

UNIVERSITY OF NATAL

**INSTITUTIONS TO GOVERN WILDLIFE IN THE
DEVELOPING REGIONS OF KWAZULU-NATAL**

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**INSTITUTIONS TO GOVERN WILDLIFE IN THE
DEVELOPING REGIONS OF KWAZULU-NATAL**

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I hereby certify that, unless specifically indicated to the contrary in the text, this thesis is the result of my own work.

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ABSTRACT

In practice, property rights to wild flora and fauna are determined by *de facto* property rights to the land on which they are found. However, access to wildlife may become open regardless of land tenure due to the growing demands of expanding rural populations living at subsistence levels. This precarious outcome is more likely in areas where land is "communal". Traditional common property user groups are unstable because transaction costs become inhibitory in large groups. Non-user groups with small management teams (eg. companies and trusts) are better equipped to devise and enforce rules restricting access to communal resources.

Three community-based organisations (CBO's) from KwaZulu-Natal are described, viz. Dukuduku Forest, Shongweni Resources Reserve and the Thukela Biosphere Reserve. Support for conservation rules appears to be strongest amongst communities at the Shongweni Resources Reserve where: community management organisations are formal institutions with legally binding constitutions; community representatives are broadly accepted and share decision-making power with the resource owner, and; community members get direct benefits from the Reserve. However, in all three cases change was prompted by agents who stood to lose substantially when neighbouring communities invaded or poached resources on their land. This is an important finding as it suggests a need for outside intervention in communal areas where

common property institutions have collapsed and natural resources are being over-utilised.

The case studies are analyzed and compared using criteria suggested by the theory of Institutional Economics to determine why some CBO's are more successful than others. It is concluded that individuals have an incentive to abide by rules if they are assured of receiving benefits in return for their compliance. Creating appropriate management institutions is a necessary first step, but it may also be necessary to subsidise their development programmes and support local enforcement owing to the high cost of protecting and instituting conservancies for commercial purposes.

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INTRODUCTION

In the context of this study, wildlife refers to indigenous animals and the ecological systems in which they exist. Many of the larger indigenous mammals require extensive tracts of land for their home ranges or territories, or for migration purposes. On account of this and their fugitive nature, it is extremely difficult to exercise effective constraint over them (Cumming, 1990b).

Wild animals are classified in South African property law as *res intra commercium*, that is things that are capable of being owned. They are *res nullis* in their natural wild state, but become owned things as soon as they are captured and taken under effective control by *occupatio*, reverting to *res nullis* once that control is lost (Glavovic, 1988). Under *res nullis*, wildlife is considered to be State property. However, the State cannot competently exert its control over these resources because of their fugitive and mobile nature and so property rights to wildlife are effectively determined by the *de facto* property rights to the land on which it is found.

Consequently, if wildlife is found in State parks it is State owned, if it is found on private land it is privately owned and if it is found on communal land it is communally owned. If, however, effective constraint is not exercised and utilisation is left uncontrolled, access to wildlife resources may become open regardless of land tenure.

Although Gordon (1954) has shown that unrestricted access can lead to a "tragedy of the commons" where natural resources are overexploited, restricted access to wildlife resources was not necessary in the past because wildlife was relatively abundant. This changed during the latter part of the 19th century after the rinderpest epidemic (Cumming, 1990a) and the colonial government introduced game laws which restricted hunting to the ruling class of administrators, soldiers and settlers. While local communities retained their *de facto* access to wildlife, their official utilisation of these resources was illegal. This policy provided few economic incentives for rural communities to develop customary rules restricting their use of wildlife as it became more scarce.

Without economic incentives and with the growing demands of expanding rural populations living at or below subsistence levels, Larson and Bromley (1990) predict that open access conditions will transpire, resulting in the over-utilisation of natural resources. This open access scenario has dire consequences for conservation (Swanson and Barbier, 1992:104). It is clear that conservation laws are difficult to enforce (Fuggie and Rabie, 1992:260), and that further restrictions on access will be meaningless unless communities gain tangible benefits from compliance (Runge, 1984). This raises important questions about institutional change and appropriate community based organisations (Murphree, 1994).

The object of this study is to determine what type of community management institution will best serve the interests of both wildlife and people in the developing regions of KwaZulu-Natal. Chapter 1 describes how incentive structures and *de facto* property rights to natural resources are influenced by land tenure (open access, State property, private property and common property) and how institutions evolve. Chapter 2 examines the relevance of formal business organizations as institutions to manage communal wildlife resources. Chapter 3 describes three community-based organizations (CBO's) in KwaZulu-Natal (Dukuduku Forest, Shongweni Resources Reserve and Thukela Biosphere Reserve) intended to prevent unsustainable use of natural resources. These case studies are evaluated in chapter 4. The object is to establish institutional guidelines for successful CBO's. The thesis concludes with recommendations for future initiatives and for the role of the State and non-government organisations (NGO's).

CHAPTER 1

PROPERTY INSTITUTIONS AND THEIR INCENTIVE STRUCTURES

An institution consists of a combination of informal customary constraints, formal legal rules and the enforcement characteristics of both (Furubotn and Richter, 1990:3). Institutions are crucial to economic development because they regulate, even if imperfectly, the social behaviour of individual agents. Under conditions of costly transactions and asymmetrical information within any specific institutional framework, resources will always be allocated efficiently providing the decision makers are utility maximisers. Nevertheless, the end product of the decisions made, whether it is the conservation or degradation of natural resources, depends on the economic incentives within the institution.

Incentives are an invaluable tool to motivate desired behaviour and disincentives to discourage inferior outcomes (McNeely, 1988:38). However, the effectiveness of a particular institution in manifesting these incentives depends on two requisites; how exclusively property rights are defined and how well transaction costs have been curtailed (Nieuwoudt, 1990).

The benefits created by incentive structures sway rational decisions in a particular direction as the majority of production decisions are based on welfare maximisation. Consequently, the examination of these incentives within the

different institutional settings should help delineate the extent to which individuals are prompted to conserve wildlife, facilitating the identification of the most appropriate institution.

1.1 Open access

Open access implies the absence of any exclusive property rights to wildlife. It may occur on State, private or communal land where institutional rules do not assign exclusive property rights to individuals or groups. The causes could be that effective constraint cannot be exercised over wildlife species on account of their mobile and fugitive nature, or that transaction costs are prohibitive. The rights people have over assets are not static, they are a function of their own direct efforts at protection, of other peoples capture attempts and of government protection (Barzel, 1989:2) and where these mechanisms fail, open access prevails.

Alternatively, institutional rules may not have developed in the first instance. This is most likely to happen on communal land where there are many legitimate users which makes the transaction costs of negotiating these rules infinite since the number of potentially interdependent agents is infinite. Consequently, the benefits generated by wildlife resources are available to anyone because owners or groups of users are not defined. No-one is accountable for the distribution of benefits so fully inclusive rights prevail.

The equilibrium rate of exploitation under this scenario occurs where the private cost of cropping wildlife (P_x) equals the average product (VAP) of the resource (Gordon, 1954), where the resource earns zero rent (see Figure 1). This equilibrium arises because those exploiting wildlife only consider their own private costs and returns. If exploitation involves low private costs (eg. snaring) the maximum sustainable physical yield is likely to be exceeded. This implies that overutilisation could be reduced by altering the input-output price ratio (P_x/P_y), ie. by increasing harvesting costs (eg. by policing wildlife resources) or decreasing product prices (eg. by imposing a marketing ban on wildlife resources). Both alternatives are costly and difficult to implement. Moreover, the rate of exploitation under conditions of open access is unstable and could easily become unsustainable over time. Furthermore, in the state of *res nullis*, mutually beneficial exchanges of wildlife are impossible because of the absence of property rights.

If resources (land and wildlife) are privately owned, Lyne and Nieuwoudt (1990) contend that rents would be maximised (indicated by the shaded area in Figure 1) and wildlife harvested where P_x equals the value of the marginal product (VMP). Where access is governed by the State or a common property institution, wildlife utilisation would occur between the two extremes of private tenure and open access. Under these arrangements, exploitation need not necessarily exceed the maximum sustainable rate. Hence, an institutional

approach warrants attention in an open access situation where the depletion of wildlife resources is increasing and uncontrolled.

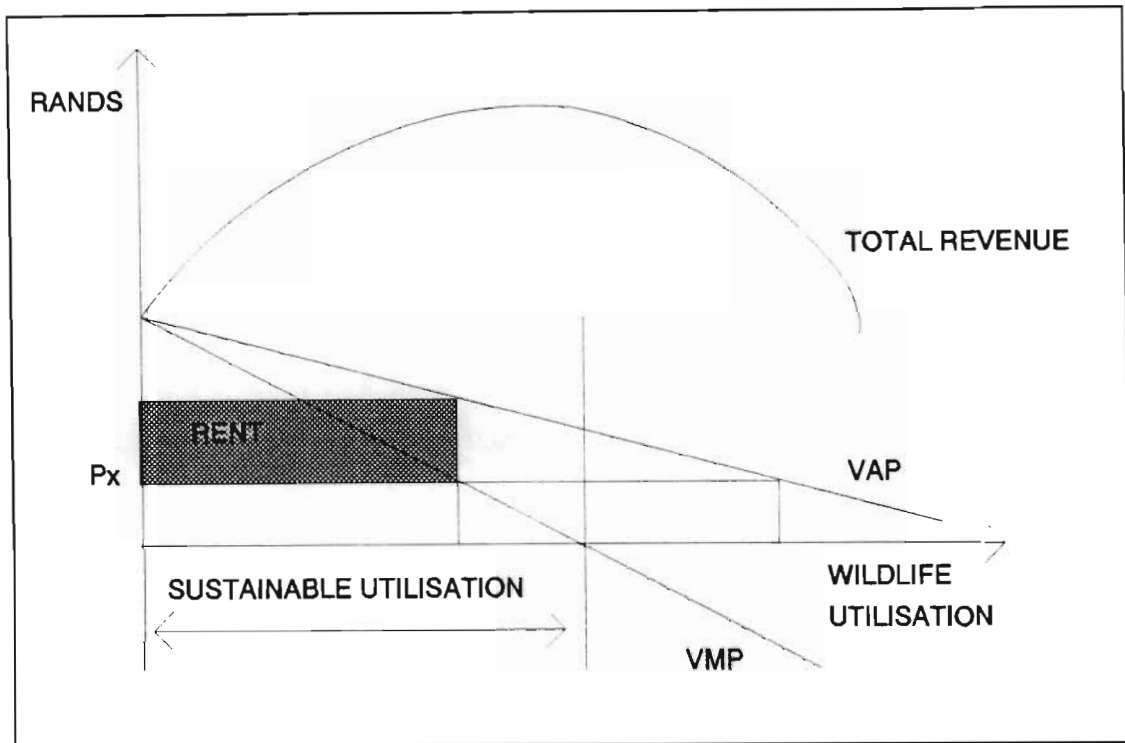


Figure 1: Total, average and marginal value product curves

Source: Lyne and Nieuwoudt (1990)

1.2 State property

Under conditions of *res nullis*, wildlife belongs to no-one but is protected by the State on behalf of society. *De facto*, however, wildlife can only be regarded as State property if the State acquires the resource rents, a condition which manifests only where national parks are concerned.

