MURPHREE'S LAWS

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Introduction

Marshall Murphree's "laws" are rules linking people, conservation, sustainable use and development. Murphree himself did not call these rules "laws" – rather the label was given to them by his admirers. In some of his writings, he has enunciated principles which later assumed the status of 'laws'; elsewhere in his work, it has been left to his large readership to identify and confer the appellation on particular epigrammatic truths. The list of laws has become so extensive that nobody can remember what, for example, is Murphree's 'Seventh Law'. This paper examines Murphree's publications, addresses and presentations from 1991-2005 and extracts from them a list of laws, principles, definitions, descriptions, critical insights and quotable quotes.

The work is not exhaustive. I have not been able to examine all of Murphree's papers. A comprehensive bibliography is given at the end of this paper including those works which have been examined. The bibliography is restricted to Murphree's individual and joint papers: references to other authors are placed in footnotes on the relevant pages.

Definitions

Very early in the work, it became clear that some definitions were needed. Webster's Dictionary[1] contains more than a page of definitions for the word "law" and the twelfth meaning has been chosen –

Law: *Philosophy and Science*: A statement of an order or relation of phenomena which, so far as is known, is invariable under the given conditions . . . such laws are often specified by prefixing the name of the discoverer.

Thus my criterion for what constitutes a law is its invariability in the context in which it is used.[2] It is also a "high level" statement covering a range of situations – not a simple rule for a specific case. Of course a little latitude must be permitted. For example, Ohm's Law in engineering permits no latitude whatsoever (the relationship between voltage, current and resistance is fixed, precise and repeatable) but, in the description of what are now known as 'complex systems',[3] it would be unreasonable to expect the same exactitude – especially because all the multitude of potential applications cannot be tested.

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1. *Webster's New International Dictionary, Second Edition*, Eds. William A. Nielson, Thomas A. Knott, Paul W. Carhart, Published by G.C. Merriam Company, Springfield, Massachusetts, 1936. 3,569pp

2. Murphree remarked to me on 11 May 2007, in relation to his laws – "I think that the term "law" is probably inappropriate since in science this term should probably be reserved for propositions which have, to date, proved to have invariable outcomes. There are very few of these in social science. Indeed I can think of only one at the moment. "Principle" is less dogmatic, since the concept admits the influence of a number of independent variables. But this is a terminological debate which has no great urgency about it, and I hope that in your paper you stick with the terms you have used."

3. Holling C.S.(2001). **Understanding the Complexity of Economic, Ecological, and Social Systems**. Ecosystems 4: 390-405

Having defined a 'law', a category is required for those statements, also of a general nature, which are less global in their scope and do not demand invariability. Webster[1] defines a 'principle' (fourth definition) as –

Principle: A fundamental truth; a comprehensive law or doctrine from which others are derived or on which others are founded; a general truth; an elementary proposition; a fundamental assumption; a maxim; an axiom; a postulate.

> *A principle ascertained by experience is more than a mere summing up of what has been specifically observed in the individual cases which have been examined; it is a generalisation grounded in those cases.*
>
> John Stuart Mill,[4] 1806-1873

From these two definitions, it would appear that a law and a principle are equivocal. In the typology which follows, the distinction has been applied that principles are useful for guiding policy or implementation whereas laws are simply a statement of fact requiring no application to make them useful.

Taking the typology further, whereas a principle emphasises the idea of a general application, a **Rule** "emphasizes a more specific direction or regulation as in '. . . *to follow certain principles of administration; to lay down certain administrative rules* . . .".[1]

Some of Murphree's pronouncements fall in the category of **Definitions** (a word which the dictionary[5] describes simply as "the meaning of a word").

Finally, amongst Murphree's wealth of writings are many quotable quotes which could be described variously[4] as **Maxims** (*a general truth or rule of conduct briefly expressed*); **Aphorisms** (*a short pithy maxim*); **Axioms** (*self-evident truth requiring no proof*) or **Epigrams** (*pointed, witty saying*). Where any of these are reproduced below, no attempt is made to categorise them.

