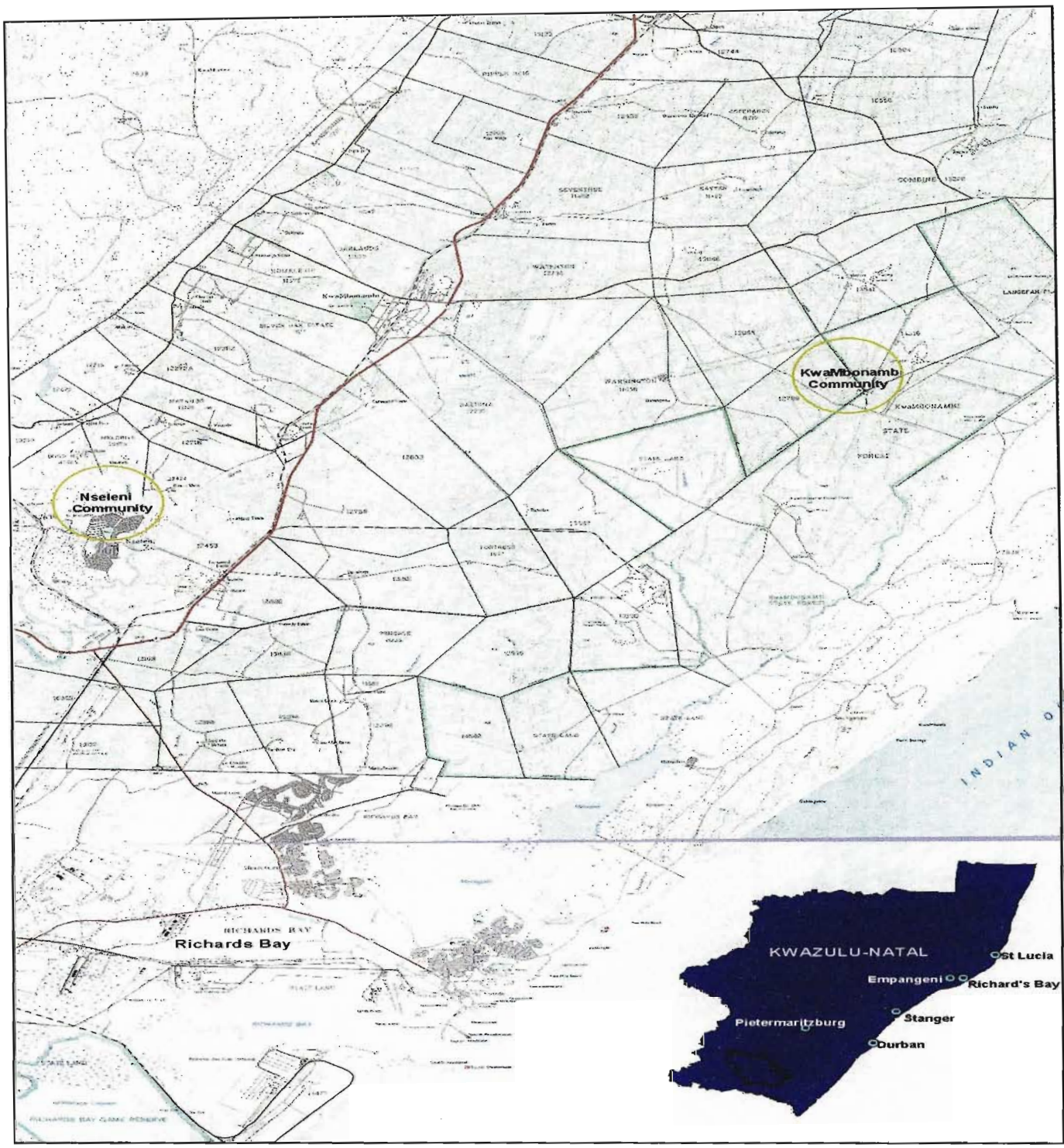

Figure 3. Location of KwaMbonambi and Enseleni communities in the Zululand region of KwaZulu-Natal Province, South Africa

4.4 The principles of best practice for criteria and indicators development

To engage small-scale timber growers in the process of developing PCI&S SFM, certain principles were adopted including participation, inclusiveness, transparency, empowerment, a good information baseline and a diversity of issues. These principles formed an integral part of, and were integrated into, a unified approach for the development of PCI&S.

4.4.1 Participation, inclusiveness and transparency

Taking into account the technicalities in small-scale forestry as reflected in chapter three, it was important to engage with small-scale timber growers using a participatory, inclusive and transparent process for effective learning. By participatory, inclusive and transparent, it is meant: the active participation of small-scale timber growers in a very openly explained and clearly laid-out process of developing PCI&S (see sections 5.3, 5.4, 5.5, 5.6 and 6.2). The current author believes that the participatory, inclusive and transparent nature of the process not only improved the credibility of the approach, and subsequently the resultant outcomes, but also enhanced the facilitation of discussion and information exchange and ensured that the resultant outcomes were relevant to small-scale timber growers. In addition, such a process provided an opportunity to establish causes that lead to the formulation of perceptions, beliefs and behaviour, and to experience the respondents' inflection, stress, pace, volume, accent and the sound of words themselves (Hoopes, 1979).

4.4.2 Empowering process

Lewis and Ngubane (2000) identified that meaningful participation on key decision-making processes needs capacity building in those involved in order for them to make a constructive contribution. Following this intellectual strand, small-scale timber growers were engaged in capacity building sessions to improve their ability to participate in a meaningful manner. This is discussed in the sections 5.4 and 6.2 on the small-scale timber growers' engagement process and the application of methods. This capacity building activity facilitated and improved small-scale timber

growers' learning, and enhanced their ability and standards of judgment (Robinson, 1998). That is, as a result of the capacity building, small-scale timber growers were better able to grasp and link issues, and thus, make informed contributions through expression of their perceptions on SFM.

4.4.3 Information baseline

The concept of sustainability has evolved over a number of decades, and parallel to its evolvement, there has been an accumulation of information that is critical for the development of C&I for SFM (Prabhu *et al.*, 1999). There is, therefore, a sound and verifiable information base available on environmental, social, economic and political issues to guide the process of C&I development (Lewis & Ngubane, 2000). The SFM information baseline reflected in section 4.2 and subsequent issue-clusters in Table 2 in chapter 4 was evaluated and used within this conceptual understanding to facilitate the development of PCI&S.

4.4.4 Diversity

The adopted definition and overview of SFM, as outlined in chapters one and two respectively, reflects a wide range of diversity of issues that need to be considered within the C&I development process. These issues include the sustainable use of resources, ecological processes, present and future human needs, and different levels of influence. Such issues necessitated an integrated methodological framework that provided the researcher with an opportunity to understand the diversity of small-scale timber growers' perceptions of the research study (May, 1993). In addition, not only do such issues determine a framework, but also provide the terms of reference to be covered through the C&I development process (Lewis & Ngubane, 2000).

4.5 Participatory rural appraisal methods used

In a response to the failure of contemporary research methodologies to adequately address the developmental issues of third world countries, participatory rural appraisal (PRA) methodology emerged as one possible solution (Chambers, 1994a).

While contemporary researches are often characterized by conventional and bureaucratic development approaches, participatory oriented researches are conceptually more people-centered and strategic (Thompson, 2001). A more detailed account on the origins and intellectual strands of PRA are discussed in Chambers (1994a, 1994b and 1994c). An important antecedent that, in practical terms, still continues to characterize a lot of policy researches in rural communities, is rapid rural appraisal (RRA) (Chamber, 1989; McCracken *et al.*, 1988). Rapid rural appraisal seeks to (Chambers, 1994a):

- Achieve a quicker, more accurate and less expensive means of gathering relevant local information for project purposes as opposed to formal sample surveys;
- Correct perceived anti-development biases in fieldwork with spatial, project, personal, seasonal and diplomatic dimensions.

From it inception, the RRA assembled and widely tested a rich and diverse set of field methods, both for eliciting information in rural communities, and for involving members of the communities themselves in setting priorities for projects and policies (Ellis, 2000). These methods included group discussions, transect walks, ranking, semi-structured interviews, key informants, time lines and many others. The emphasis of these methods was on the active involvement of respondents, with the outsider as a learner rather than a teacher, and a qualitative prioritizing or ordinal ranking of variables and options, instead of quantitative measurement (Ellis, 2000). In this context of PRA methods application, outcomes are genuinely owned and held by communities themselves (PRA Handbook, 1993). The RRA evolved and transformed into the PRA after about a decade or so of existence aimed at facilitating ownership of outputs or outcomes by, and improving capacity of participants in dealing with their issues.

Participatory rural appraisal is defined as a family of approaches that enable people to express and analyze the realities of their lives and conditions, to plan for themselves what actions to take, and to monitor and evaluate the results (Chambers,

1994a). It is clear from this definition that PRA becomes a tool for empowering people to take control of their own lives. Thus, the primary role of any researcher utilising PRA processes, is that of a facilitator and an equal sharer of ideas and information, not just information acquisition and the arrival with pre-determined solutions to rural communities' problems (Ellis, 2000). Furthermore, the PRA approach is based on a number of principles, which include (PRA Handbook, 1993):

- Local knowledge – learning is from, with and by local people, eliciting and using their criteria, classification and categories, and finding an understanding of, and appreciating, indigenous technical knowledge, viewpoints and skills;
- Local resources – communities have resources and they can undertake their own development using these resources if they become mobilized;
- Critical self-awareness – this principle is based on the understanding that practitioners have a particular mindset that impacts on what they attempt to do and can influence the outcome;
- Embracing error – error is not viewed in a negative light, rather it is seen as an opportunity to learn something new. The PRA methodology tries to seek trade-offs between the quantity, accuracy and relevance of information.

The following PRA methods, namely semi-structured interviews, focus group discussion and key informants, were used because of their potential to facilitate the C&I development process with small-scale timber growers. These PRA methods and others are: "excellent for discovering the current and past contextual circumstances governing livelihood decisions, for example, emerging environmental problems (water sources, firewood), changing patterns of activity as perceived by the village as a whole, key current constraints and problems" (Ellis, 2000, 194).

4.5.1 Semi-structured interviews

Semi-structured interviews involve asking a set of questions or administering an interview guide designed to facilitate the sharing of information on a particular subject with one participant or a group (Thompson, 2000). Interviewing can be done on its own or in conjunction with another type of exercise, for example: transects or

mapping. This method helps to gain greater accuracy in insights to situations, problems, practices, systems and values on any issue. One-on-one interviews are mostly conducted when the issue being discussed is specific and sensitive, confidential and/or personal. It is imperative that such interviews (whether individual or group) are held away from the hustle and bustle of daily life, where the participant(s) will not be interrupted or disturbed (Ellis, 2000). Interruptions can disturb the rapport established between a researcher and the participant(s), and the train of thought, particularly, of the participant(s).

A number of the semi-structured interviews' characteristics are reflected by the study approach (Dane, 1990; Merton *et al.*, 1990), including that:

- The broad issues (generic issue-clusters) relating to SFM were predetermined with the assistance of the national project team;
- The use of the generic issue-clusters as a guide to the discussion process;
- Although a guide was used, the discussions were subjective to the experiences of the small-scale timber growers engaged in the process.

4.5.2 Focus group discussions

Focus group discussions are usually undertaken when the topic of discussion is of a broader nature, and the nature of the topic indicates the type of participants to be involved (Ellis, 2000). For example, if the issue is farming practices, most farmers may be included in the group, however, if the issue discussed is land ownership or access to arable land, the larger group of participants may be split into landowners and tenants because landownership is a sensitive issue. A point to be noted in focus group discussions, is identifying who knows about the subject or issue to be discussed and if there are any types of people (e.g.: men vs women, landowners vs tenants, etc) who will stop others from taking part in the process.

Open discussions provide scope for flexibility, as it is necessary at times to elaborate and illustrate rather than give fixed responses (Robinson, 1998). They also offer the researcher an opportunity to clarify information and opinions expressed that may be

important as far as the quality of responses is concerned (May, 1993). The working group, made up of representatives elected by both communities (see section 4.6), discussions focused on specific issues relating to SFM that had relevance to small-scale timber growers' operations. Grouping growers together through forming a working group, as opposed to holding workshops for each community, was thought to be an appropriate approach based on the aim of developing a one unified set of criteria and indicators, and in deed, it facilitated integration of views.

4.5.3 Key informants

According to Kumar (1989), key informants are defined as people believed to be informed and capable of representing the views of a community on a particular subject. It is, however, not always obvious, to a researcher, who the experts in the area are; i.e. to find out who has been in the area for a long time or who knows best about a subject. Finding key informants allows for a process of confidence building with individuals involved in the exercise. For example, showing interest in local technology and/or history, which people may not be proud of, will lead to getting more information about that particular aspect of community life. Key informants are mostly used in conjunction with other methods such as transect walks and focus group discussions (Ellis, 2000). The working group (see Table 3) elected by, and representing both communities' (KwaMbonambi and Enseleni) small-scale timber growers were engaged as key informants to gather their ideas and insights on SFM issue-clusters.

While PRA methods (semi-structured interviews, focus group interviews and key informants) are good tools to facilitate communities' engagement, they possess their own risks of inaccuracy when they are utilised for elective purposes (Ellis, 2000). The following shortcomings have been noted:

- Group meetings can project a preferred image of a community, village or group that may not correspond to the underlying reality of people's lives (Mosse, 1994; Pottier and Orone, 1995). The present study's working group

representatives though, were growers elected by their community members, because they were believed to reflect and embrace the growers' conditions;

- Local power structures and social conventions can influence the progress and outcomes of a group's meetings (Woodhouse, 1998). However, if such meetings are held outside of any community environment, their influence can be minimised. The working group's meetings were convened at a neutral venue, outside of both communities' environments;
- Self-selected key informants may not represent all social groupings of a particular community (Johnson and Mayoux, 1998). The working group for this study was, however, elected by community members to represent their interests on SFM issues, and included vulnerable members (women) of rural communities (see Table 3);
- The group level aggregate picture that emerges from such meetings may mask local differentiation (Woodhouse, 1998), and arising from all these shortcomings, there is a need to triangulate findings that derive from more than one set of field methods. The study utilised small-scale timber growers' schemes or programmes principles like SAPPI, MONDI, NCT, WGA and TWK representatives to verify the validity of small-scale timber growers' perceptions on SFM through semi-structured interviews.