Although public choice is based on widespread democratic participation, it entails enormous information costs. In the absence of market prices to co-ordinate and communicate the information necessary for the allocation of resources, bureaucrats are faced with the daunting task of capturing and interpreting this information themselves (Hayek, 1945) from an insufficient data base regarding wildlife resources and their products (Fuggie and Rabie, 1992:271). Thus, the estimation of resource use values by these bureaucrats must be based on highly subjective assessments of future economic conditions (Pasour, 1990:211) which are often biased by political objectives and strong lobby groups.

Production decisions are carried out by government officials who usually face less direct responsibility for their rulings than do entrepreneurs operating in the profit-loss environment of a decentralised market process. In this context individuals often lack the incentive to work to increase productivity. The profit motive will be diluted if the distribution of income is not sensitive in rewarding those individuals for their respective changes in output (Baber, 1991:30). This inefficient distribution of income also fails to attract competent and committed employees (Murphree, 1994) often resulting in a chronic shortage of necessary ecological and management expertise (Cumming, 1990b). An organisation is only as good as the people who operate it.

State property in general reduces the incentives for entrepreneurs to take risks and make investments because such activities will only be made if the individual investor is assured that he will reap a sufficiently high proportion of the resultant benefits. This is best achieved through individually exclusive and autonomous use rights (McNeely, 1988:74) which is contrary to the initial aims of instituting State property. However, State property can be leased out (in whole or in part) to private concerns to overcome this problem. This option has considerable potential since private enterprises have successfully established themselves adjacent to State parks. Although wildlife rents would continue to accrue to the State, the government would still need to police the activities of the tenant to ensure that the resource is conserved.

As political decisions are reached through a process that is short-run orientated and dominated by special interest groups with narrow concerns (Pasour, 1990:211), low income rural communities that participate least effectively in the political process are likely to be disadvantaged. According to Cumming (1990a), any incentives for local communities to monitor or to conserve wildlife resources diminished where the State acquired exclusive rights to wildlife (in national parks) because their benefits from these resources were reduced or removed. Incentives could have been further diluted by the antagonism and mistrust that developed in cases where communities were expropriated from their land for the purpose of creating a State park.

Communities neighbouring parks, despite their lack of management skills, possess valuable knowledge regarding the time and place of specific plants and animals (Hayek, 1945). If such information is misused and resources utilised illegally, time, information and resource costs of State parks increase (Fuggie and Rabie, 1992:263). Generally State agencies tend to be rigid in their application of rules, ignoring the resources held by local communities.

1.3 Private property

Private property implies that individuals have fully exclusive and assured rights to land and wildlife and capture the rents generated by these resources. When tenure is secure (ie. property rights are fully exclusive and assured) and transaction costs are low, an economic agent can transfer the entire rent stream emanating from the resource through its sale or temporarily transfer a portion through renting. Consequently, the owner's expectations about the uses to which he can put the asset and ultimately its value is dependent on the nature of his property right.

Private property is usually highly mobile and competition for rights expressed in market transactions communicates comprehensive information in the form of prices. Market prices co-ordinate and transmit widely dispersed information, which is to the mutual benefit of buyers and sellers. The price system is a way of rationing scarce resources both at a given point in time and over time,

encouraging the conservation of resources for future generations (Pasour, 1990:201). Provided that resources are fully transferable, future rent streams generated by a resource can be realised at any time so that management decisions which reduce future income are internalised. In the absence of other externalities, secure property rights should compel owners to consider the long-term effects of decisions that damage resources. Transferability also forces individual owners to take the foregone rental income (the opportunity cost of non-use) into account when deciding how to utilise their resources.

If title-deeds replace customary land tenure, it is plausible that land ownership (and *de facto* rights to wildlife) would tend to concentrate in the hands of a small minority with economic advantages (Baber and Nieuwoudt, 1992). The valuation of the monetary margin by rural communities is high because of their low socio-economic status so they have the incentive to sell their land. There is a danger that in privatising land and wildlife already marginalised people may be deprived of resources on which they rely (Cumming, 1990b), despite been compensated through the market mechanism.

1.4 Common property

One good reason for examining common property is that collective action is likely to be much cheaper in terms of State resources than either State or private property (Runge, 1986) because the monitoring, enforcement and administrative

transaction costs borne by the Treasury are significantly lower. Nevertheless, common property is similar to the other two systems in that property rights are exclusive but these rights are now assigned to a defined group. Members of the group share, to a lesser or greater extent, inclusive rights to the resource, and its rents accrue to the group as a whole. Runge (1986) claims that the right to be included in the group provides a hedge against individual failure. There are two basic common property institutions:

The first relates to user groups. Here members of the group exercise their own management decisions within the constraints established by the group as a whole.

The second relates to non-user groups. Here members of a defined group surrender their use-rights to a management team.

Bromley and Cernea (1989) define a common property regime by group ownership which is restricted in size and where the behaviour of all members of the group are subject to accepted rules with respect to use rates and maintenance. Common property does not imply communal management, nor does it imply free or equal use rights to the resource by all group members (Larson and Bromley, 1990).

Game species can be thought of as a stock of subtractable resource units which are not subject to joint use even though the total stock of resources is common property. Every unit taken by one member of the group reduces the quantity available for other members. The theory of public goods, which is based on the non-subtractive attributes of goods is not applicable to an analysis of appropriation and use of these subtractable resource units. However, if the collective goal of a common property regime is sustainable exploitation, the achievement of that goal represents a public good (Wade, 1987). Thus, collective action might be the formulation of a rule of restrained access to a common-pool resource (wildlife) with the observance of that rule, and the public good might be the situation of sustainable exploitation that results.

Wade (1987) found that the initial factor explaining why people voluntarily negotiate or agree to a set of rules to form a unified user group was the size of the prospective net collective benefit. However, this collective benefit diminishes as group size increases because of the increased transaction costs associated with increasing group membership. Furthermore, if the scale of operation remains constant, the resulting size of individual dividends declines as the group size increases. Individual dividends are important because in the absence of coercion, it is the certainty and size of personal net benefits that creates the incentives for individuals to comply to institutional rules (Runge, 1984).

Although small groups are more likely to have institutional success than large groups, of critical importance is whether the community is homogenous (Runge, 1986), how accountable each person is for their actions (Wade, 1987) and whether the group can come to an agreement and co-operate as a unit (Bromley and Cernea, 1989, Baber and Nieuwoudt, 1992). Inevitably, as group size increases, accountability decreases as the variance of the expected actions of others increases, which provides the opportunity to free ride. Consequently, the likelihood of collective co-operation becomes suspect on account of the increased uncertainty and higher transaction costs.

Investments in both physical (eg. safari camps and fencing) and human capital (eg. accounting and ecological expertise) are necessary to manage a successful wildlife enterprise (Behr and Groenewald, 1990a). These investments are likely to be particularly sensitive to group size in a user group because it is difficult to negotiate and enforce rules that distribute the benefits of collective investment in the same proportions as members share costs. Transaction costs are further increased with the increasing complexity of the working rules (Lyne, 1994b). Population growth also increases the cost of negotiating and enforcing restrictions, while spiralling poverty encourages community members to break them. In addition, Swallow and Bromley (1994) maintain that community-based restrictions on individual behaviour become less effective when village economies are integrated into the broader economy. A user group would be an inappropriate institution under these conditions.

An entity with highly mobile, exclusive and assured property rights that operates within a competitive environment, with an undiluted profit motive, seems to generate the most vigorous incentives to conserve wildlife. Non-user groups (eg. companies and trusts) satisfy these conditions, facilitating investment decisions and allowing use rights to transfer to the most effective managers. This potential solution requires all the members to surrender their individual control to a management team in exchange for other benefits (eg. cash dividends and services). Although management has exclusive use rights, the land and wildlife are still common property resources. Members have simply traded their inclusive use rights for inclusive benefit rights emanating from the decisions made by the management body. Regardless of group size, decisions would now be made on behalf of the members by a few individuals. If the net benefits provided by this management body are superior to those generated by alternative arrangements (eg. user groups or open access), members will have an incentive to accept management decisions.

The development of a land (rental) market is facilitated on account of the reduction in transaction costs because a potential tenant need negotiate only with the management body. Consequently, the inefficient use of land attracts an opportunity cost. If rental income exceeds the profit earned by own management, members would urge the body to lease the property out to an outside agent who may be better equipped with human and financial capital needed to develop the property.

If compliance with operating rules is not voluntary the costs of monitoring and enforcement increase if accountability of members is low. This lack of accountability is a cause for concern (Swanson and Barbier, 1992:118). An initial step in addressing the problem is to improve transparency by negotiating a constitution that is legally binding on both management and members. For example, the constitution may ban the sale of property in order to prevent dispossession.

The nature of benefits is an important issue. Subtractive benefits (eg. cash dividends) are a stock of subtractable units, where every unit taken by one member of the group reduces the quantity available for other members. Benefits distributed as cash dividends are likely to be preferred because communities are usually cash-starved, deficient of the necessary start-up capital to enter the modern market system. Less subtractive benefits like schools and clinics are also a possible option. However, it is essential that these benefits are not conflicting with, but rather well adapted to the particular needs and wildlife constraints facing the communities concerned (Glavovic, 1988). The following section attempts to explain how benefits and incentives mould the evolutionary process of institutional development.