It is impossible to create a flowing narrative out of the chosen subject matter – it is not of that nature. Murphree's text is lean, parsimonious and elegant with the result that every paper examined is rich in potentially quotable material. Frequently I found myself reading for the sheer enjoyment of the subject matter and often lost sight of my fell purpose.

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4. J.S. Mill is, perhaps, most famous for his treatise *On Liberty*. A few quotes –
   Liberty consists in doing what one desires.
   The liberty of the individual must be thus far limited; he must not make a nuisance of himself.
   All good things which exist are the fruit of originality.
   The worth of a State, in the long run, is the worth of the individuals composing it.

5. *The Oxford Dictionary of Current English, Revised Second Edition*. Edited by Della Thompson, Oxford University Press,1996. 1,080pp

Murphree's Laws, Principles, Rules and Definitions

The simplest manner to tackle the task in hand is to start at the beginning (the earliest date) and work through Murphree's writings in chronological order extracting clauses, sentences and paragraphs that appear worthy of mention. Indeed, this is how the work was initially approached. The problem with this method is that the end result is a 'shotgun blast' of quotable quotes without any coherent themes. So I have grouped the subject matter according to the following topics –

Natural resources management and sustainable use

Community-based Natural Resource Management (CBNRM)

- **General**
- **Policy and tenure**
- **Scaling up**

State protected areas

Bureaucracy

International treaties

Science

The reader will have to judge whether this typology works. Inevitably, I found many laws and principles which could be placed in more than one category because of the complexity of their content. Perhaps that is to be expected.

I have chosen to keep much of the preambular text relating to any 'law' or 'principle' since it is the rationale for the dictum. The text selected for inclusion in Murphree's Laws is shown in bold print with the following superscripts –

Law [L] Principle [P] Rule [R] Definition [D]

On examining the material, it becomes apparent that some laws or principles overlap or are the same thing stated differently in two different publications. Accordingly, I present the 'definitive' list of laws, principles, rules and definitions at the end of each subsection. In some cases I have taken the liberty of combining one or more statements and I have also made a few minor modifications to the original text to suit its presentation as a 'law' or 'principle'. Since it would of very little use to anybody to refer to these laws and principles by numbers (e.g. 'Murphree's Seventh Law' or 'Murphree's Fourteenth Principle'), I have given each law and principle a title. In keeping with the spirit of this exercise, when I have been in doubt whether a statement is a law or a principle I have given the benefit of the doubt to the law.

Communities as Resource Management Institutions (1991c)

People seek to manage the environment when the benefits of management are perceived to exceed its costs.[L]

Resource use without resource management is non-sustainable but, equally, any attempt to establish resource management without resource use is likely to be futile [L]

Wildlife in Sustainable Development: Approaches to Community Participation (1996a)

Wildlife and sustainable development is primarily about development rather than conservation.[P]

Linking Conservation and Development Objectives

Does this imply the abandonment of "conventional" conservation objectives? In some ways, yes. **It does imply the abandonment of futile attempts to maintain large wildlife populations, particularly of large mammal species, on land outside state protected areas which is ecologically and economically more suited to other forms of production under competitive marketing and tax structures.**[R] In so doing, the shift is asking no more of Africa than what has happened in North America and Europe (although we should note that such land constitutes far less a proportion of total land surface in Africa than in Europe and North America). **It also implies the surrender of the "development to promote conservation" paradigm implicit in many programmes and projects for the approach of conservation as an investment for sustainable use made by African farmers.**[R]

Paradoxically, the shift in the longer term can further conventional conservation objectives. **Firstly, it provides an economic incentive to allocate appropriate land to wildlife production, thus expanding its range**. Conventional conservationist approaches in most of Africa have failed to halt the decline in wildlife range. **Secondly, it can create a better institutional context for "parks-people" relationships, that persistent concern of conservationist approaches**. This is because it creates neighbours for state protected areas who have legally defined authority and responsibility, and mutual economic and managerial interests. Conflicts over priorities, boundary maintenance and cooperation in mutual interest can thus be negotiated between authorities of symmetrical status in an open and structured manner.