4.6 Deductive and inductive approach

One of the important features of the PCI&S development process is deductive (top-down) and inductive (bottom-up) approaches (Prabhu *et al.*, 1999). By top-down approach it is meant the evaluation of literature to inform and guide the process (see section 5.4 for details). The bottom-up approach refers to the participation of a target group, i.e. small-scale timber growers, to inform the process (see section 5.3 through to 5.5 for details). The objective of the top-down process was to ensure that the right conceptual information was retained, while the bottom-up process ensured that the information from the small-scale timber growers informed the development of C&I (Prabhu *et al.*, 1999).

A common component of the deductive and inductive approaches is an iterative method. The iterative method involves consolidation and filtering of different information packages to achieve a comprehensive and representative version (see sections 5.5 and 5.6 for the method application). This is aimed at identification of potential overlaps, contradictions and diversity of issues that should be covered.

CHAPTER FIVE

THE SMALL-SCALE TIMBER GROWERS' PERCEPTIONS ON THE DEVELOPMENT OF THE NATIONAL PCI&S FOR SFM IN SOUTH AFRICA

5.1 Introduction

Over the past decade the concept of sustainable forest management (SFM) has gained considerable focus as the international community has become more aware of the impacts exerted on forests. It is now widely accepted that forest resources should be managed to meet the social, economic and ecological needs of the present and future generations (Muhtaman *et al.*, 2000). This means that SFM must respond to the relevant environmental, social and economic issues. The exchange and feedback of relevant information between planning, implementation, control and impact of forest management are, therefore, critical. However, little has been done to ensure that small growers' issues form part of the policy and institutional framework governing forest management in South Africa (SA). To understand the small-scale timber growers' context regarding the policy and institutional framework on forest management, there is a need to explore their perceptions on SFM holistically. The conceptual framework for sustainable forestry management, sustainable small-scale forestry, and methodology have been considered in chapters two, three and four respectively. Chapter five focuses on the results of the small-scale timber growers' participation on the development of the national PCI&S for SFM in SA, including communities' liaison, small-scale timber growers' perceptions and priorities, desired conditions and criteria and indicators.

5.2 Communities' leadership liaison

The researcher (current author) has had a long working relationship with the study communities, which facilitated and made it relatively easy to meet, with local

leadership in the form of traditional authority council, and negotiate opportunities to conduct the study, and obtain contacts people in order to facilitate the organisation of community gatherings for small-scale timber growers. In concluding the study, the researcher met with the leadership to extend his gratitude for the communities' cooperation.

5.3 Communities liaison

Over the period of eleven months of engaging with small-scale timber growers to appraise their perceptions on SFM issues, the researcher spent a considerable amount of time in the communities with growers. In establishing a rapport with the communities, they were engaged through workshops on discussions about the origins, objectives and expected outcomes of the study, and the election of representatives to form a working group. Each community had two workshops and one field visit to a couple of their plantations. Table 3 presents the number and gender of participating community representatives on the working group, and also see Appendix 3 for the list of participants. Thereafter, the working group represented the communities' views on forestry issues during the study. The working group was elected from a total population of small-scale timber growers equating to at least five hundred (500). This might not be statistically representative, but the ultimate aim was to ensure depth in discussion to be brought about a small group, and thus, may be compromised on width, that is size of the group.

Table 3. Illustration of number and gender proportions of the working group members per community

Community	Number of Participants	Number of Males	Number of females
KwaMbonambi	8	5	3
Enseleni	8	4	4
Total	**16**	**9**	**7**

5.4 Small-scale timber growers' perceptions and priorities for SFM

The working group was engaged in capacity building sessions through workshops, including interactive discussions about the study's process, content, description and use of terms, the group's expected role in the process, as well as the anticipated impact of the study on both all those involved and on the national PCI&S project. Such workshops were aimed at building capacity of the working group to participate more effectively in the process. This was then followed by series of workshops held with the working group to gather their perceptions and priorities on SFM using issue-clusters in Table 2 in chapter 4 as a guide. Semi-structured interviews, focused group discussions and key informants methods were all used to engage with the working group and the workshops' gatherings were held at neutral locations. These workshops took about five days in total including capturing and verification of issues through follow-up field discussion visits.

The overall approach used to engage small-scale timber growers was both deductive (top-down) and inductive (bottom-up). The top-down approach involved the development, with the assistance of the national project team, and administration of a predetermined set of SFM issue-clusters as presented in Table 2 in chapter 4 and used as a guide to influence proceedings. Through engagement with the working group to appraise their perceptions on SFM, the issue-clusters in Table 2 in chapter 4 were reduced to a shorter list representing relevant and priority issue-clusters for small-scale timber growers as presented in Table 4. In contrast, the bottom-up approach meant the actual engagement of small-scale timber growers for the appraisal, and later integration, of their SFM perceptions into the PCI&S development process. The small-scale timber growers' perceptions on SFM are presented in Table 5 and discussed at length in chapter six. As noted in section 4.6, the objective of the top-down process was to ensure that the right conceptual information was retained, while the bottom-up process ensured that the information from the small-scale timber growers informed the process.

Table 4. Small-scale timber growers' relevant and priority SFM issue-clusters

Social	Economic	Policy	Environment
Tenure	Employment	Integrated planning	Security of resource base
Health & safety	Waste minimization / optimization	Compliance with legislation	Water vitality
Stakeholder communication		Research and development	Soil vitality
Significant sites			Management and planning
Equity			
Capacity building			

The small-scale timber growers' perceptions on SFM were appraised using the list of predetermined issue-clusters as presented in Table 2 in chapter 4. Key to the facilitation of the engagement process was maintenance of objectiveness as much as possible at all times. Thus, the researcher needed to keep his thoughts and ideas out from influencing small-scale timber growers' thinking processes. This was controlled by asking small-scale timber growers themselves to express their perceptions on an issue-cluster and capturing their views as expressed. For example, small-scale timber growers were asked what were important issues surrounding land tenure in relation to their plantations. In response and based on their experience of communal tenure, small-scale timber growers expressed their perceptions citing lack of clear rights and legislative support. It should, however, be noted that using a guide in this manner can be subjective if a facilitator is not inclined with facilitation principles of partiality and objectiveness. In contrast, if a guide's openness and flexibility is used correctly, it gives a joy and freedom to those engaged to openly and freely express themselves without feeling limited by the nature of question(s) directed in getting pre-thought responses in principles. This made it possible for small-scale timber growers to identify their own critical issues of course guided by generic issue-clusters on SFM, and hence, ownership of outcomes.

The representatives of the small-scale timber growers' schemes principles were also engaged, using Table 4 and 5 both in chapter 5, and semi-structured interviews to broadly understand the issues and views of small-scale timber growers on SFM, and to facilitate integration and consolidation of small-scale timber growers' views later.

Table 5. Small-scale timber growers' perceptions on SFM issue-clusters

PRE-DETERMINED SFM GENERIC ISSUES-CLUSTER	RELATED ISSUES RAISED BY SMALL GROWERS
1. Tenure	• Lack of clear property rights can diminish long-term sustainability • Access to land influences prospect of economic growth & benefit • Government and tribal authorities should work together in addressing reliable forms of tenure
2. Access	• The issue is more relevant to natural forests & big plantations, but a portion that relates to small growers is dealt with under issue-cluster 4
3. Use &/ benefits	• The issue is more relevant to natural forests & big plantations
4. Sites of significance	• Give access to relevant people on cultural sites like graves
5. Stakeholder communication	• Maintenance of good relations with neighbours Mechanism for negotiation & dispute resolution
6. Health and safety	• Workers should be trained for their roles & responsibilities Protective clothing must be provided in working environment
7. Empowerment and awareness	• Dealt with under issue-cluster 18
8. Monitoring	• Dealt with under issue-cluster 22
9. Participation management	• The issue is more relevant to natural forests & big plantation businesses
10. Impacts of people on forests &/ forests on people	• The issue is more relevant to natural forests & big plantation businesses
11. Equity	• Equitable representation on key decision-making processes • Equitable resource distribution • Support systems to take advantage of opportunities • Access to capital resources
12. Public satisfaction	• The issue is more relevant to natural forests & big plantation businesses
13. Globalisation	• Could not comment
14. Provincial development	• The working group considered the issue to be government oriented, but influence forest operations
15. Needs	• The issue is more relevant to natural forests & big plantation businesses
16. Policy review and reporting	• The working group considered the issue to be government oriented, but influence forest operations
17. Compliance with legislation	• Incentives need to be created for small growers to meet regulations • Government need to facilitate an enabling environment to comply with legislations
18. Capacity building	• Communities need training regarding sustainable resource management & business dynamics • Need capacity building, creation of awareness, exposure to information & participation in decision making
19. Resource allocation	• The issue is more relevant to natural forests

20. Integrated planning &/ cooperation	• Need to diversify income generating activities • Each land-use should be encouraged relative to total land available
21. Research and development	• R&D remain central in improving forestry operations
22. Management and planning	• Rural communities are mostly illiterate, but can think and store things in their heads, and needs an appropriate management plan • Forestry operations monitoring & taking control actions if necessary
23. Biodiversity	• The issue is more relevant to natural forests
24. Soil & water vitality	• Maintenance of reasonable water levels • Plant X-meters from water source • Use of soil conservation practices should be encouraged
25. Security of resource base	• Lack of integrated land-use planning • Natural forests model need to be identified in rural areas • Alternatives to forestry need to be created & communicated • Advisory & extension services need to be provided on securing resources
26. Ecological processes	• The issue is more relevant to natural forests
27. Promotion of indigenous species	• The issue is more relevant to natural forests
28. Waste minimisation /optimisation	• Enhance economic returns from timber production • Contribute to soil protection & conservation, weed suppression, and enhance soil fertility
29. Inputs/expenditure	• Difficult for small growers to calculate and monitor: can only be calculated at current rates – no projections
30. Outputs/profits	• Difficult for small growers to calculate and monitor: can only be calculated at current rates – no projections
31. Value added	• Operation of small saw mills, but lack knowledge & support to start
32. Value of NFTP	• Not commercial only subsistence
33. GDP	• Could not comment
34. Employment	• Local people are given first preference for employment • Principles should ensure that contractors employ local people
35. Diversification	• Due to sizes of small grower's lands it's not possible to proportionally plant different species. But instead they should plant market driven species
36. Rural livelihoods	• Forestry should contribute in improving living conditions of those involved
37. Disadvantaged groups	• Improved forestry business opportunities for this group
38. Standing stock/ resource base	• Match site species & market requirements
39. Productivity, quality, vitality	• Could not comment
40. Harvest rates	• Distinction should be drawn between a small grower and large farmers or companies due to land under plantations
41. Business plans	• Desirable, however not in a position to prepare one
42. Forest protection	• More relevant to natural forest, but issues like fire & alien control are addressed through management activities

5.5 Small-scale timber growers' desired conditions for SFM

The small-scale timber growers' perceptions as presented in Table 5 in chapter 5 were assessed and evaluated against a number of criteria, including relevance, practicality, measurability and their schemes principles' comments with the assistance of the national project team. An iterative method was used where knowledge on principles of best practice for PCI&S development and small-scale timber growers' perceptions were integrated and consolidated. The result was a list of perceptions that reflected broadly the views of small-scale timber growers that was converted, with the help of the national project team, into desired conditions for SFM as presented in Table 6. The table presents an ideal (may be abstract) and perceived picture of how small-scale timber growers would like to see as an outcome of SFM on their priority issues as presented in Tables 4 and 5 both in chapter 5.

The list of desired conditions as in Table 6 in chapter 5 was verified with the small-scale timber growers through workshops using both focus group discussions and key informants methods, and their schemes' principles using semi-structured interviews. These interactions were aimed at presenting and reviewing the desired conditions, filling in omissions and gaps, facilitating discussions and the gathering of the desired information on the relevance of conditions to the small-scale timber growers' contexts. The comments from the small-scale timber growers and their schemes' principles were consolidated as presented in Appendix 3 reflecting on omissions, changes and/or alterations and used to revise the desired conditions to reflect the inputs. The comments were not change oriented, but rather empathetic towards addressing small-scale timber growers' issues in general. The output was a final list of verified desired conditions that was representative of small-scale timber growers' views on SFM as presented in Table 7 in chapter 5, and could be used to draft criteria and indicators.

Table 6. Small-scale timber growers' draft of desired conditions for SFM

Sustainability	Issue-cluster	Desired conditions
Social	1.Tenure	1.1Tenure is clearly defined, respected and secure
	2.Health & safety	2.1Strategies meeting all applicable legislations are implemented 2.2Adequate resources capacity to implement and meet health & safety
	3.Stakeholder communication	3.1An effective mechanism exists for communication, negotiation and dispute resolution
	4.Significant sites	4.1Sites of cultural, religious and ecological significance are clearly identified and managed in cooperation with those concerned
	5.Equity	5.1Rights of access to and multiple use and services of forests are negotiated and fair
	6. Capacity building	6.1Awareness, education and training programmes are in place to create an increased awareness and skills for SFM
Economic	7.Employment	7.1Employment opportunities and business strategies benefit local people and contribute to local economic development
	8.Waste optimization	8.1There are strategies in place to optimize waste
Policy	9.Integrated planning	9.1Integrated development plans reflect potential of forests in rural development 9.2Planning authority recognizes differences between commercial and rural operations
	10.Compliance with legislation	10.1There is compliance with relevant legislations 10.2There are incentives for compliance with relevant legislations 10.3Extension service exists to communicate policies with small growers
	11.Research & development	11.1Public research information regarding forest operations is widely disseminated
Environment	12.Security of resource base	12.1Strategies exist to secure natural resources
	13.Water vitality	13.1Management practices reflect consideration of water quantity and quality
	14.Soil vitality	14.1Management practices reflect consideration of soil erosion, disturbance and nutrition
	15.Mgt and planning	15.1Forest management plan exists and is implemented 15.2Mechanisms are in place to monitor effects of management practices and forestry operations 15.3Management practices contribute to capacity building of the work force

5.6 Small-scale timber growers' criteria and indicators for SFM

The small-scale timber growers' verified desired conditions as presented in Table 7 in chapter 5 were assessed, evaluated and filtered against principles of NFA, NEMA and other relevant legislations (as presented in Appendices 1 & 2), with the assistance of the national project team, to ensure that such principles were covered. An iterative method was used where knowledge on principles of best practice for

PCI&S development, small-scale timber growers' verified desired conditions and the knowledge of the researcher together with the national project team were integrated and consolidated. The result was a list of verified desired conditions that met most of principles that were used, with the assistance of the national project team, to draft criteria and indicators for SFM as presented in Table 8. The table outlines a set of C&I drafted on the basis of the small-scale timber growers' views and priorities.