1.5 Evolution of institutions

Institutions are important because they define the level of transaction costs within an environment of costly transactions and asymmetrical information, influencing the decision-making process. The creation of institutions should be driven by the search for an organizational structure that will reduce transaction costs. New institutional structures attempt to minimise the constraining effects of bounded rationality and try and safeguard transactions from the hazards of opportunism (Furubotn and Richter, 1990:3). According to Young (1989:202), institutions originate by the processes of imposition, negotiation or spontaneity.

A series of World bank surveys in Rwanda, Ghana and Kenya (Bruce and Freudenberger, 1992) have confirmed that land rights in indigenous communal tenure systems were evolving towards more exclusive rights in the presence of commercialization and growing population pressure. If it were not economically viable for households to internalise the costs and benefits of individual household utilisation, there would be no demand for more exclusive rights to it.

Individual welfare maximisers tend to choose an institutional structure that minimises the sum of transaction costs and production costs (Furubotn and Richter, 1990:11). New property rights emerge when one or both parties in a transaction perceive that they could be better off under alternative contractual and institutional arrangements by economising on transaction costs. However,

this Coasian approach to institutional change does not consider the fact that tacit transaction costs may prevent any lobby for change, or that a lobby may be unsuccessful.

Those agents who have considerable bargaining strength in an institution are likely to exert their influence to bias decision making and policy development to their benefit. Property rights chosen by some initial adopters to suit their interests may be complex and costly to change, providing a significant externality making it difficult to later escape to a more appropriate setting. The State, for example, may purposefully prolong a socially inefficient institution for reasons of maintaining the institution's beneficial support structures. Alternatively, the adoption of new property rights may be resisted if those in opposition to change can overcome the problems of collective action (Olson, 1971:48) and organise themselves into a politically powerful lobby. Furthermore, differential access to legal talent and the courts can effect the institutional outcome (Runge, 1984). This line of thought provides some reasoning for dysfunctional institutions that are non-adaptive and persist for long periods.

Although exclusive land rights are an essential step towards exclusive wildlife rights, private property rights are unlikely to evolve endogenously in communal areas because communities are large and transaction costs prohibitive. Similarly, an outside agent (eg. government) is unlikely to impose private property rights

because of the high administration costs involved. Furthermore, the potential for wildlife to earn economic rents on small land areas (as groups are large) is low because of the high costs associated with the protection of boundaries (eg. construction and maintenance of fences). Indeed, wildlife rights may have become less exclusive on account of growing dependence upon these resources in the face of increasing poverty and rural population pressure. Under these conditions, common property rules governing access to wildlife on communal lands become unstable and could easily give way to open access.

The incentive for open access users to supply a common property institution is diluted because the benefits (or collective good) will attract free-riders (Ostrom, 1990:42, Runge, 1981). Olson (1971:48) claims that unless there is coercion (Olson, 1971:48) or a large net collective benefit (Wade, 1987) to make individuals act in their common interest, rational, self-interested individuals will not act collectively to develop an institution.

Olson's (1971:34) argues that collective action is more likely when a member, or sub-group of members, has a substantial interest in the collective good and receives a large share of the total benefits. However, even if free-riding by "weaker" members is tolerated, collective action will transpire only if: transaction costs are low (ie. groups are small); the boundaries of the common property are respected by other communities; individuals do not discount future

payoffs too heavily, and; future returns to resources (eg. rents from tourism and hunting) are stable (Swallow and Bromley, 1994).

Livestock and crop farmers might well oppose an exogenous shift towards a collective wildlife enterprise because of the incompatibility that arises between these enterprises (Kiss, 1990). However, they may be less inclined to resist if the net benefits offered by wildlife are relatively large. It can be speculated that indigenous mammals in semi-arid rangelands having an annual rainfall of between 300-700 mm are bound to have a comparative advantage over domestic stock because of their natural ecological adaptations (Behr and Groenewald, 1990b). In addition, economic tiering is possible where consumptive meat production is complemented by the lightly consumptive use of animals for trophy hunting and non-consumptive tourism (Berry, 1986). This was illustrated in Zimbabwe by the conversion of non-arable extensive stock farms to wildlife enterprises in 1960 when wildlife legislation became less restrictive (Cumming, 1990a, Child, 1990:164). The economic viability of drier areas is small because of low population densities.

If small groups prevent a change that would benefit the majority it may be necessary to compensate (eg. higher dividends) them in order to secure institutional change. Negotiating such arrangements when formulating an acceptable constitution is difficult and will most likely require arbitration by the State. The New Zealand Government has adopted a proactive role in settling

disputes of this nature and in promoting corporations and trusts to manage collective enterprises on Maori land (Lyne, 1994a). In areas where wildlife has a comparative advantage, external facilitators need to encourage the establishment of community management organizations. Creating a management team poses a collective action problem itself; this is the problem of institutional change. The following chapter discusses formal business organizations, their incentive structures and relevance in the management of communal wildlife resources.

CHAPTER 2

BUSINESS ORGANIZATIONS AND THEIR INCENTIVE STRUCTURES

A business entity refers to any natural or legal person or group of persons who carry on business (van Dorsten, 1993:1). There are a variety of organizational structures to choose from and each one has different legal, social and economic implications for stakeholders and managers. The aim of this chapter is to examine the relevance of formal business organizations as institutions to manage communal wildlife resources. The organizations considered are all non-user groups. The discussion of legal aspects pertaining to these entities is drawn primarily from work done by van Dorsten (1993).

2.1 Cooperatives

A cooperative is usually defined as a contractual organization voluntarily owned and controlled by a clearly defined membership group and operated for them at cost, by a management committee. Cooperatives have the potential to adequately represent communities and to prevent the dispossession of communal assets because ownership (of land and wildlife) would remain in the hands of the members. Cooperative net profits are normally returned to member patrons in proportion to their use of the cooperative. However, in this case where members relinquish their right to use wildlife, profits would be distributed

according to shareholdings. Initially, members may get equal shares but this depends upon the constitution negotiated by the group. Nevertheless, it is likely that profits will be distributed in the form of services, which are less subtractive benefits than cash dividends. Uncertainty will be reduced if the constitution is transparent and binding.

Traditionally, cooperatives are characterised by democratic control where members have a limited number of votes. Although some cooperatives do give more votes to members with larger share holdings, legislation often places limits on share ownership and transferability to ensure that no one member can buy control. The objective is that capital control should never threaten the principle of membership control. Consequently, the incentive for the public and members to invest in cooperatives is reduced and equity capital is generally limited to member contributions and retained earnings (Kohls and Uhl, 1980:285).

Olson (1971:34) argues that when a member or sub-group of members has a substantial interest in the collective good (wildlife) and receives a large share of the total benefits, the greater is the likelihood that collective management will be supplied even though "weaker" members free-ride. This criterion is not satisfied in a cooperative because benefits and interests are not proportional. Without support from "stronger" members cooperatives are unlikely to succeed as institutions to manage communal wildlife resources.

2.2 Close corporations

A close corporation is formed when a Founding Statement, which complies with the requirements of the Close Corporations Act, is made and registered by the Registrar of Close Corporations. A close corporation is a separate and distinct legal person having exclusive and assured rights to the assets under its control. Although management and ownership of a corporation are not separated by law, the assets of the corporation are no longer owned by the members but by the corporation, which makes dispossession possible. However, this can be prevented by the constitution (Founding Statement).

No more than ten clearly defined natural legal persons may be affiliated to the corporation and they must have the necessary contractual capacity to join. Rural community membership is bound to exceed this limit, so a close corporation would exclude most of the community from the terms of the constitution. Even if its members were democratically elected, the Corporation would not be accountable to the community.

2.3 Partnerships

A partnership is a particular type of business association formed by natural or legal persons who intend to make and share profits. A partnership is formed without having to comply with any formal requirements but is established when

at least two but no more than twenty partners conclude a valid partnership agreement (constitution) in which partners can have varying degrees of ownership and control. As with Close Corporations, the community would largely be excluded from the constitution.

2.4 Companies

A company is formed when a constitution, the "memorandum and articles of association" is registered by the Registrar of Companies. A company is a corporate entity which, for legal purposes, is regarded as an independent person and separate from its shareholders and directors. A company may adequately represent a community, but members (shareholders), would no longer own the land and wildlife. These assets are effectively privatised to the company, distancing the community from control and making dispossession a real threat.

Costs associated with the formation and efficient functioning of a company may be outside the budget set of rural communities but capital can be raised through the issue of shares, depending on the type of company formed:

- a) A private company having share capital (section 19(2)). Capital is raised through the issue of shares to a small group of shareholders (less than fifty). Shareholdings are transferable and open to the public.

b) A public company having share capital (section 19(2)). A minimum of seven shareholders is usually specified otherwise there are no limits on the number of shareholders. Shareholdings are transferable and open to the public.

c) A public company limited by guarantee (section 19(1)(b)). "Limited by guarantee" means the company does not have share capital (Cilliers and Benade, 1982:46) and because of its capital constraint, is used where the object is not for gain or where capital outlays are not required. The amount which members undertake to contribute in the event of the company being wound up determines each member's interest and control.

d) An association not for gain (section 21) is a public company limited by guarantee but differs from a section 19(1)(b) company simply because it must apply its profits in promoting its main objective (eg. religion, charity, recreation) and it may not divide its profits amongst its members (Cilliers and Benade, 1982:703).

Public and private companies have a distinct advantage over other business entities in that they can raise capital by selling shares. In addition, they satisfy Olson's criterion because voting and benefit rights are awarded in proportion to shareholdings. However, transferable shares could result in "distress sales" and

dispossession if wealthier owners consolidate shares and members of poor rural communities cannot afford to purchase shares.

Shareholders become entitled to a share of the entity's net profit when a final dividend is declared. Dividends are distributed according to the provisions laid down in the constitution and are cash orientated. A full statutory audit of the company by independent auditors is required by law and a company must, in terms of the Companies Act, keep comprehensive records.

2.5 Business trusts

A trust is a legal relationship which comes into existence when a person who wants to form a trust (the founder) hands over the control of assets to another person (the trustee) to be administered for the benefit of another person (the beneficiary). A single person (natural or legal) could represent all three titles. Collectively, a trust could adequately represent a community if ownership was vested in the founders, and control vested in the trustees. There is no limit to the number of beneficiaries or founders that a trust may have but the number of trustees may not exceed twenty. Beneficiaries must be defined with reasonable certainty but not necessarily as individuals. For example, families may be registered as beneficiaries. The purpose of a business trust is to use the trust assets to make and distribute profits to beneficiaries according to the trust deed (constitution).