To work, however, this compatibility must start with the incentives of the farmers who decide on the destiny of wildlife outside state protected areas. **Putting the farmers first is the formula for successfully linking wildlife conservation and sustainable rural development in Africa.**[L]

Strategic Roots and Implementational Evolution (1996b)

In the past sustainability issues have been approached through fragmented, bio-centric and species-specific foci which have to a large extent characterized perspectives. Such approaches have value and can record success within a discrete context. However **sustainable use issues are rarely confined to closed, biologically defined systems.**[P] Thus the conservation record is one of a few small successes and big failures. **Sustainability in the use of any species is usually embedded in larger ecosystem sustainability and this, in turn, is embedded in larger social systems with cultural, economic and political dimensions.**[P] . . . **Issues of sustainability cannot be adequately addressed independently of these macrostructural components.**[P]

Regulation of use is an essential component for sustainability in use.[P] Prevailing regulatory structures consist largely of a proscriptive and legislative nature imposed by the centre on the periphery, and they have failed to stop negative trends. The profile of the incentive package for regulatory compliance is too often wrong. **Incentive is the fulcrum of regulation**.[P] Regulation usually requires an element of negative incentive proscriptions backed by powers to enforce them. But **any regulatory system which relies primarily on negative incentives is, in the long term, in trouble**.[L] Enforcement costs are high and the legitimacy of the system in the eyes of the enforced is called into question. **History shows that such systems are unstable and that sustainable systems of regulation are those that rely primarily on positive incentives – economic, cultural and institutional – and which are affordable**.[P] Hardin's comment is relevant here: "We must recognize that all control operations incur costs; excessive controls generate their own kind of poverty."

Sustainability will depend on the unfettered demand for the use of a resource and the controls which exist over that use [P] Pers.comm.1997

Incentives for Sustainability (1998a)

Effective regulation is far more than a matter of proscriptive legislation.

Sustainable systems of regulation are those that rely primarily on positive incentives – economic, cultural and institutional – which are affordable. Any regulatory system which relies mainly on negative incentives is – in the long term – trouble.

Community Conservation as Policy: Promise and Performance (2001e)

Re-inventing conservation in Africa – for that is the task in hand – was never going to be a quick job (p296) [L]

Experiments with the Future (2001f)

Conservation is the same thing as sustainability [L] **and entails –**

- **both biological and human sciences;**[R]
- **dealing with change;**[R]
- **considering resilience rather than stability;**[R] **and**
- **viewing resilience as the product of negotiation over time** [R]

MURPHREE'S LAW OF CONSERVATION IN AFRICA

Re-inventing conservation in Africa – for that is the task in hand – was never going to be a quick job

MURPHREE'S LAW OF CONSERVATION AND SUSTAINABILITY

Conservation is the same thing as sustainability and entails –

[**Associated Rules**]

- **both biological and human sciences;**
- **dealing with change;**
- **considering resilience rather than stability; and**
- **viewing resilience as the product of negotiation over time**

MURPHREE'S LAW OF THE FARMERS FIRST

Putting the farmers first is the formula for successfully linking wildlife conservation and sustainable rural development in Africa

[**Associated Rules**]

- **Attempts to maintain large wildlife populations, particularly of large mammal species, on land outside state protected areas which is ecologically and economically more suited to other forms of production under competitive marketing and tax structures are futile**
- **The "development to promote conservation" paradigm implicit in many programmes and projects is an inappropriate approach for the investments in sustainable use made by African farmers**

MURPHREE'S PRINCIPLE OF COSTS AND BENEFITS

People seek to manage the environment when the benefits of management are perceived to exceed its costs

MURPHREE'S PRINCIPLE OF WILDLIFE AND SUSTAINABLE DEVELOPMENT

Wildlife and Sustainable Development is primarily about Development rather than Conservation

MURPHREE'S PRINCIPLE OF RESOURCE USE AND RESOURCE MANAGEMENT

Resource use without resource management is non-sustainable but, equally, any attempt to establish resource management without resource use is likely to be futile

MURPHREE'S PRINCIPLE OF THE SCOPE OF SUSTAINABILITY

Sustainable use issues are rarely confined to closed, biologically defined systems. Sustainability in the use of any species is usually embedded in larger ecosystem sustainability and this, in turn, is embedded in larger social systems with cultural, economic and political dimensions. Issues of sustainability cannot be adequately addressed independently of these macrostructural components.