Table 7. Small-scale timber growers' verified desired conditions for SFM

Sustainability	Issue-cluster	Desired conditions
Social	1.Tenure	1.1Tenure and rights are clearly defined, recognized and secure
	2.Health & safety	2.1All health & safety applicable legislations are met 2.2Adequate resources & capacity exist to implement and meet health & safety requirements
	3.Stakeholder communication	3.1There is communication and negotiation with stakeholders are issue-based
	4.Significant sites	4.1Sites of cultural, religious and ecological significance are clearly identified and managed in cooperation with those concerned
	5.Equity	5.1Sustainable levels of access to and use of forests is controlled and enforced 5.2There is sharing of sustainable benefits from natural and plantation forests
	6.Capacitation	6.1Awareness, education and training programmes are in place to create an increased awareness and skills for SFM
Economic	7.Employment	7.1Forest based businesses make a significant contribution to the local economy
	8.Waste optimization	8.1There is optimal use of forests products
Policy	9.Integrated planning	9.1IDPs enhance environmental potential of, & make provision for forestry
	10.Compliance with legislation	10.1There is compliance with relevant legislations 10.2Incentives are provided for compliance 10.3There are effective institutions (extension services) to ensure compliance with SFM requirements
	11.Research & development	11.1Government funded forest research is widely disseminated
	12.Policy review & reporting	12.1People participate in forest policy development and review
Environment	13.Security of resource base	13.1A Strategy is developed & implemented to protect & secure natural resources
	14.Water vitality	14.1Water quantity and quality are maintained and improved
	15.Soil vitality	15.1Soil erosion, disturbance & nutrition are maintained & improved
	16.Management & planning	16.1Forest management plans exist and are implemented 16.2Management plans integrate economic, ecological & social aspects 16.3There is monitoring to assess the costs & benefits of all management activities

Table 8. Small-scale timber growers' draft set of C&I for SFM

Sustainability	Criteria and indicators
Social	***1. Land tenure is clearly defined, recognized and secure*** 1.1 Security of land tenure ***2. There is effective stakeholder participation in forestry management*** 2.1 Implementation of outcomes of participation 2.2 Capacity to participate 2.3 Conflict management ***3. Cultural, ecological, recreational, historical, aesthetic and spiritual sites and services supplied by forests are maintained*** 3.1 Condition of sites of significance 3.2 Level of satisfaction among users 3.3 Identification of sites of significance ***4. Forests are used responsibly*** 4.1 Control and enforcement of access and use 4.2 Resource availability ***5. Forests are developed and managed so that persons or categories of persons disadvantaged by unfair discrimination are advanced*** 5.1 Generation of forest management opportunities for disadvantaged persons 5.2 Awareness among disadvantaged persons of forest management opportunities 5.3 Realization of forest management opportunities by disadvantaged persons ***6. Forests make a positive contribution to the economy*** 6.1 Forestry contribution to the local economy 6.2 Forestry contribution to the local development ***7. Benefits associated with forests are maximized while costs are minimized*** 7.1 Positive and negative environmental externalities ***8. People participate in forest policy development and review*** 8.1 Nature of opportunities created for participation in forest policy development and review 8.2 Stakeholder capacity to engage in policy-making process
Economic	***9. Distribution of benefits from forests is fair*** 9.1 Employment opportunities associated with forestry 9.2 Forest related businesses in a local area ***10. Waste arising from harvesting and processing of products is minimized*** 10.1 Resource use efficiency
Policy	***11. Laws and regulations promote sustainable forest management*** 11.1 Intersectoral cooperation in implementation of forest management laws and regulations ***12. Forest management institutions comply with all relevant legislation and customary law*** 12.1 Awareness and understanding of forest management legislation and customary law 12.2 Capacity of regulatory and management institutions to comply with forest management legislation and customary law 12.3 Compliance with forest management legislation and customary law 12.4 Capacity of research institutions to support sustainable forest management 12.5 Capacity of education and training institutions to support sustainable forest management

Environment	***13. Forests are protected*** 13.1 Existence of strategies for forest protection 13.2 Implementation of forest protection strategies ***14. Water and soil resources are conserved*** 14.1 Water quality 14.2 Water quantity 14.3 Soil compaction 14.4 Soil erosion 14.5 Soil texture ***15. Forest management planning promotes sustainable use and development of the forest resource*** 15.1 Quality of forest management planning 15.2 Effectiveness of implementation of forest management plans 15.3 Efficiency of monitoring of impacts of forest management planning

The draft set of C&I as in Table 8 in chapter 5 was verified with the small-scale timber growers through a workshop using both focused group discussions and key informants methods, and their schemes' principles using semi-structured interviews. These interactions were aimed at presenting and reviewing the draft set of C&I, facilitating discussions and gathering of information on the relevance and practicality of C&I to the context of the small-scale timber growers. The comments from the small-scale timber growers and their schemes' principles were consolidated (see Appendix 4) and used to revise the draft C&I to reflect inputs. The output was a final draft set of C&I that was representative of small-scale timber growers' views for SFM. While the principles and standards or aspirational goals were excluded or omitted from the C&I set (reflected in Table 8 in chapter 5) that was verified with small-scale timber growers, they are both reflected in the final draft PCI&S presented in the following sub-sections. In addition, methods of measurement for each or collection of standards or aspirational goals have been included to facilitate verification of the final draft PCI&S set.

The following PCI&S are presented according to the four pillars of sustainability as adopted, i.e. social, economic, policy and environmental. Another important attribute of the following PCI&S set is that with principles provided, and following the four sustainability pillars, it was not possible to group all CI&S to a particular principle that they related to. Thus, principles are repeated for different CI&S set to indicate the link, and thus, are not numbered for that reason.

5.6.1 Final draft set of social PCI&S for SFM

Principles: Forests must be developed and managed so as to sustain the potential yield of their economic, social and environmental benefits (NFA 3 (3) (c) (ii)); and

Forests must be developed and managed so as to advance persons or categories of persons disadvantaged by unfair discrimination (NFA 3 (3) (c) (vi)).

Criterion 1: Land tenure of forest areas is clearly defined, recognized and secure.

Indicator 1.1: Security of land tenure.

Standard 1.1.1: Compliance with the Extension of Security of Tenure Act 62 of 1997; the Interim Protection of Informal Land Rights Act 31 of 1996; and the Communal Land Rights Act 11 of 2004

Method of measurement

- Records of disputes kept at forest management unit (FMU) level, and be verified by a third party audits. A standardized record keeping system should be developed for use at FMU level.

Principle: The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured (NEMA 2 (f)).

Criterion 2: There is effective stakeholder participation in forestry management.

Indicator 2.1: Effectiveness of participation.

Aspirational goal 2.1.1: There should be a participation process in place that is appropriate to the particular context, and its frequency to the reasonable satisfaction of all involved.

Aspirational goal 2.1.2: There should be a list of stakeholders available.

Method of measurement

- The nature of the participation process that is in place must be assessed using guidelines on forms of participatory processes. The existence and frequency of a participation process is shown by: stakeholder lists, meetings held, minutes of meetings, terms of reference of a participation process, resolution of conflict over specific issues, capacity of stakeholders with regard to sustainable forest management.

Indicator 2.2: Capacity to participate.

Aspirational goal 2.2.1: Stakeholders actively engage in information sharing and debates.

Aspirational goal 2.2.2: There are capacity building processes in place and these are valued within the forestry sector.

Method for measurement

- The indicator would not be measured regularly because capacity is difficult to measure. Capacity could be assessed using a survey to measure satisfaction and level of understanding.A measure could be developed with stakeholders simply being asked whether they have adequate capacity to participate. By observing a participation process it is possible to assess levels of capacity to participate. Assessment of stakeholder understanding and capacity can be determined using social surveys;
- Compile a list of capacity building processes that are in place and assess the amount of resources allocated for capacity building. Resources allocated for capacity building can be measured using budgets or human hours spent improving capacity.

Principle: Forests must be developed and managed so as to conserve heritage resources and promote aesthetic, cultural and spiritual values (NFA 3 (3) (c) (vi)).

Criterion 3: Cultural, ecological, recreational, historical, aesthetic and spiritual sites and services supplied by forests are maintained.

Indicator 3.1: Level of satisfaction among users.

Aspirational goal 3.1.1: Percentage of unsatisfied stakeholders is decreasing.

Method for measurement

- Public satisfaction should be measured though consultation with the public. This can be in the form of surveys or public reporting systems.

Indicator 3.2: Condition of sites of significance.

Standard 3.2.1: Management complies with requirements of the National Heritage Resources Act 25 of 1999.

Method for measurement

- Stakeholders should be consulted through participatory processes at periodic intervals to assess their satisfaction with forest management on sites of significance.

Principle: Forests must be developed and managed so as to sustain the potential yield of their economic, social and environmental benefits (NFA 3 (3) (c) (ii)).

Criterion 4: Forests are used responsibly.

Indicator 4.1: Control and enforcement of access and use.

Aspirational goal 4.1.1 Access and use infringements are reducing.

Method for measurement

- Annual management reports should devote a section to violations of access and use where the number of violations, the number of trained forest protection personnel and the resources allocated to personnel should be addressed. Records of violations should be kept together with information on

offenders. A standardised reporting system would need to be developed to enable comparison between government's regions.

Principles: Forests must be developed and managed so as to advance persons or categories of persons disadvantaged by unfair discrimination (NFA 3 (3) (c) (vii)).

Criterion 5: Forests are developed and managed so that persons or categories of persons disadvantaged by unfair discrimination are advanced.

Indicator 5.1: Generation of forest management opportunities for disadvantaged persons.

Aspirational goal 5.1.1: An increase in the number and range of opportunities for disadvantaged persons.

Method for measurement

- An assessment of a number and type of opportunities generated.

Indicator 5.2: Awareness among disadvantaged persons of forest management opportunities.

Aspirational goal 5.2.1: For every applicable opportunity, the relevant authority or forest owner must run one dedicated awareness campaign.

Aspirational goal 5.2.2: Specific communications of forest opportunities must be issued in at least three official languages spoken in, using commonly read newspapers distributed in that area and broadcast on local radio networks.

Aspirational goal 5.2.3: An increase in the number of applications resulting from the awareness campaigns.

Method for measurement

- Forest authorities and forest managers will have to keep records of the documents they use for awareness raising and these will need to be assessed.
- Forest authorities and forest managers will have to keep records of the languages used for awareness raising and these will need to be assessed.
- Records of the media used and number of applications made will need to be assessed.

Indicator 5.3: Realisation of forest management opportunities by disadvantaged persons.

Aspirational goal 5.3.1: An increase in ownership of forest businesses by previously disadvantaged persons.

Aspirational goal 5.3.2: Incomes to disadvantaged households from forestry opportunities increases over time.

Method for measurement

- A list of ownership by race and gender would need to be assessed.
- A household income survey of disadvantaged households involved in forest opportunities would need to be undertaken.

Principle: Forests must be developed and managed so as to sustain the potential yield of their economic, social and environmental benefits (NFA 3 (3) (c) (ii)).

Criterion 6: Forests make a positive contribution to the economy.

Indicator 6.1: Forestry's contribution to the local economy.

Aspirational goal 6.1.1: Value to local economy should increase.

Method for measurement

- Directly measurable from contributions to district municipalities, returns submitted in terms of labour regulations. Focused on the local level but can be collectively viewed on a provincial level.

Indicator 6.2: Forestry's contribution to local development.

Aspirational goal 6.2.1: Number of forestry related SMMEs owned by local people is increasing.

Aspirational goal 6.2.2: An increasing contribution to development of infrastructure.

Method for measurement

- Directly obtainable from returns submitted to district municipalities, SARS and returns submitted in terms of labour regulations. Focussed on the local level but can be collectively viewed on a provincial level.
- Strategic areas would need to be identified and sampled for the purposes of assessment.

Principle: Forests must be developed and managed so as to promote the fair distribution of their economic, social, health and environmental benefits (NFA 3 (3) (c) (iii)).

Criterion 7: The distribution of the costs from forestry is fair.

Indicator 7.1: Negative impacts of forestry activities on people.

Aspirational goal 7.1.1: Forestry activities should not increase any type and level of impacts.

Aspirational goal 7.1.2: The number of people negatively affected by forestry should be decreasing.

Method for measurement

- Census data, aerial photographs and social surveys can be used to generate the data required for this measure. Participation processes and issues around which conflict has developed will also provide data.

Indicator 7.2: The spatial distribution of forests in relation to vulnerable communities.

Aspirational goal 7.2.1: Area of plantations adjacent to vulnerable communities should not change significantly without adequate provision to mitigate for the impacts on local households.

Aspirational goal 7.2.2: Management plans, benefit sharing and management of negative impacts takes into consideration the number of vulnerable households.

Method of Measurement

- Map forests in relation to socio-demographic data and determine interface zones of risk (where risk is defined by forests adjacent to vulnerable communities). Overlay the location of forests (national coverage on GIS) with socio-demographic data (use GIS and census data) and determine where vulnerable communities are located adjacent to or within the range of impacts of forestry.

Indicator 7.3: Conflict over distribution of costs.

Aspirational goal 7.3.1: The number of conflicts over the distribution of the costs of forestry should be reducing.

Method of Measurement

- Assessment of records in the form of minutes of meetings, and where no formal records are available, information could be collected by social surveys or interviews.

Principle: The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured (NEMA 2 (f)).

Criterion 8: People participate in forest policy development and review.

Indicator 8.1: Nature of opportunities created for participation in forest policy development and review.

Standard 8.1.1: The Minister to publish this list with his or her three yearly report to Parliament, in terms of section 6 of the NFA.

Standard 8.1.2: MEC responsible for dealing with forest management matters (where applicable), in forestry provinces, to incorporate this list in his or her four-yearly Environmental Implementation Plan (EIP) required by the National Environmental Management Act 107 of 1998.

Method for measurement

- Examination of the Minister's three yearly reports and the MEC's EIP will be sufficient.

Indicator 8.2: Stakeholder satisfaction with policy-making process.

Standard 8.2.1: Stakeholder database reflected in Minister's three yearly reports to Parliament, in terms of section 6 of the NFA.

Aspirational goal 8.2.2: A decline in number of complaints received annually.

Method for measurement

- The Minister's national database of forest stakeholders will be the main tool for assessing this indicator. It will have to categorize stakeholders who have been previously disadvantaged by unfair discrimination.

- DWAF will have to maintain a register of all responses to policy-making processes received from the public and this register will have to show clearly whether each stakeholder response reflected satisfaction or dissatisfaction with the policy-making process.

Indicator 8.3: Stakeholder capacity to engage in policy-making process.

Aspirational goal 8.3.1: Clear information, in all relevant languages and in media, suited to the stakeholders.

Aspirational goal 8.3.2: An increase per annum in relation to similar policy processes run by national government.