A trust is not a separate legal person but is represented by the trustees acting in their official capacities. Although land and wildlife resources would be under the control of the trustees, they do not have full discretion over them because ownership still lies with the founders. In theory, dispossession is not possible.

Founders do not receive dividends from the trust in proportion to their investment so there is little financial incentive to become a founder. If a trust were to be established by rural communities for wildlife purposes the community as a whole would be both founders and beneficiaries. As founders, households would relinquish their right to use wildlife. As beneficiaries they would share in the proceeds of their collective enterprise. The trust deed specifies the number of votes each founder receives, the type of benefits beneficiaries receive, and the remuneration trustees get for the official duties they perform.

Olson's criterion can be satisfied because the benefits received need not be equal. However, proportionality is difficult to achieve when rewards are paid only in terms of non-subtractive benefits like schools and clinics. This point is explored further in section 4.2.

The ability of business trusts to raise financial capital is also a cause for concern. Trusts cannot issue shares and therefore have difficulty raising equity capital. This has proved to be a fundamental problem in the CAMPFIRE trust scheme operating in Zimbabwe (Swanson and Barbier, 1992:111). Of course a trust

does have the option of leasing out its use rights to someone that can afford to develop the resource. In this case the trustees act as landlord and distribute rents (as cash or non-cash benefits) to the community.

2.6 Summary

Table 1 summarises the main institutional differences between formal business entities. Community-based organizations are best represented by companies and trusts because they have clear advantages in terms of group size and accountability to members. Companies can raise equity capital by selling shares, and proportionality between an individual's investment, benefits and voting rights may encourage participation by "stronger" members of the community. Trusts may be more practical in areas where community membership is difficult to define and/or administrative skills are weak.

Before recommendations can be made it is important to determine which entities presently represent rural communities and how successful they have been. Chapter 3 describes three case studies in KwaZulu-Natal where new institutions were established to prevent unsustainable use of natural resources by communities.

Table 1: Business entities and their institutional characteristics

TRAIT	COOPERATIVE	CLOSE CORPORATION	PARTNERSHIP	PRIVATE/PUBLIC COMPANY	TRUST
GROUP SIZE	Unrestrained	< 10	< 20	Pvt < 50 Pub > 7	Unrestrained
MEMBERSHIP	Exclusive	Exclusive	Exclusive	Exclusive	Non-exclusive
PROPORTIONAL REWARDS	No	Yes	Yes	Yes	Possible
ASSET OWNERSHIP	Members	Close Corporation	Members	Company	Members
DISPOSSESSION	No	Possible	No	Possible	No
SHARE CAPITAL	Limited	Limited	Limited	Yes	No
ACCOUNTABLE TO COMMUNITY MEMBERS	Yes	No	No	Yes	Yes

CHAPTER 3

DESCRIPTION OF CASE STUDIES

The object of this chapter is to describe three attempts to prevent unsustainable use of natural resources by communities in KwaZulu-Natal. Figure 2 depicts the location of the case studies, viz. Dukuduku Forest (DUK), Shongweni Resources Reserve (SRR) and the Thukela Biosphere Reserve (TBR).

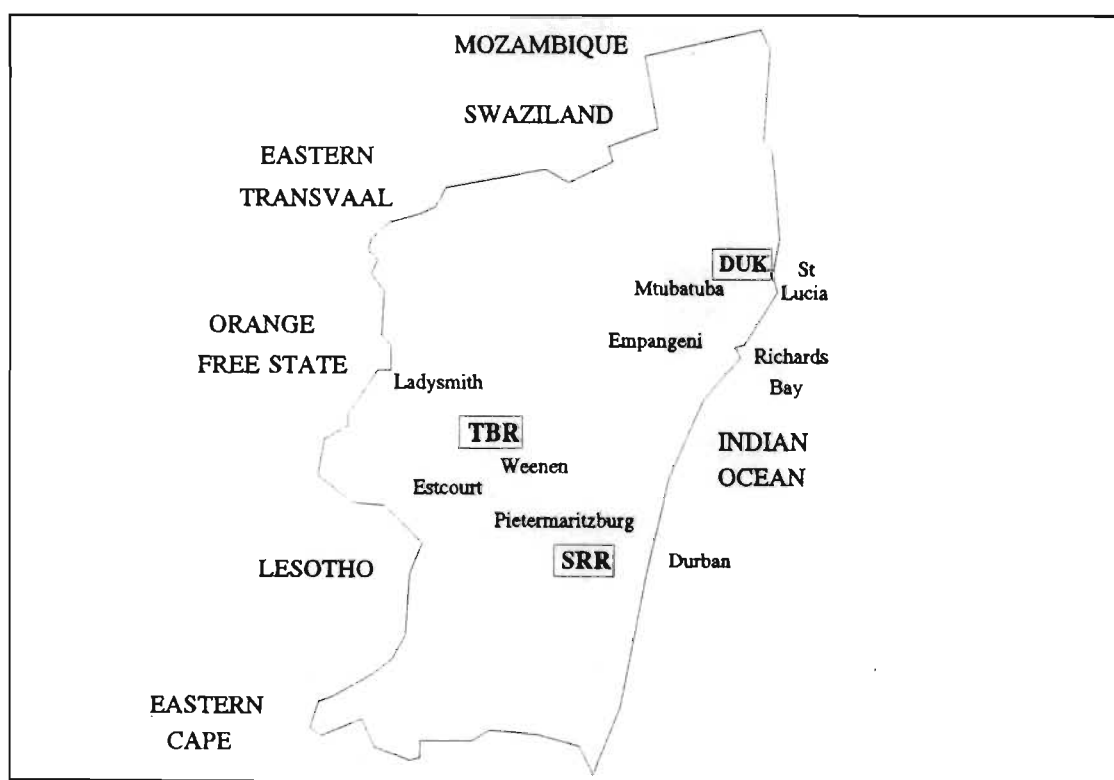


Figure 2: A schematic map of KwaZulu-Natal displaying the case study areas

Data were gathered in discussions and interviews conducted with managers and community representatives in each study area. The following issues were of particular interest: membership restrictions; community representation; benefit structures (subtractive or non-subtractive); management, control and accountability; capital constraints, and; free-riding, disputes and enforcement problems.

These institutional factors cannot be looked at in isolation because resource degradation is also attributable to rural poverty and population growth (Larson and Bromley, 1990). Fairlamb and Nieuwoudt (1991) contend that education in the traditional sector should significantly reduce population growth rates by increasing the opportunity cost of women's time, if there are better employment options available. In addition, time saving services such as electricity and water facilities should reduce the demand for child labour. Consequently, data pertaining to population pressure, rural education, and the provision of services were also gathered.

3.1 Dukuduku Forest case study

3.1.1 Study area

Dukuduku Forest lies adjacent to the Mtubatuba-St Lucia road, west of St Lucia in Zululand, northern KwaZulu-Natal. Phillips (1973) classifies this area of

KwaZulu-Natal as bioclimatic group one or coastal lowlands. With a rainfall of 850-1500 mm per annum and approximately 40% of the soils being sandy, the region is best suited to forestry, sub-tropical fruit and coffee crops. A schematic map of the Dukuduku settlement area is presented in Figure 3.

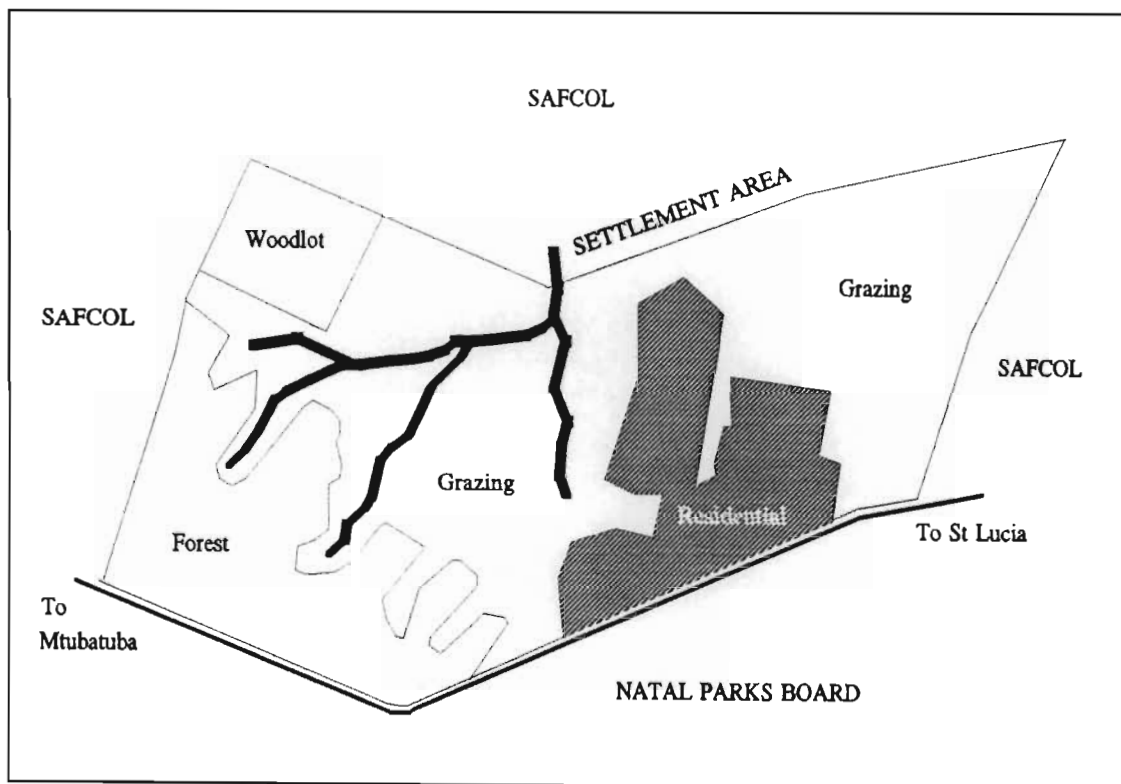


Figure 3: A schematic map of the Dukuduku settlement area

3.1.2 History of Dukuduku Forest

The potential for sugar-cane production on the Mfolozi floodplain was realized in 1910 and the land was divided into farms. Prospective farmers arrived at Mtubatuba in 1914 but their dreams were shattered by floods, stalkborer, cane

disease and extremely low quality sugar. Many of the original farms surveyed from Mtubatuba northwards to the Nyalazi river and eastward to lake St Lucia were not occupied due to poor soil fertility. Some of these unoccupied farms were planted to timber and sold to large timber companies. Others, including Dukuduku, were transferred to the Department of Forestry, and in October 1992, to Safcol, a private company with the State as the only shareholder.