MURPHREE'S PRINCIPLES OF REGULATION OF USE

Regulation of use is an essential component for sustainability in use.

Incentive is the fulcrum of regulation. Any regulatory system which relies primarily on negative incentives is, in the long term, in trouble.

MURPHREE'S PRINCIPLE OF DEMAND AND CONTROL

Sustainability will depend on the unfettered demand for the use of a resource and the controls which exist over that use

Community-based Natural Resource Management (CBNRM)

Not unexpectedly, the bulk of Murphree's material lies in this category. I have separated the potential laws and principles which appear at the end of the main section into three subsections – 'General'; 'Policy and Tenure' and 'Scaling up'. The relevant subsection appears in square brackets after the superscripts denoting laws, principles, rules and definitions.

Communities as Resource Management Institutions (1991c)

Principles for viable communal property regimes [6] [General]

Effective management of natural resources is best achieved by giving it focussed value for those who live with them [P]

Differential inputs must result in differential benefits [P]

There must be a positive correlation between quality of management and the magnitude of benefit [P]

The unit of proprietorship should be the unit of production, management and benefit[P]

The unit of proprietorship should be as small as practicable within ecological and socio-political constraints [P]

Optimal Principles and Pragmatic Strategies: Creating an enabling politico-legal environment for community-based natural resource management (1995b)

The mixed performance of CBNRM in the Region is due to the extent of strategic pragmatism in its implementation. **By placing policy and practice before politics, CBNRM has been born in a politico-legal environment which, if not hostile, is hardly nurturing.** [D] [Policy]

In our initial and successful end-run around political processes, we run the risk of ignoring their centrality to long-term CBNRM success. Our 'pragmatic principles' may cause us to be complacent about the introduction of 'optimal principles'. Where CBNRM has enjoyed success it has been conditional on a continued state indulgence that it should proceed. **The success is based on permission, not mandate.**

For long-term sustainability CBNRM requires a fundamental shift in national policies on tenure in communal lands. The core of the matter is strong property rights for collective communal units – not only over wildlife and other natural resources – but over the land itself. [P] [Policy] **The era of externally-derived innovation in CBNRM should be brought to an end. The era of self-determined, tenurially robust communal natural resource management should be brought into being**. [P] [Tenure]

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6. These principles, taken collectively, give effect to the Sixth Commandment "Tighten Feedback Loops" in Simon Levin's "The eight commandments of environmental management" (Concluding chapter of **Fragile Dominion: Complexity and the commons**, S.A. Levin 1999, Perseus Publishing, Cambridge, Massachusetts. 250pp.) – which is similar to Walker & Salt's (2006) statement that "a resilient world . . . would possess tight feedbacks" (Concluding chapter of **Resilience thinking: sustaining ecosystems and people in a changing world**, Island Press, Washington D.C. 174pp).

Wildlife in Sustainable Development: Approaches to Community Participation (1996a)

Authority and Responsibility

Ownership [over wildlife] **is seldom, if ever, absolute. Rights are stronger, the longer they have been in place and the fewer conditionalities attached to them**.[D] [Tenure]

In most of Sub-Saharan Africa farmers live on land and use resources which the state legally claims as its own. Their authority and responsibilities regarding land and natural resources are ambiguous and weakly linked, and their lack of strong tenure is a disincentive to conservation investments**. Such conditions are a recipe for the failure of initiatives to link wildlife conservation and rural development concerns**. [P] [Tenure]

The leap from "community participation" to strong communal property regimes is not an easy one. Powerful interests conspire to block it. For some politicians and bureaucrats it is seen as a loss of power and privilege. For some conservationists it is seen as a surrender of wildlife technology to the vagaries of decisions by unsophisticated peasants. But, . . . **it is the only approach which can effectively insert wildlife resources sustainably into African rural development**.[L] [Tenure]