Aspirational goal 8.3.3: Separate budget item in DWAF budget describing expenditure on facilitating participation in policy development and review.

Aspirational goal 8.3.4: Synopses of research reports published annually by DWAF.

Method for measurement

- A register will have to be kept by DWAF recording the nature of information disseminated to stakeholders, the responses received to that information, the total budget for facilitating stakeholder participation as well as of all government-funded research distributed to the public and be assessed.

5.6.2 Final draft set of economic PCI&S for SFM

Principles: Forests must be developed and managed so as to promote the fair distribution of their economic, social, health and environmental benefits (NFA 3 (3) (c) (iii)); and

Forests must be developed and managed so as to advance persons or categories of persons disadvantaged by unfair discrimination (NFA 3 (3) (c) (vii)).

Criterion 9: The distribution of employment benefits from forests is fair.

Indicator 9.1: Employment opportunities associated with forestry.

Standard 9.1.1: The requirements of the Employment Equity Act 55 of 1998 and Broad Based Black Economic Empowerment Act 53 of 2003 are met.

Aspirational goal 9.1.2: Percentage of labour force employed from local areas is optimised within the constraints of sustainable business practice.

Method for measurement

- An assessment of information that could either be obtained from the forestry enterprises or the Department of Labour.
- An existing staff's records will need to be assessed kept by forest enterprises.

Indicator 9.2: Employer compliance with labour legislation.

Standard 9.2.1: There are no transgressions of the legislation in terms of the Labour Relations Act 66 of 1995, Basic Conditions of Employment Act 75 of 1997, Skills Development Act 97 0f 1998, Employment Equity Act 55 of 1998, Unemployment Insurance Fund Act 36 of 2001, Unemployment Contribution Act 4 of 2002, Workers Compensation Act 61 of 1997, Occupational Health & Safety Act 181 of 1993, and Skills Development Levies Act 9 of 1999.

Aspirational goal 9.2.2: Number of labour related conflicts and transgressions are decreasing

Method for measurement

- The provincial and/or regional representative of the Department of Labour could provide information on transgressions and conflicts.

Principle: Forests must be developed and managed so as to sustain the potential yield of their economic, social and environmental benefits (NFA 3 (3) (c) (ii)).

Criterion 10: Production potential is maintained or improved

Indicator 10.1: Resource use efficiency.

Aspirational goal 10.1.1: The ratio of waste to volume harvested is decreasing.

Method for measurement

- The volume of the product output should be recorded along the production chain and compared with the volume harvested to determine constraints in resource use efficiency.

5.6.3 Final draft set of policy PCI&S for SFM

Principle: Everyone has the right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that – (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development (The South African Constitution, Act 108 of 1996).

Criterion 11: Laws and regulations promote sustainable forest management.

Indicator 11.1: Interdepartmental cooperation in implementation of forest management laws and regulations.

Standard 11.1.1: Attendance by DWAF's DG or his or her nominee at all Committee for Environmental Coordination (CEC) meetings.

Standard 11.1.2: NFA reports every three years, NEMA EI&MP every four years, with annual updates.

Aspirational goal 11.1.3: Maximum attendance of the Minister and MECs from forestry provinces at MinMEC meetings dealing with SFM issues.

Aspirational goal 11.1.4: DWAF Minister keeps records of meetings, their agendas and minutes, and incorporates them in his or her three-yearly report to Parliament in terms of section 6 of the NFA.

Aspirational goal 11.1.5: Every IDP in a municipal area in which forestry occurs expressly provides for the promotion of SFM.

Method for measurement

- Assessing the different measures dealing with attendance at and participation in meetings requires careful maintenance of attendance registers and minutes.
- Examination of the Minister's NFA reports to Parliament and the Director General's reports to the Committee for Environmental Coordination.
- The assessment of whether an IDP adequately promotes SFM would need to be undertaken annually.

Principle: Forests must be developed and managed so as to promote their health and vitality (NFA 3 (3) (c) (iv)).

Criterion 12: There is national and provincial strategic planning for forest management.

Indicator 12.1: DWAF's national strategic plan for the forest sector including the national forest programme (NFP).

Standard 12.1.1: NFP (or similar document) approved and submitted as part of the Minister's three yearly report to Parliament in terms of section 6 of the NFA.

Method for measurement

- Examination of the Minister's three yearly reports to Parliament.

Indicator 12.2: National forest sector strategic plans.

Aspirational goal 12.2.1: Regularly published and widely supported national strategic plans from and for the relevant organisations.

Method for measurement

- Examination of the plans by the relevant DWAF directorate.

Indicator 12.3: Provincial strategic management plans for forestry.

Standard 12.3.1: EIPs in terms of National Environmental Management Act 107 of 1998 submitted every four years to CEC, with annual review report, reflecting forest management strategic goals.

Method for measurement

- Examination of the EIPs by the relevant DWAF directorate.

Principle: Public administration must be governed by the democratic values and principles enshrined in the Constitution, including the following principles... (e) people's needs must be responded to, and the public must be encouraged to participate in policy-making; (f) public administration must be accountable; (g) transparency must be fostered by providing the public with timely, accessible and accurate information (The South African Constitution, Act 108 of 1996).

Criterion 13: Forest management institutions comply with all relevant legislation and customary law.

Indicator 13.1: Awareness and understanding of forest management legislation and customary law.

Aspirational goal 13.1.1: Number and type of programmes reflect stakeholder's needs and requirements.

Aspirational goal 13.1.2: DWAF budget for public awareness campaigns on forest management laws and regulations is increasing.

Method for measurement

- A table will have to be drawn up detailing the number of education and training programmes, the type of programmes, the target audience, the number of people in the target audience and the budget for the programme.
- The assessment of records kept by DWAF officials responsible for public awareness and communication.

Indicator 13.2: Capacity of regulatory and management institutions to comply with forest management legislation and customary law.

Aspirational goal 13.2.1: Real growth in DWAF's annual budget component dealing with forest regulation enforcement and monitoring.

Aspirational goal 13.2.2: Real growth on government's annual budget for training and capacity building for forest management personnel.

Aspirational goal 13.2.3: Speedy processing of forest related license applications.

Method for measurement

- This should be available from DWAF's annual budget, as approved by Parliament each year as well as the department's Medium Term Expenditure Framework (MTEF) budget projections.
- A table will have to be drawn up detailing the number of training and capacity building programmes, the type of programmes, the target audience, the number of people in the target audience and the budget for the programmes.
- The second aspect will require careful recording of the provincial License Application Advisory Committees (LAACs) and other forest regulators, as well as the relevant Departments of Environmental Affairs. A system will have to be developed to collate the relevant information and submit it regularly to a central point at DWAF.

Indicator 13.3: Compliance with forest management legislation and customary laws.

Standard 13.3.1: The Minister reports annually to CEC on compliance with EI&MP, as required by the National Environmental Management Act 107 of 1998.

Standard 13.3.2: The Minister to report on convictions and sentences in three yearly reports to Parliament, as required by section 6 of NFA.

Standard 13.3.3: The Minister to report on incentives created in his or her three yearly report to Parliament, as required by section 6 of NFA.

Standard 13.3.4: Annual submissions of timber plantation statistics census form by forest managers in accordance with the NFA section 53 (2) (d) regulations.

Method for measurement

- The Minister's regular reports in terms of the NFA and NEMA form the basis of any assessments. Rigorous analysis of statistical returns will also be necessary.
- Examination of the Minister's NFA report for incentives created.
- Review of statistical timber plantations' submissions received.

Indicator 13.4: Capacity of research institutions to support sustainable forest management.

Aspirational goal 13.4.1: Real growth on forest related research annual funding.

Aspirational goal 13.4.2: Growth in number if refereed articles published per annum.

Aspirational goal 13.4.3: Growth in number of new forest patents generated per annum.

Method for measurement

- Once a suitable definition is reached for 'forest research institution' it will be necessary to compile a database of these institutions. Contact will have to be

established with each one to ascertain, on an annual basis, their budgets. It may, in the future, be both possible and desirable to reflect this funding on a basis that differentiates between government, private sector and academic research institutions

- A survey of the relevant journals will be required.
- The monthly Patent Journal issued in the Government Gazette will be the most appropriate source for locating this information. It will, however, be necessary to define precisely what constitutes a 'forest patent' for the purposes of this measure.

Indicator 13.5: Capacity of education and training institutions to support sustainable forest management.

Standard 13.5.1: Minister to include this information with his or her three yearly reports to Parliament in terms of section 6 of the NFA.

Standard 13.5.2: The Minister to include information on trained forest personnel by qualification and demographic mix in his or her three yearly reports to Parliament in terms of section 6 of the NFA.

Aspirational goal 13.5.3: Inventory of forest education and training institutions and programmes are updated annually.

Aspirational goal 13.5.4: An increase in the number of black and female qualified personnel.

Method for measurement

- Examination of the Minister's three yearly reports for figures and types of institutions and qualifications should be sufficient.
- Assessment of the Forest Industries Education & Training Authority (FIETA) inventory records will have to be undertaken.

5.6.4 Final draft set of environmental PCI&S for SFM

Principle: Forests must be developed and managed so as to promote their health and vitality (NFA 3 (3) (c) (iv)).

Criterion 14: Forest ecosystem structures are conserved and processes maintained.

Indicator 14.1: Extent and connectivity of natural ecosystems.

Aspirational goal 14.1.1: An average distance between forest patches does not increase.

Aspirational goal 14.1.2: Mean area of each natural habitat should not be less than that required for the natural functioning of the system.

Aspirational goal 14.1.3: Transformation of natural habitats does not change or significantly compromise the functioning or processes of specific habitats or the overall ecosystem.

Method for measurement

- The indicator requires that a map of natural forests, grasslands, shrublands and woodland, and riparian zones and wetlands, in the FMU (preferably captured in a GIS) is available.
- The natural habitats within the Forest Management Unit, and their connection with similar habitats within the larger landscape should be mapped at regular intervals to observe the trend over time.
- The natural habitats need to be managed according to the required disturbance regime (gaps size in forest, fire in grasslands, shrubland and woodland, and water flow levels in wetland and riparian zones) to keep them in a good condition and free from invader plants.
- Average distance is calculated as the distance from the centre of a forest patch to the centre of its nearest forest patch neighbour, averaged for all patches in a landscape unit.

Indicator 14.2: Rehabilitation of degraded forests.

Aspirational goal 14.2.1: All areas being rehabilitated must show levels of improvement.

Method for measurement

- The areas that need rehabilitation need to be mapped.
- Specific rehabilitation requirements and methods for each area need to be described.

Indicator 14.3: Nutrient cycling.

Aspirational goal 14.3.1: Litter depth (or mass/m^2) in the impacted site does not deviate significantly from the non-impacted site.

Aspirational goal 14.3.2: Total organic carbon content does not decline on site.

Methods for measurement

- This method is used to measure the impact of resource use and management activities on nutrient cycling. In plantations a number of randomly selected topsoil samples should be compared with the standard for the particular soil type and plantation type (species and age). The measure should be interpreted as part of a soil sensitivity index.

Principle: Forests must be developed and managed so as to sustain the potential yield of their economic, social and environmental benefits (NFA 3 (3) (c) (ii)); and

Forests must be developed and managed so as to promote their health and vitality (NFA 3 (3) (c) (iv)).

Criterion 15: Forests are protected from negative effects of fire, pests and diseases, and alien invader plants.

Indicator 15.1: Impacts of pests and diseases.

Aspirational goal 15.1.1: Area affected by insect, pests and diseases should be decreasing over time.

Method for measurement

- The area and species affected, and the causal organism(s) need to be recorded when it occurs.

Indicator 15.2: Negative impacts of fire.

Standard 15.2.1: Implementation of fire breaks in compliance with Veld and Forest Fires Act 101 of 1998.

Standard 15.2.2: Compliance with burning seasons and conditions as prescribed by DWAF in terms of the Veld and Forest Fires Act 101 of 1998, and the Department of Agriculture in terms of the Conservation of Agricultural Resources Act 43 of 1983.

Aspirational goal 15.2.3: Area negatively affected by fire is decreasing.

Aspirational goal 15.2.4: Fire protection expenditure decreasing.

Method for measurement

- The area and species affected, and the cause of and conditions when the fire occurred, need to be recorded when it occurs, to guide improved management.
- In many cases this information is already being recorded for both plantations and natural forests in protected areas.
- The information is available from government agencies and commercial companies.
- Measure must be inflation adjusted to be useful.

Indicator 15.3: Infestation by alien invader plants.

Standard 15.3.1: Control weeds and invader plants in terms of the Conservation of Agricultural Resources Act 43 of 1983.

Aspirational goal 15.3.2: Intensity of infestation should be decreasing.

Method for Measurement

- Use map of the natural forests and/or plantations within FMU to record the location and intensity of infestation by alien invader plant species.
- Maintain database of alien invader plants by species, location (specific sites), area and density of infestation, to be updated annually, as a basis of the annual plan of invader plant control, and assessment of efficiency of management practices.
- Information is passed up from FMU to higher levels of management within the specific organisation (Government agency, private company or NGO), to guide strategic planning and management.
- Stand densities are measured according to predetermined infestation categories for each species.

Principle: Forests must be developed and managed so as to conserve natural resources, especially soil and water (NFA 3 (3) (c) (v)).

Criterion 16: Soil and water resources are conserved.

Indicator 16.1: Water quality.

Standard 16.1.1: Compliance with the Conservation of Agricultural Resources Act 43 of 1983, regarding the cultivation of slopes and the diversion of water courses.

Aspirational goal 16.1.2: Sediment load does not increase beyond a critical concentration.

Aspirational goal 16.1.3: Abundance and diversity of aquatic organisms is maintained within critical limits.

Method for measurement

- The measurement of sediment load requires frequent sampling during the phase of a relevant forestry activity to overcome spurious results following heavy rainfall events.
- This is an aspirational goal because water quality within an FMU will be affected by above stream influences.

- Technology currently available, but capacity building required. Use SASS 5, FAII, and RVI indices developed in the River Health Programme.

Indicator 16.2: Water quantity.

Standard 16.2.1: Compliance with requirements of the stream flow reduction activity (SFRA) water use licensing system in terms of the National Water Act 36 of 1998.

Method for measurement

- Regional DWAF authorities through SFRA licensing advisory assessment committees (LAAC) should be assigned the responsibility of collecting data, and later, catchment management agencies when in operation.
- Forestry industry standards have been developed by Forestry SA should be used.
- Infrastructure such as measuring weirs should also be used where in existence.

Indicator 16.3: Soil conservation.

Standard 16.3.1: Compliance with soil conservation requirements in terms of the Conservation of Agricultural Resources Act 43 of 1983.