Dukuduku initially comprised of indigenous forest in the higher lying dune areas, progressing through to grassland in the lower lying wetland. During the 1850's, hunters decimated the Elephant and Hippopotamus populations, the last Elephant being shot in 1916. Although bird life is still prolific, the only large fauna left are small numbers of Hippopotamus, Bushbuck, Reedbuck, Red Duiker and Bushpig. On the other hand, Dukuduku supports 200 woody plant species. Of these, four are considered to be threatened in South Africa (Walter, 1994). In short, the forest makes a significant contribution to biodiversity in South Africa.

Dukuduku became headline news in July 1990 when six men were convicted in the Mtubatuba Magistrates Court for illegal squatting in the forest. They were fined R1000 (suspended) and ordered to leave the forest by the 6th of August 1990. However, the squatters and their sympathizers organized a committee to defend their case and indicated that they were prepared to negotiate alternative sites for settlement. In February 1991, conservationists concerned with the

apparent deadlock asked the Natal Provincial Administration to intervene. It was under these circumstances that the Dukuduku "community" was established.

Today the Dukuduku community includes roughly 9000 people, some originating from as far afield as Soweto in the Transvaal. Moffat (1994) lists 34 different origins, the largest groups coming from Mtubatuba (14,0%), Dukuduku (12,0%), Kwamthetwa (10,4%) and Empangeni (6,8%). Only 13,2% of households get income from migrant workers, and 11,3% have members employed within Dukuduku. The remaining 75,5% have no permanent wage income. Consequently, average income levels are low and the majority of households live in poverty. However, the delineated residential area (Figure 2) is supplied with purified water and other services.

3.1.3 Project implementation

The threat of squatting brought members of several concerned bodies together in February 1991. These included the KwaZulu Minister of Interior (representing the squatters), Farmers Associations, the Mtubatuba and St Lucia town boards, the Department of Forestry, Natal Parks Board (NPB) and the Natal Provincial Administration (NPA).

The authorities suggested sixteen alternative settlement sites, with a six month decision deadline. Consensus had still not been reached by October 1991. In

April 1992 the Minister of Forestry announced that parts of Dukuduku, including the area south of the Mtubatuba-St Lucia road, would be transferred to the NPB for inclusion in the Greater St Lucia Conservation Area owing to large scale destruction of indigenous forests. This simply transferred the squatter problem from one government department to another. In July of that same year, the Wildlife Society of South Africa requested the Minister of Environmental Affairs to help resolve the matter. Finally in October the Department of Forestry notified the public that land had been made available for the squatters and that further consultations with the community would be necessary.

Applications for sites in the newly delineated settlement area (Figure 2) began in January 1993. Approximately 1300 sites were demarcated for residential, commercial and educational purposes. Areas were also designated for communal grazing, market gardening and a graveyard. By May 1994, 643 applications for residential sites had been made, 553 sites had been issued and 541 sites resettled. The NPA intends to give each household title to its residential plot. The objective is to prevent illegal squatting in the forest by providing households with secure tenure to residential land and access to infrastructure and services in a planned settlement area (Moffat, 1994). One-third (2000 hectares) of the total Dukuduku forest was set aside for this development initiative. Individual title-deeds will, however, only be made available for residential sites, most of which are less than 0,5 ha in size.

Safcol provides the settlement with free fire-wood, furniture and building timber for schools and the NPB access to agricultural land. However, members of the settlement have no other access to resources on land administered by either Safcol or NPB. Other organisations represented on the Steering Committee (section 2.4) provide services for the community where possible but finance is a major problem.

3.1.4 Community institutions

Three bodies represent the interests of the community; the Residents Committee, the Dukuduku Development and Tourism Association (DDTA) and the tribal authority. Each organisation has its own specific objectives.

The tribal authority administers communal grazing and plays an important role in resolving conflicts but is not directly involved with the development of the settlement. This task is carried out by the DDTA and the Residents Committee, the former addressing development planning and the latter infrastructural matters.

The DDTA is a voluntary organisation but members must be residents of Dukuduku. The association charges a membership fee of R12 per person for the first year, and a renewal fee of R6 per person per annum. In return for these payments, the association attempts to achieve certain objectives, the main ones

being: to overcome malnutrition, illiteracy and unemployment; to promote conservation and tourism in the settlement area (eg. forest walks); and to access funding for these projects (Walter, 1994). Members elect 9 representatives to manage the DDTA but only 120 residents have joined the association. This is not surprising considering that the potential benefits are not exclusive to DDTA members. As a result, membership has effectively become open to all Dukuduku residents without payment of a fee and funding is now been sought from donor agencies.

In practice, the Residents Committee tends to address both the infrastructural and planning requirements of the community. This is achieved primarily through its close liaison with other organisations. The Residents Committee forms part of a Steering Committee which includes representatives from Safcol, NPB, NPA, St Lucia Town Board, Mtubatuba Town Board, Mtubatuba Health Council, Monzi Farmers Association and the South African Police. Although members of the Residents Committee (± 20) outnumber other members of the Steering Committee (± 8), it must be noted that many (± 9) are not elected by the community.

The DDTA initially held meetings with the community every week but later decided that meetings every second week would suffice. The Residents Committee holds community meetings once a month (Walter, 1994). Dates of subsequent meetings are announced before the close of each meeting in order

to minimize communication costs. Transportation costs are low because members reside within walking distance of meeting places. The Steering Committee meet every month to discuss and decide upon development programmes, for example, the NPA surveyed roads and plots, and assisted with the registration of title-deeds in the settlement.

The Steering Committee's local office is administered by NPA officials. Community representatives are not paid but the DDTA intends to compensate its secretary for her efforts. The DDTA committee management appreciates the tourism potential of the indigenous forest within the settlement area but does not police rules restricting access to these resources. Wildlife poaching persists on Safcol land and squatting continues to be a problem on NPB land south of the Mtubatuba-St Lucia road.

3.2 Shongweni Resources Reserve case study

3.2.1 Study area

Shongweni Dam lies at the confluence of the uMlazi and Sterkspruit (uMn zadodo) rivers, 40 kilometres north-west of Durban. Phillips (1973) classifies this area of KwaZulu-Natal as bioclimatic group 10, or interior and valley thornveld. The topography is steep, broken and rocky, and rainfall is low (600-700 mm per annum). Agricultural potential is confined largely to extensive

beef, goat or game farming. A schematic map of the Shongweni Resources Reserve is presented in Figure 4.

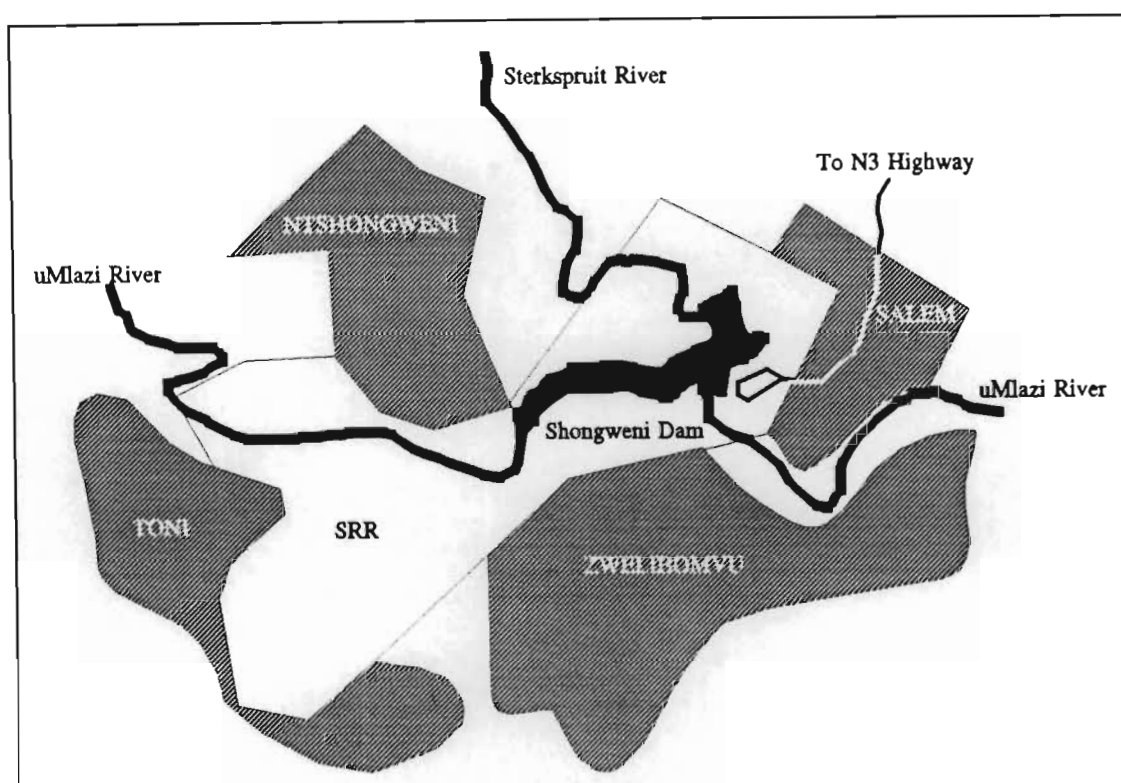


Figure 4: A schematic map of the SRR case study area

3.2.2 History of the Shongweni Resources Reserve

The Shongweni Dam was constructed by the Durban Corporation between 1923 and 1927, and was initially the city's largest source of potable water. In 1983 control passed to the Umgeni Water Board (UWB). However, the dam's capacity was considerably reduced by siltation following flood damage in 1959 and 1987, and a decision was taken to decommission the uMlazi system, including

Shongweni Dam. Nevertheless, the estate surrounding the dam still belonged to UWB.