Aspirational goal 16.3.2: Area affected by soil erosion is decreasing.

Aspirational goal 16.3.3: Corrective action leads to rehabilitation of eroded areas.

Method for measurement

- Eroded areas should be mapped and (preferably) captured in a GIS.
- Measurements relevant to general harvest area, access roads, stream crossings, drainage lines, burnt and grazed areas, and prepared sites for planting. Codes of practice and erosion mitigation are important tools to minimize erosion.

Indicator 16.4: Riparian zone and wetland management activities.

Standard 16.4.1: Compliance with National Water Act 36 of 1998, the Conservation of Agricultural Resources Act 43 of 1983, and the policy for wetlands and riparian zones delineation.

Method for measurement

- Degraded areas should be mapped and preferably captured in a GIS, and agents effecting degradation should be identified.
- Codes of best practice for wetland and riparian zone management are important tools for the management of these systems.

Indicator 16.5: Pollution levels.

Standard 16.5.1: Application of chemicals does not exceed dosage standards.

Aspirational goal 16.5.2: No residual chemicals used.

Aspirational goal 16.5.3: Number of pollution incidents should be declining.

Method for measurement

- Assessment of records kept by forest managers.

Principles: Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option (NEMA 2 (b));
The social, economic and environmental impacts of activities including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment (NEMA 2 (i)).

Criterion 17: Forest management planning promotes sustainable use and development of the forest resource.

Indicator 17.1: Forest management planning.

Aspirational goal 17.1.1: Each FMU has a management plan with content appropriate to the scale of the forestry operations. Plans must be up to date and relevant to the current period.

Aspirational goal 17.1.2: All FMUs have a management plan appropriate to the scale of the forestry operations.

Method for measurement

- Information may be obtained directly from forestry enterprises either through a sampling of key areas or through an addition to DWAF's Annual Timber Plantation Statistics Census Form.

5.7 conclusions

The participatory, iterative and deductive and inductive approaches adopted meant a considerable period had to be spent with small-scale timber growers, and made it possible to explore all issues that were raised throughout the process, from communities' liaison to the actual development of criteria and indicators.

Study results show that small-scale timber growers' views on SFM issues were concerned with improving their well-being. The social and economic issues that were considered relevant were land tenure, health and safety, sites of significance, stakeholder consultation, equity, empowerment, employment, and waste optimisation. The issues relating to policy included integrated planning, compliance with legislation, research and development, and policy review and reporting. While the ecological issues were security of resource base, water and soil vitality, and management and planning. These were priority issues for small-scale timber growers for SFM from which the resultant C&I were drafted as presented in section 5.6, and are discussed at length in chapter six.

CHAPTER SIX

THE DISCUSSION OF THE SMALL-SCALE TIMBER GROWERS' PERCEPTIONS ON THE DEVELOPMENT OF NATIONAL PCI&S FOR SFM IN SOUTH AFRICA

6.1 Introduction

The improvement in the international community's awareness on the impacts exerted on forests has similarly enhanced management of forests and their monitoring. However, due to complexities of issues surrounding forest management and its monitoring, there remained differing views of stakeholders on the subject. This is where PCI&S framework as an agreed tool to guide progress towards SFM becomes critical for integration of stakeholders' views. The small-scale timber growers are an important stakeholder group, and their commitment and perceptions are therefore equally as important.

The small-scale timber growers' perception on the development of the national PCI&S for SFM are presented in chapter five. This chapter focus on the discussions of these perceptions, reflecting on the outcomes of their engagement, SFM issues, desired conditions and resultant criteria and indicators. It then concludes with remarks on the PCI&S development implications.

6.2 Small-scale timber growers' participation on the development of PCI&S for SFM

The small-scale timber growers' participation was an integral part of the development of the PCI&S for SFM. While the ultimate purpose of small-scale timber growers' engagement was to appraise and integrate their perceptions into the development of PCI&S for SFM throughout the process, it also fulfilled an additional objective, i.e. creation of awareness and sharing of information around the definitions and purpose of principles, criteria, indicators and standards, as well as the objectives of SFM. These were both some of the objectives of the

study as outlined in section 1.3. The participation of small-scale timber growers was also critical to facilitate greater acceptance of criteria and indicators once they are implemented. The integration of good conceptual information and knowledge as presented in Tables 2 and 4 in chapters 4 and 5 respectively, and the more subjective knowledge of small-scale timber growers as presented Tables 5, 6, 7 and 8 all in chapter 5, was the melting point of the methodology effecting the development of the final draft PCI&S set for SFM as presented in section 5.6.

The small-scale timber growers' participation process adopted recognized the key problems and issues related to participation, and wherever possible these have been addressed (Scott and Oelofse 2000; Greyling 1998). Effective participation takes time, i.e. communication must be established and relationships built and maintained. To this end, issues such as the building of rapport, provision of good conceptual information, transparency, documentation and recording of issues that have been raised, and feedback to small-scale timber growers were addressed guided by the study's methodology. Small-scale timber growers' engagement comprised the following core activities, and can be used as a guide in other key decision-making processes with communities:

- Communities' leadership engagement to introduce study and negotiate access to communities;
- Initial communities' engagement to introduce study and make contact with members of a targeted group within a communities;
- A target group, in this case – small-scale timber growers through their working group, engagement to build capacity for effective participation in the process;
- Forth and back engagement with a target group to appraise and gather its perceptions on a particular subject to be considered in the process. In this study, this was undertaken as follows:
    - Engaging with small-scale timber growers to appraise their perceptions on SFM issues;

- Drafting of desired conditions for SFM;
- Verification of desired conditions with small-scale timber growers;
- Consolidation of comments and production of verified desired conditions, and drafting criteria and indicators
- Evaluation of criteria and indicators with small-scale timber growers;
- Finalization of criteria and indicators, and reporting final draft set of criteria and indicators to small-scale timber growers in closing the study.

The above core activities were gathered to satisfy one of the study's objectives, i.e. detailed record of the process that can be used as guide for other similar processes in engaging community's groups as reflected in section 1.3.

6.3 Social issues for sustainable forest management

The social sustainability issue-clusters, i.e. land tenure, health and safety, stakeholder consultation, significance sites, equity and capacity building, discussed in the following sub-sections follow the same sequence as presented in Table 4, and the discussions are substantiation of small-scale timber growers' perceptions as reflected in Table 5 and some potential implications.

6.3.1 Tenure

The working group felt that small-scale timber growers are exposed to harsh environments and experiences on land issues, including insecure tenure rights, a lack of clearly defined property rights and sometimes ill-treatment by land administrators. Their view was based on the principle that tenure is fundamental to any land use decision because it determines ownership, control, access and the use of land (Palin, 1995). Recent initiatives on SFM have shown that land tenure rights are key elements in sustainable forestry development (Carney, 1998). The small-

scale timber growers' perceptions on tenure issues are in line with Prabhu *et al.*'s (1999) observations:

- The lack of clear property rights can diminish incentives for long-term planning, investment and the adoption of sustainable production methods;
- Access to land influences prospects for economic growth and the extent to which it can benefit rural communities.

Similarly, the working group observed that small-scale timber growers are being deprived of access to capital resources, such as start-up finance, due to the inability to use communal tenure as a collateral because of unclear legal standing. Such circumstances are risks that small-scale timber growers have to take when engaging on forestry plantations. For example, a small-scale timber grower was expelled from one of the study communities and thus, lost his investment in trees (standing stock). However, despite such risks, the potential for income generation through forestry is such that there is an ever-increasing number of small-scale timber growers entering forestry (Christie & Gander, 1995; Ham & Theron, 1999; Lewis & Ngubane, 2000).

Forestry role players[1] are aware of such tenure associated challenges and are doing their best to bridge them (Gumede, 2002 *pers. comm.*). For example, through small-scale timber grower schemes, forestry role players are making technical and capital resources available for small growers in rural communities. This, however, does not address the actual tenure insecurity of small-scale timber growers. It has been recommended that communal tenure needs to be well defined and supported through legislation in order to improve security.

6.3.2 Criteria and indicators of tenure

The small-scale timber growers' perceptions and desired condition emphasised the importance of security of land tenure and rights for long-term investment, irrespective of scale. That is, it relates to all, ranging from land tenure for corporate

[1] SAPPI Project Grow, MONDI Khulanathi, NCT, TWK, WGA Phezukomkhono, FSA and DWAF as institutions or schemes, that has a role in assisting small-scale timber growers

to the traditional rights of land use for rural people. Clear tenure rights are politically and financially feasible, and are the first steps towards poverty reduction as a catalyst to promote sustainable forestry enterprises (Scherr *et al.*, 2002). To this end, the expression: 'land tenure of forest areas is clearly defined, recognized and secure' (see criterion 1 in section 5.6.1), was endorsed as a criterion. The criterion ratified the need for the legitimisation of rural people's tenure rights within and outside the South African policy environment. Indeed, there is hope for improvement once the South African commitment through Community Land Rights Act 11 of 2004 is implemented.

6.3.3 Health and safety

While it was considered important to promote a danger free or safe working environment at all times for all people, the working group also noted that it was exceedingly difficult for small-scale timber growers to conform to such legislative requirements (see Appendix 2 for people oriented legislations, e.g. Occupational Health & Safety Act 181 of 1993) based on the fixed capital investment, such as training costs and protective clothing, associated with health and safety and the scale insensitivity of such investment. The small-scale timber growers' inability to provide the necessary resources to promote health and safety raises a number of challenges, including:

- A poor and unsafe working environment for workers. Workers, therefore, have to rely on their own ability to minimize and/or prevent accidents occurring for their health and safety;
- A heightened incidence of non-conformity to legislation relating to occupational health and safety issues;
- Poor access to government services because small growers distance themselves from government due to non-compliance with legislations.

Although forestry role players are aware of the challenges and interventions have been undertaken to improve the situation, for example, providing training to small-scale timber growers on health and safety – such interventions have tended to be on

an ad-hoc basis, and thus, more coordinated efforts to make a meaningful impact are needed.

6.3.4 Criteria and indicators of health and safety

Small-scale timber growers acknowledged that ensuring health and safety is a critical issue. However, the question of building capacity to comply with the overall occupational health and safety issues was highlighted as equally important. The issue of employer's compliance is addressed and reflected as an indicator of the distribution of employment benefits under economics rather than as a social issue (see criterion 9 in section 5.6.2). The concern about the resources and capacity necessary to ensure health and safety at all times is addressed and reflected as indicators of the forest management institutions' compliance with legislation under policy rather than as a social issue (see criterion 13 in section 5.6.3).

6.3.5 Stakeholder communication

The working group mentioned that the stakeholder communication provides mechanisms for negotiations and dispute resolutions. This helps to keep good relations with neighbours and reduces the risk on investment (plantations). It was reported that small-scale timber growers do consult with their neighbours and take into consideration their concerns in the management of plantations. To this end both parties benefit from a real sharing of decision-making (Wilson *et al.*, 1999). There was, however, a feeling that parties need to be better informed of the processes and their expected roles and responsibilities within any cooperative process such as stakeholder communication. An opportunity thus existed to enhance the beneficiation of the parties through the provision of capacity building to facilitate and/or participate in such processes more effectively.

6.3.6 Criteria and indicators of stakeholder communication

The aforementioned stakeholder communication issues were predominantly at an operational and/or forest management unit (FMU) level. That is, owners and their immediate neighbours. No reference was made to stakeholders at landscape,

provincial or national levels. This is a good demonstration of a scale sensitive operation and discourse, which is linked to or motivated by the capacity of growers. These small-scale timber growers' issues are however addressed and reflected as indicators of criterion 2 (see section 5.6.1).

6.3.7 Sites of significance

The working group could not adequately express the cultural importance of sites of significance. To demonstrate such magnitude, it was reported that respecting sites of cultural importance was transformed into a code of conduct within the study communities. The underlying principle being that they should be identified and marked where in existence, and the people concerned be allowed access to them, although very little knowledge and information exists on the subject in rural communities, with the exception of graves, where a forest owner can identify them. These perceptions are in line with the definition of social sustainability, which is the ability to maintain desired social values, traditions, institutions, cultures and other social features (Goodland and Maryla, 1987).

The lack of knowledge and information on sites of significance in rural communities is a legacy of improper developmental planning and a lack of capabilities from relevant authorities. There are now, however, processes like the stream flow reduction activity (SFRA) licensing. The SFRA licensing is a cooperative governance process, led by the Department of Water Affairs and Forestry (DWAF), aimed at assessing environmental impacts of forestry development on a number of issues, including water, biodiversity and archaeological, where other institutions like Heritage KZN through their responsibilities in the assessment of applications ensures that new afforestations are established in cognisance of sites of significance. Theoretically, the question of the lack of knowledge on sites of significance should be bridged through the SFRA licensing process because sites of significance issues are or should be assessed as well. In practical terms, however, many plantations were established by government, companies and individuals without following such procedures in the past. The process is also not designed to

mend the inefficiencies of the past, but should certainly guide future developments and hopefully improve outcomes.

6.3.8 Criteria and indicators of sites of significance

It is theoretically easy to influence behavioural changes through the introduction of new laws, but practicality becomes another challenge. In this instance, however, the issue would be a mere formality to endorse an already practiced tradition. That is, not only respecting sites of significance but also looking after them. In deed, there is the National Heritage Resources Act 54 of 1999 governing such an issue. This is reflected both at criterion and indicator level (see criterion 3 in section 5.6.1). In addition, the question of access is now addressed and reflected through the responsible use of forests rather than the sites of significance issue (see criterion 4 in section 5.6.1).

6.3.9 Equity

There were four issues expressed by small-scale timber growers in discussing equity. Firstly, the question of formal representation of small-scale timber growers in the forestry sector came as no surprise. That is, they have not previously been represented through formal channels and structures where decisions are taken. They were thus faced with the challenge of having no influence on decision-making processes that impact on their lives. This perpetuates the thinking that a lack of participation on key decision-making processes maximized the possibilities of disruptive conflicts emerging at the implementation of any decisions taken (Prabhu's *et al.*, 1999). The current author believed that the new forestry industry representative association, Forestry South Africa (FSA), would address the question of small-scale timber growers' representation. To this end, FSA has, with assistance from DWAF and DFID, appointed two small-scale timber growers' representatives on its Executive Committee (board equivalent) from their 76 structures already established in the Provinces of KwaZulu-Natal and Limpopo.

Secondly, the issue of fair resource allocation and distribution, and repairing imbalances inherited from the past regime was raised. The point was made that, people who live in or around forestry areas have a history with such resources as reflected in chapter 4 sub-section 4.31, and thus, should benefit from the outcomes of forestry existence and development. This view concurred with Prabhu *et al.*'s (1999) observation that, without an improvement in a local community's well-being, any efforts to manage an exploitation of forest products will be highly problematic. The introduction of SFM has brought with it an emphasis on the importance of social issues. For example, today there are lots of social corporate investment programmes aimed at improving the living conditions of surrounding communities. Such community support can only improve the situation with time.

Thirdly, the need to develop appropriate strategies to enable disadvantaged groups to take advantage of opportunities was acknowledged. For example, devising mechanisms to engage small-scale timber growers and capacitate them to understand the dynamics of forests management from a functional view, so that initiatives can be sustainable. This should minimize often experienced challenge of continued creation and/or promotion of dependency between such groups and supporting agencies. That is, a dependence syndrome emanating from a constant support of previously disadvantaged groups, like small-scale timber growers, by well-off agencies.

Fourthly, the question of fair and equitable access to resources necessary for development was expressed as needing immediate attention. In evaluating this issue, a comparative analysis was made between freehold and communal land tenure systems with regard to accessing financial credit, input, information and other necessities for farming. It was learnt that, due to communal systems, small-scale timber growers, for example, often suffer from inaccessibility to such necessities, and remain impoverished. Experts also believe that development should be directed towards making it possible for citizens of a free country to improve their lives (Prabhu *et al.*, 1998). Thus, if economic and social independence does not exist and

is not created, then there is a high possibility of perpetuating dependency (on support), poverty, and other negative factors.

All the above views generally concurred with Kahn (1995), Cooper and Fakir (1994) and Welford's (1995) claims that equity involves, at a minimum, optimization in resource allocation, use, and equity in resource distribution and redressing past inequalities in a society. Equity, however, cannot necessarily translate itself into an improved and responsible environmental practice (Lele, 1991). But, from a sustainable development perspective, it can play an important role in creating and improving an enabling environment for normative development (Prabu *et al.*, 1999). This, in turn, ensures that freedom and rights are passed on to future generations, which the concept of sustainable development seeks to promote and achieve.

6.3.10 Criteria and indicators of equity

The small-scale timber growers' comments on equity placed emphasis on an increased prosperity of previously disadvantaged groups. This is critical to mend imbalances of the past through the sharing of social and economic benefits. Such issues are addressed and reflected through a number of criteria. The issue of participation has already been covered by criterion 2 (see section 5.6.2). The question of redressing imbalances of the past and the beneficiation of local communities are collectively addressed by criteria 5 and 6 (see section 5.6.1). Furthermore, the issue of opportunity costs emanating from the exploitation of the local environment is addressed through criterion 7 (see section 5.6.1). In addition, access to resources for development is relevant to the concept of sustainable development, but is, rather, input-based and is, therefore, indirectly addressed through these outcome-based instruments.

6.3.11 Capacity building

While defining what constitutes capacity building might be difficult, discussion with small-scale timber growers was naturally limited to the sustainable resources

management and business dynamics issues, such as the whole forestry production cycle and basic business principles respectively. In essence, technical and business capabilities are critical issues because they relate to management techniques and the ability to apply them in practice. Mechanisms through which such issues could be facilitated include raising awareness, training and empowerment, and exposure to the relevant information and decision-making processes. A lack of capability is often associated with the challenges of ignorance and irresponsibility. This is why capacity building is an important part of sustainable development (MFA, 1997). For example, if the human element were not addressed, efforts directed in devising means toward sustainable development, would unfortunately be unnoticed (Van der Zyl, 2000). Thus, a strategy needs to be developed aimed at improving the capacity of the small-scale grower community if sustainable resource management is to be realised in rural areas.

6.3.12 Criteria and indicators of capacity building

The issues relating to resource management, business dynamics and access to relevant information are already covered in criteria 2, 5 and 6 as reflected in section 5.6.1. In addition, capacity building issues relating to the participation in forest management and policy development and review are addressed through criteria 2 and 8 (see section 5.6.1) respectively.

6.4 Economic issues for sustainable forest management

6.4.1 Employment

It was recorded during small-scale timber grower engagement that local people should be given preference for employment in forest activities conducted in and adjacent to their communities. The rationale for such discourse was based on the following view-points:

- Communities' physical environments are being exploited and thus, they should benefit from such operations;
- Forest resources are important and critical to communities' livelihood

strategies;

- Sourcing labour elsewhere and/or movement of labour in and out of communities could exacerbate challenges associated with high population growth and the spread of HIV/AIDS.

The author noted that the implications for non-preference were enormous, to the extent that the safety of forests, working environment and work force could be threatened. For example, plantations may be deliberately cut, burnt and/or encroached upon with cattle. In addition, local people would be deprived of opportunities for formal and informal training that comes with being employed. These, amongst others, are issues for consideration in the stakeholder communication processes discussed earlier, under social sustainability.

6.4.2 Criteria and indicators of employment

The raised issues, such as employment, local community, and economic development and opportunity costs seem to imply that forestry businesses should benefit local people for their long-term sustainability. Local community, economic development and opportunity costs have already been addressed through criteria 5, 6 and 7 under social sustainability (see section 5.6.1). The question of employment benefit is now covered through the indicators of criterion 9 (see section 5.6.2).

6.4.3 Waste optimization

The average plantation size of small-scale timber growers ranges between one and two hectares, and thus, efficient utilisation of produced timber becomes critical. That is, they need to make as much economic conversion of the produced timber as possible in order to maximize returns. For example, selling timber logs and bark to mills and/or through companies and/or marketing agents, and off-cuts to local communities as firewood. The challenge, however, is that small-scale timber growers are often not informed about the market options, on which, to base their decisions. As a result, such opportunities pass unexplored.

While waste optimization may yield economic benefits, it comes at a cost to the environment in the long run. That is, it reduces fuel-load and thereafter fire hazards, which may contribute to low nutrient recycling and worsen soil erosion, particularly on steep slopes. This, coupled with pests and diseases, impacts on the growth and condition of plantations (Muhtaman *et al.*, 2000). Thus, SFM requires managers to take into account a spectrum of issues when making decisions. The C&I tool was instituted to assist and enable managers to consider as many issues as possible before passing any judgement.

6.4.4 Criteria and indicators of waste optimization

The issues covered under waste optimization included the efficient use of timber, nutrient recycling and soil improvement. Efficient use is reflected as an indicator of criterion 10 – the maintenance of production potential (see section 5.6.2). In addition, nutrient recycling and soil improvement issues are covered as indicators of criteria 14 and 16, the forest ecosystem structure maintenance and soil resource conservation under environment sustainability respectively (see section 5.6.4), as dealing with natural resources' processes.

6.5 Policy issues for sustainable forest management

The term 'policy' is used here to refer to the policy prescribed by the Minister of DWAF in terms of section 46 of the National Forest Act (NFA) 84 of 1998. It does not refer to the management policy of a particular forest management unit. Small-scale timber growers emphasized the importance of a supportive policy environment and mentioned that without a political space, it is exceedingly difficult for rural people who are directly dependent on natural resources to organize and/or have an impact on policy-making processes. For example, reference was made to a support enjoyed by irrigation farmers through 'the policy on financial assistance to resource poor irrigation farmers', aimed at assisting farmers with a grant facility for a number of

uses, services and systems. This policy is, however, not applicable to forestry as the only declared stream flow reduction activity.

6.5.1 Integrated planning

The extent of dominance by certain land-uses in rural communities demonstrates the shortcomings in integrated planning. For example, a high proportion of forest plantations in the KwaMbonambi Community leave little space for other land-uses, like grazing and cropping. Each land-use should be promoted within the limits of the natural resources. This view concurs with the principle of sustainable development on an equitable diversification of livelihood activities in societies (CBDS, 1992). There are, however, a number of challenges associated with achieving integrated planning, including the following:

- Communities lack capacity, information and services to guide them in balancing sustainable economic activities;
- Community leadership is often not engaged in development processes to learn and understand the interface between people's needs and natural resource capacity.

The responsibility to improve such circumstances rests with the district and local level government, and hopefully, the process of integrated development planning (IDP) would facilitate remedial and assertive interventions.

6.5.2 Criteria and indicators of integrated planning

The issues considered relevant by small-scale timber growers on integrated planning included a lack of communication, capacity and development facilitation and planning. Communication and capacity building have been addressed under social sustainability. Development facilitation is reflected through criteria 11 and 12 collectively (see section 5.6.3), and planning, as an indicator, under criterion 17 (see section 5.6.4).

6.5.3 Compliance with legislation

There were two perspectives under which the question of compliance was answered by the working group. The government has a responsibility to create and facilitate an enabling environment for stakeholders to comply with, and to monitor and enforce legislation. That is, engaging stakeholders in processes of establishing and/or reviewing legislation, and the fair broadcast thereof to a broader public once enacted. A concern was recorded by the author that rural communities are often not involved in the policy-making processes, and publication mechanisms are limited. Small-scale timber growers made reference to the process of developing C&I for SFM as being empowering in that regard and they recommended that other processes should adopt a similar approach in principle.

On the other hand, the implementation of legislation is the responsibility of plantation managers and/or owners. In other words, forest managers and/or owners should devise the means and exploit every opportunity to ensure compliance with legislation. For example, where skills to convert policies into implementable plans are non-existent within a work force, it should be sourced outside. Small-scale timber growers identified that they were incapable of assuming such responsibilities, and thus, would need some assistance in the form of extension services and incentives.

6.5.4. Criteria and indicators of compliance with legislation

Based on the view that compliance with legislation is two fold, that is, the responsibility of the government as well as the general public, such issues relating to responsibilities are reflected as indicators of the forest management institutions compliance with legislation in criterion 13 (see section 5.6.3). Furthermore, the question of assistance and incentives to promote compliance and its associated communication are covered in criterion 8 (see section 5.6.1), under social sustainability.

6.5.5 Research and development

Research and development is a critical and integral part of any sector's sustainability. For instance, today, in forestry there are tree species (clones) that take about seven years to reach maturity, depending on the climate, with the resultant enhancement of quality and quantity. This is an enormous improvement based on the fact that trees used to take about eleven years to maturity. To this end, it was reported by small-scale timber growers that such research and development output improves efficiency and minimizes the turnover period. While research and development are considered to be critical, it was beyond the small growers' capacity to pioneer any activity. Rather, they relied on their respective business partners through contract farming for improved and better technological outputs. The author hoped that small-scale timber growers' mainstreaming through the new association, FSA, would result in their participation on the industry research and development forums as well to influence decisions-making.

6.5.6 Criteria and indicators of research and development

Small-scale timber growers' views suggested that the importance of research and development to sustain the sector could not be overly emphasised. Furthermore, the lack of capacity, for small-scale timber growers, to undertake necessary research was noted. These issues are both addressed and reflected as indicators of criterion 13 in section 5.6.3.

6.6 Environmental issues for sustainable forest management

6.6.1 Security of resource base

It was reported by the small-scale timber growers that securing natural resources has always been at the centre of rural community management practice. That is, the present generation is still relying on and using the very same resources that were exploited by their ancestors. In contrast, it was learnt through field visits, that natural resources such as forests, wetlands and water are often compromised for the establishment of forestry plantations. There are, however, other activities through

which such natural resources are being comprised. For example, the cultivation of sugarcane and crops in wetlands was also observed. Of course, there were real challenges associated with such actions sighted, including:

- The ever-increasing population in rural communities, making less land available per capita for productive purposes;
- The legacy of the past apartheid regime, where people were resettled in concentrated locations;
- The extent of unemployment levels in rural communities which increases people's vulnerability and desperation;
- The vicinity of certain households to natural forests, water sources and wetlands;
- The lack of services and information on the livelihood options available to rural communities;
- The lack of integrated land use planning (discussed under policy sustainability earlier).

In the context of the aforementioned challenges, it was recommended that the management of natural resources needs to be viewed at a community level. For instance, through integrated development planning, certain resources could be earmarked for conservation purposes. Such a viewpoint was strongly motivated by the practical observations that from an individual perspective it is difficult to cater for small patches of natural resources' habitants. This rationale concurs with the observation that, when making decisions on expenditure on land improvement, farmers will take into account only the private benefits which would flow from that investment (DPIE, 2000). Their decisions may not adequately reflect the impact of such decisions on the environment and/or future generations. The question of capacity was sighted as the factor resulting in a failure to contextualise the implications of their decisions on sustaining natural resources. To this end, a number of improvement measures were made by small-scle timber growers, including that:

- The government needs to provide extension and advisory services to guide rural communities in order to conserve natural resources more effectively;

- Tribal authority councils need to be involved in key decision-making and planning processes to ease and improve the implementation and enforcement of strategies and legislations respectively;
- The government should consider acquiring extra land from previously expropriated lands, and redistribute it back to communities. It was stressed that such land should not be privatised through willing seller-and-buyer principles, but mechanisms should be explored that would benefit rural communities;
- People need to be capacitated on specific issues relating to environmental sustainable practices.

6.6.2 Criteria and indicators of security of resource base

The above discussion endorsed the notion of sustainable natural resource management and exploitation. However, the management responsibility of such resources was viewed rather at community level, based on a number of challenges such as lack of extension services and participation in key decision-making processes. This gave rise to recommendations for the provision of services, stakeholder involvement, redressing imbalances of the past and capacity building, which are already covered through numerous C&I as reflected in Tables 9. Other issues are now addressed through indicators of the conservation of the forest ecosystem and the protection of forest resources as criteria 14 and 15 respectively (see section 5.6.4).

6.6.3 Water vitality

Water is a precious resource and a source of sustenance for all organisms. In fact, forestry management planning and practices are expected to internalize and reflect responsible water use in South Africa, the motivation being that forestry impacts on ground water resources (Taylor et al., 1997). To this end, it was reported by the small-scale timber growers that water sources are shrinking and disappearing with the extension of agricultural and forestry land use in certain rural areas. This is partly

due to the fact that forestry plantations are continuously being extended into areas where water has already been depleted and the general and consistence occurrences of less rain in their areas (see the paragraph below). These practices are in conflict with the environmental guidelines for natural resource management (FSA, 2002b). These are good code of practices developed and agreed to by the South African forestry industry.

While water is a scarce resource in South Africa in general and taking into the level of less rainfall at the time of the study, its quantity was not considered a concern in the study areas (Mthethwa, 2002 pers. comm.). The study areas are at a low altitude and have high peak rainfalls in summer. It was mentioned by the small-scale timber growers that if trees were not planted, most of the households would be under water during the summer season, particularly in the KwaMbonambi Community. This is, however, a narrow view because, from a conservation perspective, streams and rivers need certain water levels all year-round for ecosystems to function well (Taylor *et al.*, 1997). To ensure sustainable water use, the sharing of roles and responsibilities for water resources management, and distribution of costs and benefits for water use need to be considered. The question of support and capacity for stakeholders also needs to be explored as well.