The 1700 hectare estate encompasses various vegetation types ranging from plateau grasslands to valley bottom woodland and riverine bush. Spectacular sandstone cliffs of up to 50 meters in height provide nesting sites for rare black storks and a wide variety of raptors, including the Black, Martial, Crowned and African Fish Eagles. In addition to the 180 bird species recorded at Shongweni there are also reasonable populations of mammalian fauna, including Bushbuck, Grey, Blue and Red Duiker, Caracals, Jackals, Porcupines and Vervet Monkeys. The intention is to reintroduce species like Bushpig, Warthog, Klipspringer, Impala, Common and Mountain Reedbuck, Kudu, Wildebeest, Zebra, Giraffe and perhaps even Hippopotamus once the estate has been fenced (Hulbert, 1994). Work on the 40km game fence began after consultation with local communities.

Aware of its biological importance and its potential as an eco-tourist attraction, UWB commissioned the Wilderness Leadership School (WLS) to manage the estate as a nature reserve. A management company, Msinsi Holdings (Pty) Ltd, was established with WLS as the only shareholder. The company formally took control of the Shongweni Resources Reserve (SRR) in August 1992.

Five or six years prior to the establishment of the reserve, the neighbouring communities had come to regard the estate as open access commonage, hunting

and snaring fauna, felling indigenous hardwoods and harvesting medicinal plants at unsustainable levels. Watering and grazing of livestock, expressly permitted by the dam management after severe drought in the 1980's, created additional stress on the estate's natural resources. The SRR management viewed these abuses as symptoms of larger problems like poverty, and embarked on a policy of cooperative development with the surrounding community.

The communities surrounding the SRR are those of Salem, Ntshongweni, Toni and Zwelibomvu. Ntshongweni is the largest group with a population of approximately 56000 people (5700 households). Residents of Zwelibomvu, Salem and Toni number 27000, with 1800, 500 and 136 households respectively (Mander, 1994). The majority of houses are made from traditional wattle and daub with only a few brick buildings visible. A large proportion of the population is unemployed resulting in low household incomes and widespread poverty (Mander, 1994). Some residents migrate to jobs in Durban and Pinetown, and to nearby commercial farms.

3.2.3 Project implementation

Hulbert (1994), the project manager of SRR, identifies the community involvement objectives of the reserve to be; the supply of natural resources to the surrounding community on a sustainable basis; to act as a facilitator in addressing the peoples' development needs and; to provide the community with

some of the returns to the land. The project was initiated with mass community meetings held in June and July 1992, but its formal beginning is better marked by the founding of community Development Committees in March and April, 1993. This process was facilitated by the KwaZulu Training Trust (KTT). In addition, the SRR contracted the Institute of Natural Resources (INR) as consultants, and communities use extension services provided by the Farmer Support Group (FSG).

Surrounding communities are allowed to access firewood and grazing, these activities being supervised by SRR staff. Building timber is harvested by the staff on behalf of the communities. The SRR also assists with transport and communication facilities and acts as a facilitator to the Joint Services Board which funds services and infrastructure in the area. Umgeni Water has been subsidising SRR in the hope of making it self-sustaining in the future. Although other donors sponsor the Reserve, finance is a major problem.

3.2.4 Community institutions

The Development Committees have constituted themselves as business trusts. Community representatives were elected at mass gatherings, which were advertised by means of posters and by word of mouth. Individuals were nominated to stand for election and a show of hands determined the outcome. However, in Zwelibomvu, the result was opposed by people who did not attend

the meeting. A second meeting was convened and a more representative committee elected.

Each community has its own development committee with membership ranging from seven representatives for Toni to an estimated 15 for Ntshongweni. The Development Committees are represented on a joint Liaison Committee which includes non-voting representatives from various NGO's and the SRR itself. Toni community is represented by a single spokesman but the other larger communities each have two representatives. This Liaison Committee is primarily responsible for allocating resources and resolving conflicts with the SRR but also attempts to raise funds for development projects in all four communities.

A trusting relationship has developed between the SRR and the surrounding communities resulting in a substantial decrease of poaching within the Reserve (Hulbert, 1994). In addition, the committees have expressed interest in establishing their own conservation area adjacent to the reserve but lack the necessary financial capital.

3.3 Thukela Biosphere Reserve case study

3.3.1 Study area

The Thukela Biosphere Reserve (TBR) is situated in the valleys of the Bushmans, Bloukrans and Thukela rivers, and is close to Weenen town. Phillips (1973) classifies this part of KwaZulu-Natal as bioclimatic group 10 which is most suited to extensive beef, goat and game farming. A schematic map of the Thukela Biosphere Reserve is presented in Figure 5.

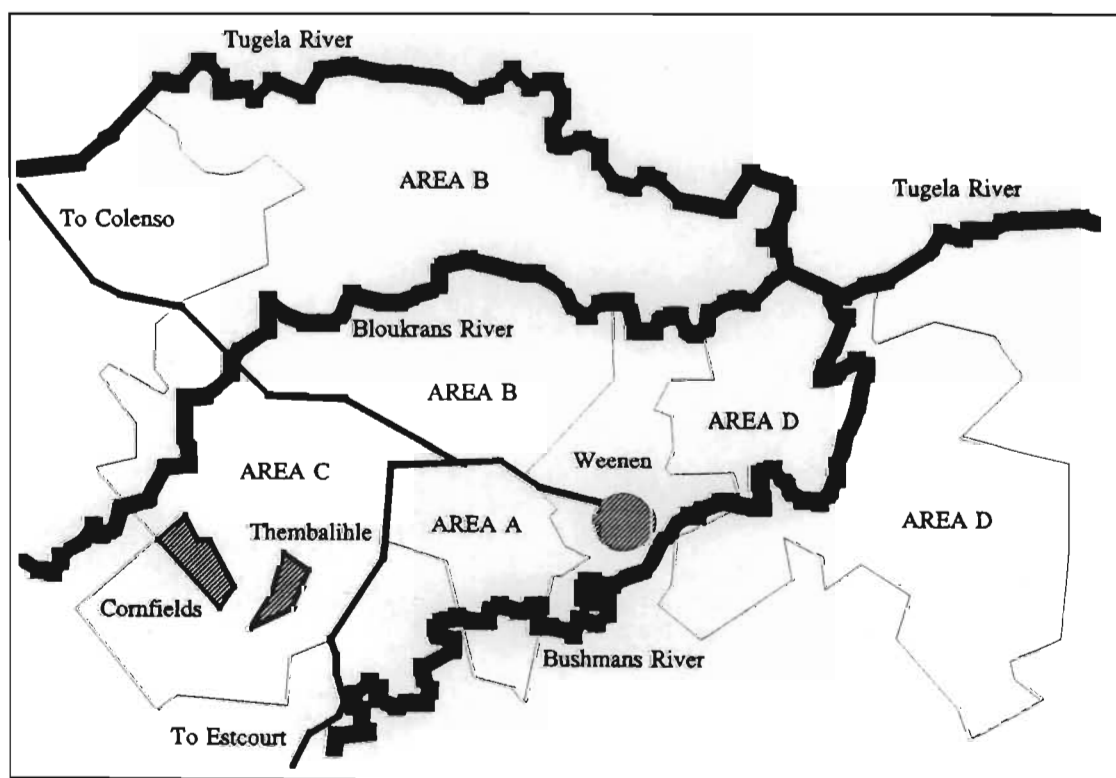


Figure 5: A schematic map of the TBR case study area

3.3.2 History of the Thukela Biosphere Reserve

Cornfields and Thembalihle are two African freehold areas located approximately 30 kilometres north-east of Estcourt on the farm Hatting No 1222. This farm was bought in 1912 by Reverend Wilcox for the purpose of selling agricultural smallholdings and village plots to Africans.

Sales began in 1912, but because there were complications with the transfer of title to buyers, Reverend Wilcox appointed a local solicitor to resolve this problem after he left South Africa in 1917. Ownership was transferred to buyers through a Deed of Arrangement. In 1971, the remaining unsold land was bought by the South African Development Trust (SADT) which offset outstanding debts and legal costs against the purchase price.

Like all black freehold areas in South Africa, Cornfields and Thembalihle received very little development assistance from the State. Today their economic configuration is essentially peri-urban and residents migrate or commute to jobs in urban centres. Development was also constrained by government threats to forcibly remove people even though the 1936 Trust and Land Act declared the settlements as sites for African occupation. The 1960's and 1970's saw both communities actively engaged in campaigns against forced removals.

In 1988, approximately 4300 people from Cornfields voluntarily accepted relocation to Mqwabalanda, which lies to the west of Estcourt. It is not surprising that so many moved, as: the majority of residents were tenants without tenure security; the population density was high and increasing; the new settlement was closer to town; the new site had space for livestock, and substantial land grants were promised to owners who transferred; running water and sanitation facilities were provided, and; cash compensation was paid for buildings demolished as part of the move (Mkize, 1994).

Cornfields, however, was not abandoned. Over 2000 people remained. In July 1990 the Association for Rural Advancement (AFRA) persuaded the government to grant Cornfields and Thembalihle reprieve from forced removals, thereby acknowledging existing property rights.

Rapid growth in human and livestock populations placed increasing pressure on grazing, firewood, thatching grass and water resources. In time, the communities invaded neighbouring farms for additional resources, and conflict situations developed. In the early part of 1993, six commercial farmers, all with game orientated enterprises initiated a wildlife conservancy. Faced with mounting pressure from the surrounding peasant communities, other commercial farmers joined the conservancy and, together with the NPB, initiated the TBR. At present, the TBR incorporates 36 commercial farmers and 53000 hectares of land excluding the Weenen Nature Reserve (4183 hectares). In essence, the

TBR is a voluntary conservation collective seeking cooperative management, protection of wildlife and the environment, and community involvement (Channing, 1994).

Although both Cornfields and Thembalihle fall within the boundaries of the TBR, the communities themselves are deeply suspicious of the Reserve. They fear continued evictions and demands to drastically reduce livestock numbers, and believe that a switch from extensive beef to eco-tourism enterprises will heighten unemployment (Mkize, 1994). However, the NPB and commercial farmers involved in the initiative argue that employment opportunities will increase and that communities will gain security of tenure.

The TBR has been zoned into five relatively discrete development areas, based on land use and spatial continuity (Figure 4). The well established Weenen Nature Reserve (area A) which is administered by the NPB, supports a wide range of wild herbivores including Buffalo and Rhinoceros. Area B is used primarily for game ranching and hunting operations but cattle ranching is also important. Elephant were recently introduced to this area to complement its numerous species of antelope. Areas C and D are used mainly for cattle ranching, area D having more game than area C. Cornfields and Thembalihle are incorporated into area E together with other peri-urban communities.