6.6.4 Criteria and indicators of water vitality

While sustaining water resources is viewed from cooperative principles, including the sharing of roles and responsibilities, there are other essential issues, like the questions of service provision and the capacity of certain groups to satisfy their duties. These issues are covered through the indicators of soil and water resource conservation in criterion 16 (see section 5.6.4).

6.6.5 Soil vitality

While soil is the only medium for production purposes used by rural communities, land use options are many, forestry being one. It is strategically important to conserve soil properties for future prospects and generations. In fact, the maintenance of physical and chemical properties of the soil is a critical aspect related to the long-term productive capacity of a site (Muhtaman *et al.*, 2000). To this end, the small-scale timber growers reported that soil disturbance at establishment and harvesting causes compaction and erosion, and should be minimised. In addition, the following should be considered:

- The leaving of aligning residues in between rows to protect the soil from eroding, and as a means of improving soil texture and nutrient status;
- Burning as a management practice may be considered at replanting if necessary.

6.6.6 Criteria and indicators of soil vitality

There were two core issues, namely properties and nutrient cycling, considered in exploring soil. The property maintenance is addressed through the indicators of soil and water resource conservation (see criterion 16 in section 5.6.4). The issue of nutrient cycling is reflected as an indicator of the conservation of the forest ecosystem in criterion 14 (see section 5.6.4).

6.6.7 Management and planning

Small-scale timber growers do not have written management plans and do not keep detailed records because of their low literacy levels. It was noted, however, that they kept information in their minds and are aware of their management objectives. That is, they are aware of their forestry activities and when to implement them. In other words, they could articulate their management plans and objectives verbally. This is within a framework that administering an economic activity needs a well-defined management plan with objectives (Muhtaman *et al.*, 2000). The author believed that the challenge of record keeping could be improved by utilisation of an appropriate

SFM framework for small-scale timber growers. However, such a framework does not currently exist as indicated in chapter three.

One of the important mechanisms to assess forestry activities for compliance with management plans is monitoring. The question can, however, be raised as to the possibility of verifying whether monitoring is undertaken and that outcomes are integrated into future processes, if there were no records kept. To this end, it was gathered by the author that a simple observation technique is often used to monitor and take control actions if necessary. This technique is an important tool, even in modern management practices. In order to plan and implement management plans, a level of competence is necessary. Muhtaman *et al.* (2000) observed that capable human resources are necessary for proper forest management. A point must be made, though, that the degree of management intensity varies across the spectrum depending on the scale of different entities and also the required capacity. Hence, it was recommended that a management framework relevant to the capacity of small-scale timber growers needs to be investigated to facilitate integration of SFM issues. In response, a study has been commissioned by the forestry sector supported by the Department for International Development (DFID) to investigate the development of a SFM system applicable to small-scale timber growers in South Africa.

6.6.8 Criteria and indicators of management and planning

Issues reflected in the discussion about management and planning included plans and their implementation, monitoring, and human resources and capacity. It was noted that management and planning is scale sensitive, and thus, an issue for lack of an appropriate SFM system for small-scale timber growers and the associated capacity were of concern. Management and planning is addressed as an indicator of forest management planning under criterion 17 (see section 5.6.4). Furthermore, capacity building for the proper planning and implementation of plans are addressed as indicators of the distribution of employment benefits under criterion 9 (see section 5.6.2), and the forest management institution compliance with legislation under criterion 13 (see section 5.6.3).

6.7 Conclusions

Some of the positive outcomes of the political legitimization of SFM have been the agreement on what it constitutes and how to progress towards the desired state. The participation of, and interaction between different spheres and stakeholders on SFM is yet to be optimal. In fact, some of the stakeholders are yet to play a meaningful role in debating SFM issues, and informing policy and regulatory processes. To this end, issues reflected and discussed in this chapter were the results of the small-scale timber growers' engagement as one such stakeholder. They covered social, economic, policy and environmental perspectives.

The study results on social and economic sustainability reflect that there is a focus on the relationship between management of forests and well-being of surrounding communities, including particular groups or persons. The issues addressed included land tenure and access, health and safety, sites of significance, consultation and/or participation, equity, empowerment, employment, and waste optimization. They placed emphasis on the importance of access to land, and land tenure and rights affecting the well-being of the small-scale timber growers. The small-scale timber growers seemed to be aware of the existence and importance of institutions that might assist them. It was, however, clear that they do not have a good relationship with them due to poor communication. Furthermore, the small-scale timber growers felt that they were being neglected, which, together with eroded tenure rights, makes them vulnerable to poverty and other social challenges. The challenge now is on how to improve small-scale timber growers' circumstances. One, amongst other solutions drawn from the discussion (section 6.3), would be to define and support communal tenure through legislation to improve their security, and enactment of the Communal Land Rights Act 11 of 2004 brings hope.

It is clear from the engagement with the small-scale timber growers that they did not have functional and representative structures. For example, to facilitate communication with both communities meant establishing the working group. The

lack of such structures poses a challenge for small-scale timber growers' consultation and/or engagement on key decision-making processes. Unless the issue is improved, authorities and other organizations will not know whom to consult if they want to communicate with small-scale timber growers. This has, however, been and continues to be improved through FSA.

The results also show that the socio-economic context of small-scale timber growers is the most critical factor for their development. For example, a lack of capacity amongst a small-scale timber grower community makes it difficult for them to subscribe to the SFM concept. Thus, the resulting criteria and indicators were phrased accordingly to make provision for such shortcomings in stakeholder groups, like small-scale timber growers.

Study results discussed under policy sustainability, included integrated planning, a compliance with legislation, and research and development. Section 6.5 shows that institutional support to, the capacity of small-scale timber growers, and a lack of participation in decision-making processes were some of the challenges discussed. These further complicate the implementation and/or promotion of SFM by small-scale timber growers. An unanswered question, however, was why small-scale timber growers were not supported through a policy for development purposes. In laying a foundation in this regard, the resulting criteria and indicators relating to policy issues addressed small-scale timber growers' support processes, and other measures necessary for them to progress towards SFM.

Finally, ecological sustainability focused and dealt with the environmental impact of a change in land use and the effects of intensive management of plantations on ecosystems. The issues covered were: the security of resource base, water and soil vitality, and management and planning. There was an emphasis that plantation management should strive to improve and maintain the production potential of resources. In contrast, the study results also showed that most services derived from natural resources have been discontinued because of impediments. This was due to

the following challenges: encroachment and depletion of natural habitats (water, wetlands and indigenous forests), and a poor relationship between small-scale timber growers and resource management authorities. It emerged strongly that small-scale timber growers could not tackle these issues alone without support from government and the private sector as major role players. As a result, a need to devise systematic and participatory approaches to engage with small-scale timber growers to discuss and design strategies to address their issues was identified. Some of the options to be considered could include integrated extension and advisory services, and an appropriate management framework. The resulting criteria and indicators, as presented in section 5.6, set a platform for further interventions.

CHAPTER SEVEN
CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

The aim of the study was to ensure the participation of small-scale timber growers, through the identification and integration of their perceptions, in the development of national PCI&S for SFM in South Africa in the Zululand region of KwaZulu-Natal.

The concept of SFM, particularly in the SA context, was a relatively new approach in forest management. The small-scale timber growers concurred with the relevant literature, in that motivations for SFM go beyond the management of the physical environment to include meaningful focus and/or attention to social and economic issues of influence on a FMU. While the concept of SFM was considered as an approach which holds much promise, associated challenges were identified by small-scale timber growers to include a lack of capacity to meet the requirements of SFM, a lack of management plans, difficulty in meeting costs associated with SFM, poor access to information and a lack of government support. However, a number of actions can be undertaken to improve these challenges to facilitate the alignment of small-scale timber growers with the concept of SFM. These actions include facilitating better access to information, the adaptation of SFM standards to small-scale forestry and an improved participation of small-scale timber growers on key decision-making processes. The study also identified that there is a need to develop an alternative type of management plan which is more appropriate to the small-scale forestry.

A number of SFM issue-clusters' related activities, such as use of protective clothing for health and safety, and management of sites of significance, can readily be implemented at FMU level, as they do not require too much supervision. It was discovered that small-scale timber growers were already conducting some of these activities supported by their service providers. The study results show that neither

the forestry industry, nor the government has spent much time and/or resources on small-scale timber growers, which makes it difficult for them to subscribe to the concept of SFM. There were a number of measures and/or actions recommended for small-scale timber grower developmental progression towards SFM (see recommendations' section 6.2).

Small-scale timber growers emphasized that a number of issues relating to SFM should be promoted to facilitate the sustainable use of resources. Although most of these issues are already known and pursued by a number of forestry entities, such as Mondi, Sappi and NCT, these interventions are input-based. There is, therefore, a need to adopt outcome-based interventions, to facilitate and ease subscription to SFM, particularly from the small-scale timber grower perspective.

The study results indicate that SFM and the manner in which the process was facilitated had a meaningful and positive impact on the small-scale timber growers engaged in the study. For example, small-scale timber growers have a different understanding and attitude towards the key issues and cornerstones of SFM. These include a comprehension of what SFM is, and its associated challenges. This in turn should facilitate the subscription of small-scale timber growers to the concept of SFM.

Literature shows that the concept of SFM in SA has been promoted by, and/or associated with a number of intergovernmental and non-governmental processes, like the African Timber Organization (ATO) and Forest Stewardship Council (FSC) respectively. The development of PCI&S for SFM has raised the plight of sustainable resource management in the study area and elsewhere in SA. This is critical and important, given that the study area is one of the highly regarded small-scale forestry areas in the country. Thus, small-scale timber growers' attitudes have been strongly influenced which has resulted in the fostering of a culture of sustainability. However, the challenge remains on how to nurture the concept of SFM in the context of small-scale timber growers.

The study methodology showed that SFM can promote good public relations between a grower and forestry surrounding communities. This is primarily achieved through the effective communication that goes with participatory forest management as a key cornerstone of SFM. Although communities do benefit, from a security and management perspective of a forestry entity, a grower is the most rewarded party. Small-scale timber growers' role players are tasked with a challenging responsibility to institute a relevant management plan that internalizes the SFM factors.

In conclusion, SFM has a role to play in the South African forestry industry in general. Small-scale timber growers' role players must be aware of and consider the social, economic and environmental issues in their extension services and/or business management tools. The study has shown that SFM can complement other processes for sustainable management, such as certification and/or environmental management systems. It has also been demonstrated that a combination of outcomes-based and input and/or process-based or bottom-up and top-down processes can produce an integrated outcome. An integrated outcome could, in this instance, be described as containing right conceptual information while reflecting local conditions. This is important if South African forestry is to conceptually contribute to the global debate about, and management of the world's forests.

7.2 Recommendations

Throughout the document, certain questions have been generated, which have not been fully addressed. These include:

- The C&I evaluation and development method can comfortably be applied to any other rural communities and/or small-scale timber growers engagement, at least, in South Africa as a guideline. However, it would be necessary to consider the following:
    - The experience and multi-disciplinary composition of the facilitation team, and the credibility and popularity of literature used;

- Quality time would need to be invested in establishing rapport firmly for clear and pleasant progress;
- A top-dawn approach needs to be balanced with a well informed facilitation of a bottom-up process, particularly in cases where local issues are different from those generally experienced globally;
- The nature of C&I standards being developed, that is either input or outcome-based, needs to be decided in advance and be kept in mind at all times.

- Sustainable forest management is a considerably new field, particularly to small-scale timber growers. Therefore, the content of C&I should also be informed by comprehensive global information as a model and trend of SFM development. However, the resulting C&I set proposed there from, should reflect issues of local significance. Although the proposed C&I set was developed under a thorough participation of small-scale timber growers, its practical relevance has not been tested. Therefore, it would be constructive to undertake a testing and implementation of C&I in practice.
- Considering the growing international focus on, and concern about SFM, pressure will be exerted on small-scale timber growers to adhere to SFM principles in the near future. There is, therefore, an inevitable need to devise a relevant type of management plan that is appropriate to small-scale timber growers as a model for SFM.
- In addition, the development of small-scale forestry requires close supervision of the following, if SFM is to be successfully administered:
  - Small-scale timber growers are not aware of their environmental responsibilities. Thus, in order to create an understanding on such issues, a certain level of environmental awareness building is required;
  - Existing land tenure systems and traditional rights discourage the development of small-scale timber growers, and therefore a commitment to proper land use practices. Land tenure systems need to be streamlined to ensure greater security for small-scale timber grower communities;

- There is lack of empowerment initiatives aimed at optimizing opportunities provided by forestry. In response, entrepreneurial training needs to be provided to small-scale timber growers in order to take advantage of opportunities offered by forestry;
- The majority of small-scale timber growers are illiterate, and therefore, their level of participation is constrained. There is a need for the establishment of a forestry administration and management conduit that caters for their shortcomings;
- There is a lack of information flow from the forestry industry and the public sector to small growers. In addition, small-scale timber growers are not well organised, which makes it difficult for them to access, and/or disseminate information. There was, therefore, a pressing need to establish relevant institutional structures for representation and communication purposes. While this has been assumed to certain level of success through FSA, the sector need to continue further mainstreaming small-scale timber growers' issues.

7.3 The limitations of the study

The study sample used to identify and integrate small-scale timber growers' perceptions on SFM is based on a relatively small sample of two communities in one region. A more representative sample of a distinct nature would have provided a greater diversity of views that could generally reflect small-scale timber growers' perception provincially and/or nationally.

Finally, only small-scale timber growers and their role players were surveyed. The perceptions of relevant NGOs, communities' traditional leadership and other role players were not investigated. This means that other SFM issues raised by small-scale timber growers could not be ascertained and explored further beyond the small-scale timber growers' perceptions.

7.4 Areas of further research

Based on recommendations made above, further research and/or study need to be pursued on the following areas:

- Investigation of a guideline for the engagement of small-scale timber growers on key decision-making processes;
- Design of an appropriate type of SFM system for use by the small-scale timber growers - both those that are linked to schemes and those that are not linked, and along the lines of group organization;
- Testing and implementation of the developed C&I to determine their applicability in the field;
- Comprehensive mainstreaming of small-scale timber growers' issues into the sector's affairs. For instance, enhancing their capacity to enable them to deal with SFM issues.