The Cornfields community has a population of approximately 4000 people (440 households), whilst Thembalihle's population is estimated to be 2700 people (270 households). There is a high proportion of tenants in relation to resident owners, especially in Thembalihle (Mkize, 1994). Estcourt is the nearest service centre and is perceived to be a source of employment despite high levels of unemployment in its more immediate surrounds.

3.3.3 Project implementation

The objectives of the TBR include: conservation, restoration and protection of natural resources; sustainable use of natural resources, and; the development of a cooperative land-use and management strategy which includes private landowners, the NPB, local authorities and communities (Channing, 1994). Although neighbouring commercial farmers supported the concept of a biosphere, the fears and aspirations of the communities had to be addressed. Members of the TBR organised a meeting with representatives from Cornfields and Thembalihle in August 1993. The key issue to emerge was the need for more land.

At subsequent meetings, it was agreed that the communities should purchase 11 farms from the commercial farmers. The Provision of Certain Land For Resettlement Act 126 of 1993 set aside R25 million for subsidised land purchases. The government offered a subsidy amounting to 80 per cent of the

land price, the balance to be paid by the communities, five per cent immediately and the remaining 15 per cent over a period of five years. Although the communities have gained access to the land, they have not been able to raise the initial 5 per cent. Nevertheless, the Deed of Sale has been signed and the title-deeds are in the process of being transferred to business trusts representing the communities. Each of the households in Cornfields must make a downpayment of R323, and those in Thembalihle R470. Annual loan repayments vary between R290 and R194 per household over the next five years, depending on the interest rate which has still to be negotiated. The trustees are in the process of compiling a formal list of households.

In exchange for their admission fee and compliance with the rules of the TBR, members are supposed to receive the following benefits: new opportunities for employment and income generation following the conversion from cattle to game ranching and tourism; increased property values and; the development of infrastructure, residential sites and services for local communities (Channing, 1994).

Commercial farmers within and between the development areas of the TBR have different expectations. Some wish to proceed with the conversion of their land to a wildlife reserve, whereas others wish to maintain their cattle ranching activities in the medium term. In many cases, there is a need to maintain

existing cash flows while the wildlife enterprise is developing. These needs vary between farmers and pose a major threat to the future of the TBR.

3.3.4 Community institutions

The TBR is a formal incorporation classified as a section 21 company or association not for gain. This organisation was initially represented by six founder members who comprised the first Reserve Committee. The Reserve Committee is elected at an Annual General Meeting of members and presently comprises seven representatives.

To join the TBR a person must have property bordering that of existing members and applications must be proposed and seconded by members of the Reserve Committee. These criteria apply equally to any company, association or institution that can nominate a natural person to represent them and to vote on their behalf in all matters concerning the Reserve.

Business trusts established by the communities of Cornfields and Thembalihle to purchase land on their behalf have made it possible for them to join the TBR, although this arrangement has not been formalized yet. The initial aims of these trusts as stated in the trust documents (Mkize, 1994) are: to own, manage and administer the land on behalf of the member households participating in the purchase of land; to manage and administer the land and natural resources and

to allocate rights and duties to participating member households, and; to raise funds for projects to achieve its goals. In Cornfields, 80 per cent of households have joined the community trust but participation is much lower (20-30 per cent) in Thembalihle. According to Mkize (1994), this stems from political differences between two tribal authorities in Thembalihle.

Eleven trustees from Cornfields and fourteen from Thembalihle represent diverse interest groups in each community, including women, youth, tenants, landlords, businessmen, Indunas and religious groups. Trustees are elected by members and their kin over the age of eighteen for a term of five years. They are not remunerated for their efforts even though they bear substantial responsibility and keep comprehensive records. Outside agents with particular skills may be coopted as consultants to the trust for as long as they are needed, but only community members can become trustees. Trustees meet with the community twice a month, at local schools. Dates for future meetings are discussed and advertised in posters and letters. Although these meetings are held on Sundays, they remain inconvenient for people who do not have transport and who live several kilometres from the venue.

The trustees deal only with the collective needs of their community. Individual problems are referred to a Residents Committee in Cornfields and the tribal authority in Thembalihle. Nevertheless, individuals are free to discuss matters with trustees. If necessary, a special meeting is called.

CHAPTER 4

ASSESSMENT OF CASE STUDIES

The previous chapter described three cases where CBO's were established to prevent unsustainable use of natural resources by communities in KwaZulu-Natal, viz. Dukuduku Forest, Shongweni Resources Reserve (SRR) and the Thukela Biosphere Reserve (TBR). To date, the SRR has had the most success, with a reduced level of poaching and four communities actively participating in the programme. This chapter explores these and other institutional differences between the case studies. The object is to establish guidelines for successful CBO's.

4.1 An assessment of the institutions linking communities with resource owners

The study of current institutions has its limitations because the set of possible institutional alternatives is open ended and evolving over time. In addition, the case studies analyzed in this paper are area specific and reflect institutional changes prompted by different actors. Nevertheless, the motivating force was the same in each case, viz. over-utilisation of natural resources.

It is interesting that the communities did not initiate institutional change or establish a set of common property rules themselves. In all three cases, institutional change was prompted by individuals and other groups who stood to lose substantially when neighbouring communities invaded or abused resources on their land. This outcome is consistent with Olson's (1971:34) theory of collective action. The institutions linking resource owners and communities represent different interest groups and, at Dukuduku and SRR, their decisions are not necessarily binding on resource owners. These conditions are not consistent with the principle of unanimous consent (Buchanan and Tullock, 1965:260) which assumes that representatives operate under a "veil of uncertainty" regarding their specific interests in future applications of the constitutional rule.

The Dukuduku community (comprising roughly 9000 people) has 20 representatives on the Steering Committee, but only 11 are elected by residents. The resource owners (NPB and Safcol) and other participating organisations have eight spokespeople. In the case of the TBR, each member has one vote. If the community trusts (representing 6700 people) join the TBR they will qualify for just two out of 38 votes as the other 36 members are commercial farmers. At Shongweni, the community Development Committees (now formalised as trusts representing 83000 people) nominate a total of seven members to serve on the Liaison Committee. Msinsi Holdings (the resource owner) and other organisations have eight representatives on the committee. In this case the

'other organisations' do not have strong vested interests and representation between communities is semi-proportional as larger communities can nominate more members (two) than smaller communities (one).

Communities may have little interest in observing restrictions imposed by decision-making bodies, regardless of how equitably they are represented, if they are unable to negotiate meaningful benefits in return for their compliance. Runge (1984) argues that net collective benefits need to be sufficiently direct and large if adherence to rules is to be ensured. Consequently, if natural resources are valued highly by society but provide few tangible benefits, the State may have to supplement benefits in order to encourage conservation.

In the SRR, the quantity of natural resources made available to individuals is directly related to previous exploitation rates. This creates an incentive to comply with regulations. The same does not apply to Dukuduku and the TBR where access is denied. This, plus the size of these reserves, has made enforcement expensive and helps to explain their persistent poaching and squatting problems.

Table 2 compares key attributes of the institutions linking communities with resource owners in each case study. At this level, the main institutional differences explaining the relative success of the SRR are (a) that community representatives are broadly accepted and share decision-making power with the

Table 2: Institutional characteristics of the institutions linking communities with resource owners

ATTRIBUTE	DUKUDUKU	SHONGWENI	THUKELA
RESOURCE OWNERSHIP	Safcol and NPB (Government)	Msinsi Holdings (Private Company)	TBR (Non-profit Company)
INCENTIVE TO MAKE RULES	Safcol and NPB	Msinsi Holdings	Commercial Farmers
LINK WITH RESOURCE OWNER	Steering Committee (28 members)	Liaison Committee (15 members)	Reserve Committee (7 members)
COMMUNITY REPRESENTATION ON LINKING BODY	Steering Committee includes members of Residents Committee (20 out of 28 members)	Semi-proportional representation of community trusts on Liaison Committee (7 out of 15 members)	One person from each community trust can vote on TBR matters (none are members of the Reserve Committee)
ACCESS TO RESOURCES	No	Yes	No
RESOURCE TO BENEFIT RELATIONSHIP	No	Yes	No
SIZE OF RESERVE (Ha)	1. Safcol 7 000 2. NPB 10 000	SRR 1 700	TBR 53 000
CAPITAL RESTRAINTS	Government Budget	Single Shareholder	Admission Fees

resource owner, and (b) that some of the benefits accruing to community members are directly related to the rate at which the Reserve is exploited. Success also depends on the ability of institutions to finance development programmes and enforcement costs. The following section examines community institutions and their impact on individual incentives.

4.2 An assessment of the community institutions

Institutional characteristics of the case study communities are presented in Table 3. The poor socio-economic status of households in all three areas no doubt undermines incentives to abide by institutional rules that restrict access to natural resources. In addition, the sheer size of the groups would make it virtually impossible to negotiate common property rules governing individual access. Clearly, it has become essential to establish community management institutions with centralised decision-making power (ie. non-user groups) in order to reduce these transaction costs.

Natural resources and other subtractive benefits (eg. cash dividends) are a stock of subtractable units, where every unit taken by one member of the group reduces the quantity available for other members. To prevent overutilisation, the cost of rule-breaking must be internalised to members of the community (Runge, 1981). This is encouraged when subtractive benefits are distributed in return

Table 3: Institutional characteristics of the community institutions

ATTRIBUTE	DUKUDUKU	SHONGWENI	THUKELA
SOCIO-ECONOMIC STATUS	Poor	Poor	Poor
TOTAL POPULATION	9 000	83 000	6 700
BENEFITS	Non-subtractive and Subtractive	Non-subtractive and Subtractive	Non-subtractive
MEMBERSHIP LIST	Yes	Compiling	Compiling
NUMBER OF COMMUNITIES	1	4	2
COMMUNITY MANAGEMENT ORGANIZATION	1. DDTA (Association with 9 elected members) 2. Residents Committee (with 20 community "representatives")	1. Trusts for each community (with 7- 14 elected trustees)	1. Trusts for each community (with 11- 14 elected trustees)
FORMAL CONSTITUTION	No	Yes	Yes
CAPITAL RESTRAINTS	Yes	Yes	Yes
COMMITTEE REMUNERATION	No	No	No
FACILITATION	NPA and others	SRR/INR/KTT/FSG	AFRA

for compliance to institutional rules because the opportunity cost of defiant behaviour is the foregone subtractive benefit. Non-subtractive benefits (like schools and clinics) tend to reduce individual incentives to comply with rules as they favour larger families and those which grow faster over time.

Members have an added incentive to comply with restrictions on resource use if sanctions are enforced in such a way that the costs of defection exceed the benefits. This argument presumes that community members are accountable for their actions. Murphree (1994) contends that conformity is achieved mainly through peer pressure. However, peer pressure requires that the community be well defined (exclusive) to prevent an influx of external free-riders when benefits are distributed. In short, compliance requires accountability amongst members which, in turn, necessitates a finite membership list.

Access to natural resources is not a sufficient condition for success. When the group is large, subtractive benefits become meaningless because the certainty and size of individual net benefits diminish. Although Murphree (1991) claims that cash is the preferred dividend in rural Zimbabwean communities, the payment of highly subtractive cash dividends to very large groups may generate meagre incentives and could be impractical, especially when shares are fragmented through inheritance (Lyne, 1994). Even if the group is well defined and small, individual cash dividends may be insignificant owing to the high cost of developing conservancies for commercial purposes (eg. trophy hunting and

tourism facilities). For this reason, less subtractive benefits do have an important role to play. The provision of infrastructure and poverty alleviating services like schools and clinics will, to some extent, offset any reduction in individual incentives to comply with the rules. Further, if members agree to equal initial shares, community management institutions could maintain some proportionality in benefits by withholding a portion of cash dividends to finance non-subtractive benefits. Ideally, members should be permitted to specify the type of non-subtractive benefit they wish to contribute towards. Member contributions to non-subtractive benefits may also help to nurture peer pressure.

Accountability of management is necessary to ensure that benefits remain equitable over time. Where communities are poorly represented in the rule-making institutions (eg. the TBR) it seems unlikely that the distribution of benefits will remain equitable, or that the type of benefits offered will adequately reflect community preferences. This is not to suggest that liaison committees should include large numbers of community representatives (eg. Dukuduku). The larger the group, the higher are transaction costs and the more difficult it becomes to reach consensus. Evidence presented by Olson (1971:54) suggests that functional committees generally have fewer than six members, whilst Lyne (1994) reports that groups with more than ten members were unable to make efficient use of land in New Zealand.

The accountability of management can be improved by defining individual rights and obligations in a formal constitution. This process may be relatively inexpensive for a liaison committee because its membership is small. But this is not the case when negotiating a constitution for an entire community. Given large groups and demands for unequal shares in benefits, it is highly unlikely that community members will reach consensus without external arbitration. In New Zealand, government has taken a proactive role in building community management institutions (Lyne, 1994) but a paternalistic approach avoided because: the community could become perpetually dependent on this assistance; non-sustainable projects could be initiated; communities could be forced to accept objectives that are inconsistent with their own, and; power differentials could be created within the community (Murphree, 1994).

Initially, the community management organisations observed in this study adopted constitutions with weakly defined rights and obligations. Constitutions were tightened where committees had to establish trusts in order to conduct business. In each case, this process was facilitated by external agents. However, trusts can have a poorly defined membership because beneficiaries are not necessarily described as individuals (van Dorsten, 1993:424). This reduces the accountability of members which, in turn, reduces incentives to comply with institutional rules. Like non-profit companies, trusts cannot pay dividends to shareholders and therefore have difficulty raising equity capital. Without remuneration or some form of profit sharing, the ability to attract competent

administrators and committed decision makers is also in question. None of the committee members received any financial remuneration for their efforts.

While local communities are in a unique position to monitor compliance with institutional rules, they often lack managerial and technical expertise. Communities may require advice concerning resource productivity and business administration. To be sure, State agencies and NGO's should strengthen their facilitatory roles. However, it is important that facilitators recognise the rules and enforcement procedures adopted by local institutions (Swallow and Bromley, 1994). This should reduce transaction costs associated with the difficulty to discern between formal (national law) and informal (customary law) rights, increasing the certainty of expectations needed for decision making.

Enforcement is required because the incentive to comply with rules diminishes as rule infractions by others become more frequent. Graduated sanctions need to be imposed to severely penalise persistent deviants but accommodate occasional errors or lapses in rule compliance. Decentralised conflict resolution arenas tend to generate more options because the likelihood of negotiation is higher when conflicts are confined to smaller kinship groups (Lyne, 1994). It appears that this criterion is satisfied in the study areas, and that external arbitration is also available.

CONCLUSION

The institutional changes reported in this paper were not initiated by communities. In all three cases, change was prompted by individuals and other groups who stood to lose substantially when neighbouring communities invaded or poached resources on their land. This is an important finding as it suggests a need for outside intervention in communal areas where common property institutions have collapsed and natural resources are being over-utilised.

Creating a small centralised decision-making body (ie. a non-user group) is a necessary first step because it is virtually impossible to negotiate common property rules governing individual access in large groups. This institution building process will require external facilitators, especially where communities lack managerial and technical expertise. It is recommended that NGO's and government vigorously disseminate objective information about alternative business organisations, offer managerial guidance, share administrative and transaction costs and broker settlements where distributional problems arise. However, a rigid universal remedy cannot be prescribed because it would be incapable of adapting to local conditions that change over time. Facilitation needs to be decentralised.

Individuals have an incentive to abide by rules if they are assured of receiving benefits in return for their compliance. If this assurance is to be secured,

members of the community and management bodies need to be made accountable for their actions. This necessitates a membership list and a transparent constitution. Ideally, the constitution should be compiled by parties that do not have vested interests. In practice, community representatives should be broadly accepted, share decision-making power with resource owners and be remunerated for their efforts. For these reasons, private companies should not be overlooked as appropriate institutions to represent communities. They also have the ability to raise equity capital through the issue of shares and can distribute both subtractive benefits (eg. cash dividends which internalise the profits generated from compliance), and non-subtractive benefits (eg. schools and clinics which reduce incentives to break rules). Indeed, there are innovative ways in which non-subtractive benefits can be internalised. For example, community management institutions could withhold a portion of cash dividends to finance non-subtractive benefits. Even so, it is likely that the State will have to subsidize development programmes and support local rule enforcement owing to the high cost of instituting and protecting conservancies for commercial purposes.

Future

Present legislation restricting the marketing of wildlife reduces its competitiveness. The removal of price distortions would improve net collective benefits and strengthen the demand for new institutions in communal areas. If the State takes a proactive role in building appropriate CBO's wildlife could play

an important role in the development of rural people and protection of the environment.

SUMMARY

In the context of this study, wildlife refers to indigenous animals and the ecological systems in which they exist. Many of the larger indigenous mammals require extensive tracts of land for their home territories, or for migration purposes. On account of this and their fugitive nature, it is extremely difficult to exercise effective constraint over them. Consequently, wildlife property rights are effectively determined by the *de facto* property rights of the land on which it is found. If effective constraint is not exercised and utilisation is left uncontrolled, access to wildlife resources may become open regardless of land tenure. As an open access resource, wildlife utilisation is unstable and could become unsustainable over time.

With the growing demands of expanding rural populations living at or below subsistence levels, open access conditions will transpire, resulting in the over-utilisation of natural resources. This raises important questions about institutional change and appropriate community based organisations. The object of this study is to determine what type of management institution will best serve the interests of both wildlife and people in communal areas.

An institution consists of a combination of informal customary constraints, formal legal rules and the enforcement characteristics of both. Institutions are crucial to economic development because they regulate, even if imperfectly, the

social behaviour of individual agents. Incentives need to be developed by institutions to motivate desired behaviour and to discourage inferior outcomes. This is achieved by rewarding individuals that comply with rules and by penalising those that do not. However, the effectiveness of a particular institution in manifesting these incentives depends on two requisites; how exclusively property rights are defined and how well transaction costs have been curtailed. Hence, incentives and their associated characteristics within the different institutional settings (open access, State, private and common property) are analyzed to help delineate the extent to which individuals are prompted to conserve wildlife.

Private property rights to land and wildlife are unlikely to evolve endogenously in communal areas because communities are large and transaction costs prohibitive. Similarly, an outside agent (eg. government) is unlikely to impose private property rights because of the high administration costs involved. Furthermore, the potential for wildlife to earn economic rents on small land areas (as groups are large) is low because of the high costs associated with the protection of boundaries (eg. construction and maintenance of fences). State property is an alternative but is disregarded because of its inefficiencies. The cost and equity advantages of common property arrangements make it the best suited institution to manage natural resources on communal land.

When communities are large, traditional common property user groups are not suited to managing communal resources because transaction costs become inhibitory. In this instance, non-user groups with small management teams are better adapted to control resources. Various non-user groups have been formalised under national law, each with different legal, social and economic implications for stakeholders and managers. Community-based organizations are best represented by companies and trusts because they have clear advantages in terms of group size and accountability to members. Companies can raise equity capital by selling shares, and proportionality between an individual's investment, benefits and voting rights may encourage participation by "stronger" members of the community. Trusts may be more practical in areas where community membership is difficult to define and/or administrative skills are weak.

To complement the institutional theory, three attempts to prevent unsustainable use of natural resources by communities in KwaZulu-Natal are analyzed, viz. Dukuduku Forest, Shongweni Resources Reserve (SRR) and the Thukela Biosphere Reserve (TBR). In all three cases, institutional change was not prompted by communities but by individuals and other groups who stood to lose substantially when neighbouring communities invaded or poached resources on their land. This is an important finding as it suggests a need for outside intervention in communal areas where common property institutions have collapsed and natural resources are being over-utilised. Support for conservation

rules appears to be strongest amongst communities at the Shongweni Resources Reserve where: community management organisations are formal institutions with legally binding constitutions; community representatives are broadly accepted and share decision-making power with the resource owner, and; community members get direct benefits from the Reserve.

It was concluded that the creation of a small centralised decision-making body (ie. a non-user group) is a necessary first step to overcome the difficulty of negotiating common property rules governing individual access in large groups. This institution building process will require external facilitators, especially where communities lack managerial and technical expertise. When individuals are assured of receiving benefits in return for their compliance, the incentive to abide by new institutional rules is created. However, if this assurance is to be secured, members of the community and management bodies will need to be made accountable for their actions. This necessitates a membership list and a transparent constitution. To ensure the conservation of wildlife, the State may have to subsidize benefits in development programmes and support local rule enforcement owing to the high cost of protecting and instituting conservancies for commercial purposes.

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