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APPENDICES

APPENDIX 1.1
NATIONAL FORESTS ACT 84 OF 1998 PRINCIPLES

The Forests Act (subsection 3[3]) contains a set of principles that 'guide decisions affecting forests'. They are:

a) natural forests must not be destroyed save in exceptional circumstances where, in the opinion of the Minister , a proposed new land use is preferable in terms of its economic, social or environmental benefits;

b) a minimum area of each woodland type should be conserved; and

c) forests must be developed and managed to as to –

   i. conserve biological diversity, ecosystems and habitats;

   ii. sustain the potential yield of their economic, social and environmental benefits;

   iii. promote the fair distribution of their economic, social, health and environmental benefits;

   iv. promote their health and vitality;

   v. conserve natural resources, especially soil and water;

   vi. conserve heritage resources and promote aesthetic, cultural and spiritual values; and

   vii. advance persons or categories of persons disadvantaged by unfair discrimination.'

Furthermore, the legal effect of the principles is set out in subsection 3(1) of the NFA: 'the principles ... must be considered and applied in a balanced way –

a) in the exercise of any power or the performance of any duty in terms of this Act;

b) in the development and implementation of government policies affecting forests;

c) in the exercise of any power or the performance of any duty in terms of any other legislation where [it] will impact on a natural forest or woodland;

d) in the issuing of a licence or other authorisation relating to the use of water for afforestation or forestry ...; and

e) by any person required in terms of any legislation to carry out an EIA in respect of any activity which will or may have an effect on natural forests or woodlands.

APPENDIX 1.2

NATIONAL ENVIRONMENTAL MANAGEMENT ACT 107 OF 1998 PRINCIPLES

The 18 principles in NEMA are extensive. These principles are preceded by two overarching provisions that firstly establish people at the centre of environmental management and secondly indicate the scope of sustainable development:

- Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably; and
- Development must be socially, environmentally and economically sustainable.

The NEMA principles are:

Sustainable development requires the consideration of all relevant factors including the following:

a) That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
   i. that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
   ii. that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;
   iii. that waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;
   iv. that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;
   v. that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;
   vi. that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and

vii. that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.

b) Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.

c) Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.

d) Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination.

e) Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.

f) The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured.

g) Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognising all forms of knowledge, including traditional and ordinary knowledge.

h) Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.

i) The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.

j) The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.

k) Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.

l) There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment.

m) Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.

n) Global and international responsibilities relating to the environment must be discharged in the national interest.

o) The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.

p) The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment

q) The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.

r) Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.'

APPENDIX 2

LIST OF FORESTRY RELEVANT LEGISLATIONS THAT NEEDED TO BE CONSIDERED IN THE PCI&S DEVELOPMENT

Forest:

- National Forest Act 84 of 1998; and
- National Veld and Forests Fire Act 101 of 1998

Land use:

- National Water Act 36 of 1998;
- National Environmental Management Act 107 of 1998;
- Biodiversity Act 10 of 2004;
- Protected Areas Act 57 of 2003;
- NEM: Air Quality Act 39 of 2004;
- Conservation of Agricultural Resources Act 43 of 1983;
- National Heritage Resources Act 54 of 1999;
- Environmental Conservation Act 73 of 1989;
- NEMA Amendment Act 46 0f 2003;
- GMO Act 15 of 1997; and
- Municipal Property Rates Act 6 of 2004

People:

- Labour Relations Act 66 of 1995;
- Basic Conditions of Employment Act 75 of 1997;
- Skills Development Act 97 0f 1998;
- Employment Equity Act 55 of 1998;
- Unemployment Insurance Fund Act 36 of 2001;
- Unemployment Contribution Act 4 of 2002;
- Workers Compensation Act 61 of 1997;
- Occupational Health & Safety Act 181 of 1993;
- Extension of Security of Tenure Act 62 of 1997;

- Communal Land Rights Act 11 of 2004;
- Prevention of Illegal Eviction and Unlawful Occupation Land Act 19 of 1998;
- Broad Based Black Economic Empowerment Act 53 of 2003;
- South African Constitutional Act 108 of 1996; and
- Skills Development Levies Act 9 of 1999

Other:

- Road Transportation Act 39 of 1998; and
- Telecommunications Act 103 0f 1996

APPENDIX 3

WORKING GROUP'S COMMENTS ON SUSTAINABLE FOREST MANAGEMENT'S DESIRED CONDITIONS

- Mr Cele, P.
- Mr Mbokazi, J.
- Ms Mkhize, F.
- Mr Mkhonto, T.
- Mr Mthethwa, J.
- Ms Mthethwa, M.
- Mr Mthiyane, Z.
- Mr Ndunakazi, S.
- Mrs Ndunakazi, B.
- Mr Ntshangase, A.
- Ms Shandu, S.N.
- Mrs Shozi, S.
- Ms Shozi, R.N.B
- Mr Thusi, S.
- Mr Zulu, M.
- Mr Zungu, N.

Tenure
It was affirmed that the current community tenure does not offer any means of security that makes forestry activities unsustainable. The working group proposed that communal land tenure systems need to be endorsed through legislation.

Health and safety
It was felt that the original specification that strategies meet relevant legislations was input based, and that an outcome based view would be meeting applicable legislations and leaving an owner flexibility to devise mechanism to meet them.

Sites of significance
While their importance cannot be overlooked, it was recognised that sometimes it was not possible to identify these sites with the exception of graves, and there was consensus that where possible they need to be respected.

Stakeholder consultation
The importance of stakeholder consultation was stressed as means of securing and protecting forests, and that it should be issue based.

Equity
It was felt that equity needed to be looked from two fronts if was to achieved, and that is, there need to enforcement of access and use rights, and agreed level and extend of benefits sharing between parties concerned.

Capacity building
It was mentioned that for the success implementation of PCI&S for SFM, small growers and communities in general need thorough attention, and extension services form some basis for information dissemination and exchange.

Waste minimisation
It was appreciated that while it would be efficient to earn something from selling residues as firewood or otherwise, it would be necessary to leave some for the protection of the soil and as nutrient cycling.

Employment
It was stressed that the existence of a forest should benefit local people in numerous ways including getting jobs.

Integrated planning
Adequately captured, but the expression need to be development oriented irrespective scale.

Compliance with legislation
Adequately captured, but need to express it as generic as possible – perhaps services does not have to be specific to small-scale timber growers, but the entire emerging sub-sector, including contracting.

Research and development
Even though it was beyond small-scale timber growers' capacity to conduct R&D, it was highlighted as one of most important issues in forestry as they have less land to grow on, and R&D has produced fast maturing plant species that benefit this group of growers.

Policy review and reporting
It was identified that this was omitted, and small-scale timber growers needed to participate in key decision-making if change was to be effected.

Security of resource base
Adequately captured and represented!

Soil and water vitality
Soil as a medium of forestry was recognised as important for protection. While water, on the other hand, can be maintained through compliance with legislation, but the provision of extra land has to be considered if certain regulations are to be operational to small growers with lesser land at their disposure.

Management and planning
Due to literacy levels of small growers, it was mentioned that a simple plan stating the main activities of the operation would be enough. Even so, an assistant will be required for those that cannot read and write, and for the improvement of such plans.

APPENDIX 4.1

WORKING GROUP'S COMMENTS ON SUSTAINABLE FOREST MANAGEMENT'S CRITERIA AND INDICATORS

- Mr Cele, P.
- Mr Mbokazi, J.
- Ms Mkhize, F.
- Mr Mkhonto, T.
- Mr Mthethwa, J.
- Ms Mthethwa, M.
- Mr Mthiyane, Z.
- Mr Ndunakazi, S.
- Mrs Ndunakazi, B.
- Mr Ntshangase, A.
- Ms Shandu, S.N.
- Mrs Shozi, S.
- Ms Shozi, R.N.B
- Mr Thusi, S.
- Mr Zulu, M.
- Mr Zungu, N.

Criteion 1
Plantation owners want tenure to be secured, and the current PTO system should be transformed into title deeds as well. The use of indicators to assess government delivery, capabilities and performance in improving rural based challenges was noted.

Criterion 2
The effectiveness and capacity of stakeholders to participate on communication forums emphasised.

Criterion 3
It noted that sites of significance should be identified and secured, and people associated with them be given appropriate access.

Criterion 4
The participants considered that if access and use of resources were to be control, then responsible department(s) should engage local leadership in similar discussions to negotiate and promote enforcement. For example, indigenous forest resources (such as medicines, poles and firewood) are exploited at high rates often by people who do not even live next to such resources, but nothing was being done.

Criterion 5
Development and existence of forestry was considered opportunity to rural communities, most of which contained previously disadvantaged groups, and thus, by all means forestry should benefit such groups. The issue of capacity to explore and absorb any opportunity was considered as important as it could determine level and extend of beneficiation. But such groups should be assisted with capacity to assume any opportunities.

Criterion 6
It was noted that forestry should contribute to local development as it has the potential and mechanisms such as skills development and improvement of rural infrastructure. A point was made that levels of contribution should be proportionate to the capacity of an operation.

Criterion 8
Emphasis was made that all people should participate in key decision-making and policy processes as when such decisions are implemented everybody is expected to comply. For instance, quiet often decisions or policies are not sympathetic to rural context making it difficult for rural people to comply with such decisions.

Criterion 9
Forestry should benefit local people and support local economy through preferential employment and support of local businesses for example.

Criterion 10
Due to long term production of timber, it was noted that owners should maximise on utilisation of the produced material through multiple use such pulp, firewood and building purposes. Access to advices on such options is often not accessible to rural people.

Criterion 11
Not always possible to comply with legislations because of capacity problems, e.g. labour laws on protective clothing is not met due lack of money and required materials.

Criterion 12 and 13
It was mentioned that people should protect forest resources because of benefits, like medicinal material, host animals, heritage, source of firewood, building poles, source of food, gas exchange, spiritual or cultural meditation, they derive from them. In plantation forestry perspective, it was stressed that good practices such as site species matching should be promoted to minimise negative impacts on them, but support mechanisms like research information is necessary in this regard.

Criterion 14
It was noted that soil and water should be conserved through good practices such leaving some residues in between rows and planting across slopes, and leaving distance between plantations and water sources. However, the level of good practices' employment was reported to be way blow acceptable levels.

Criterion 15
Important however often do not have written plans, but understand management objectives, processes and operations.

APPENDIX 4.2

SMALL-SCALE TIMBER GROWERS SCHEMES' PRINCIPLES COMMENTS ON CRITERIA AND INDICATORS

1. SAPPI PROJECT GROW

Criterion 2

The company was reported to have effective communication and/or participation channels for rural communities and/or small growers near the company's plantations. They have tribal committees-linked to regional committees-linked to executive committee which sit on the Tri-Forum (Mondi, Sappi & NCT). This makes it easy for each level to relate concerns directly to companies concerned and to the industry at large.

Mention was made that it was easy for communities to participate in management of forests, identification of opportunities, enforcing regulations, and implementation of plans/strategies. Although it is difficult for the company to enforce regulations, with co-operation of tribal authorities, it becomes easier through them.

Criterion 5

Through annual audits undertaken by Sappi on small growers' progress and performance, short-comings and opportunities are identified for improvement. And based on such information, capacitation programmes and courses are offered to small growers.

This really helped small growers as not only are they aware of such opportunities but are beginning to take advantage of them and identify new opportunities themselves and relate them to respective companies.

Criterion 6

Sappi Project Grow undertook its first ISO audit in June/July 2002 which according to the company signified its commitment in improving sustainable development of small growers. Even though the company was progressing in developing small growers, emphasis was made that government must raise awareness of rural communities about legislations.

Criterion 10

It was reported that the company is engaged in awareness campaigns promoting multiple use of timber, and other corporate social activities like waste management, building toilets, HIV/AIDS, safety and agriculture. Reason being that such activities help communities realize that forestry is just an option, and that there were many others as well, and making people realize other land use opportunities that were at their disposal as opposed to only forestry because SAPPI happened to promote it.

2. MONDI KHULANATHI

Criterion 5
MONDI's concerns here were that even though opportunities are available in forestry, they are not made accessible to previously disadvantage groups, and thus, taken by well-placed groups. It was reported that no awareness measures are explored to ensure that such groups are made aware of opportunities not to mentioned realizing such opportunities. Also government is doing nothing to check if such categories of people's lives are made better or worse.

Criterion 12
It was mentioned that it is difficult for role players like MONDI to promote and enforce compliance to regulations as it is known to communities that MONDI promote plantation. Thus, government should take responsibility and inform communities about laws and regulations. So that when role players promote plantations and in turn mention certain laws, communities are already aware of them.

The role of the government was questioned in the administration of tribal areas, as it is a challenge in enforcing regulations. For example, they were saying you leave x-meters from a power line or water source or natural forest, owner or small grower comes back and plants that land. What do you do? MONDI's reasoning was that unless government cannot explain rationally to communities why policing such activities and enforce their implementation, how can they do it. For example, MONDI Khulanathi had invited DWAF officer from Eshowe to a community meeting, and a day before a meeting he phoned and declined invitation while he had initially agreed. Therefore, DWAF itself is afraid of communities and cannot expect Mondi or any body to fill-in for them in such contentious issues.

General
The company (MONDI) mentioned that educational programmes or awareness need to be offered to rural communities about issues of concerns in forestry. Their reasoning was it is known where forestry is prominent, and therefore it would not be difficult to target those communities.

3. NCT FORESTRY COOPERATIVE

Criterion 2
It was apprehended that the indicators would address a problem where conflict within residences affect provision of services because each group expect one to be side with and the other as well. When they see one is not siding, natures of services are made an issue while it is known what exactly a problem is.

Criterion 6
It was recommended though that information must be made available and be disseminated to rural communities and/or small growers regarding such opportunities, and they can take advantage of them. It was mentioned though that accommodating rural communities in tribal areas would be extremely difficult unless that government has a strategy which should be open to scrutiny by rural dwellers themselves for it to be acceptable.

Criterion 12
It was mentioned that while it is expected of rural communities to comply with any regulations, firstly people are not aware of these regulations. The government should engage itself in informing the public about laws, and perhaps institutions like NCT and other can assist in disseminating such information, but it should be understood that this is government responsibility. It was reported that small growers are not even near that requirement or regulation, and in addition they would require extreme attention over duration of time to be at competitive level.

General Comment
An example was made that people cut trees and when an assessment of standing stock is made fewer tones are found instead of x amount. Sometimes people think you are saying less is available because you want to give them fewer tickets. It was mentioned that even in the plantations, it is important that one should plant plots on different dates to spread work over so that when harvest there is always a standing stock to sustain man power and cash flow.

In addition, NCT reported that it was encouraged by the C&I because it would also hold DWAF responsible in delivering certain services to the public and can be held accountable should they not satisfy such responsibilities. There has been lack of involvement from DWAF in creating awareness to rural communities.