In Search of Pragmatism:
Efficiency in Coalitional Global Environmental Management (1997b)

Generally, the smaller a [property] **regime the more effective and efficient it will be** [P] [Tenure]

Boundaries and Borders:
The Question of Scale in the Theory and Practice of Common Property Management (2000a)

Two contrasting policy thrusts regarding jurisdictional response to spatial and functional scale expansion are in evidence over the last half-century. One is "**Big Government"** policy, which seeks to further entrench current national jurisdictions or, indeed, to absorb them into larger international jurisdictions. . . . The contrasting policy thrust, particularly prominent in the last two decades, is one which argues for a reduction in the scope and reach of jurisdictions and a corresponding increase in their number. This is the "**Small is Beautiful**" policy . . . an approach which seeks to place jurisdictions at local or community levels.

The alignment of Authority, Responsibility and Incentives [L] [Policy]

- **Authority without Responsibility is meaningless or obstructive** [R]
- **Responsibility without Authority cannot be effective** [R]
- **Without Responsibility or Authority, there is no Incentive to invest, manage or control** [R]

The Design of Small Local Jurisdictions [General]

The membership –

- **The fewer members the better** [R]
- **The closer they live together the better** [R]
- **The more they interact together on a daily basis the better** [R]

The relationship of group size to the resource base is central –

- **Large groups with weak resource bases are unlikely to succeed** [P]
- **Small dispersed groups with large valuable resource bases will have difficulty acting in cohesion** [P]

Empowerment

Notwithstanding the requirement to plan over larger scales, the foundation for **SMALL IS BEAUTIFUL** rests upon a mosaic of communities each with extensive rights over their individual parcels of land and resources. Boundaries have to be "closed" through negotiated and reciprocal exclusion. A critical insight – "**Closing the boundaries" is not an exercise in isolationism. Rather it is a search for local regime independence within the larger setting of interdependence at many scales.** [P] [Scaling Up] Having been closed, boundaries need to be transcended through negotiated interest and interaction.

Institutions

"Scaling Down" to be sustainable involves "Scaling Up". [L] [Scaling Up] Three themes emerge as **principles** for linking and matching functional, ecological and jurisdictional scales –

The Principle of Jurisdictional Parsimony [P] [Scaling Up]

- Management institutions ("jurisdictions") need to be matched to the specific requirements of resources to be managed and should be no larger than is necessary.

The Principle of Delegated Aggregation [P] [Scaling Up]

- To meet the ecological imperatives of larger scales, management institutions need to be expanded – this must be done through a process of aggregation rather than expropriation

The Principle of Constituent Accountability [P] [Scaling Up]

- To reach the desirable situation where local groups influence the allocations of entitlements through the political process, local jurisdictions must become a significant political constituency of the state and one to which the state is accountable

Sequencing Devolution

Many planners and bureaucrats see devolution of authority as a step-by-step process where communities are granted powers incrementally as they demonstrate the ability to manage. This is *Catch 22*. **Authority is a pre-requisite for responsible management and should not be held out as a reward for it. Devolution carries with it the responsibility for organisation, management, control, self-sufficiency and, above all, for developing resourcefulness. These attributes cannot be imposed, they must be developed experimentally in the local setting and, without authority, such experiments are defective. The stimulus for this development arises not from the anticipation of future entitlement but from the imperative of immediate empowerment.** [P] [Tenure]

Community-Based Conservation: Old Ways, New Myths and Enduring Challenges (2000b)

Devolution involves the creation of relatively autonomous realms of authority, responsibility and entitlement, with a primary accountability to their own constituencies [D] [Tenure]

When escalations of scale require it, the reach of local jurisdictions should be expanded by aggregation rather than through expropriation [P] [Scaling up]

There is a mindset which sees CBNRM success as a linear progression towards a predetermined set of fixed objectives. To transcend this syndrome we need to see process as an end as well as a means, and to accept that **the core objective of CBNRM is increased communal capacity for adaptive and dynamic governance in the arena of natural resource use**. [L] [General] It is about local capacities to handle change and to negotiate the human impact on nature from past to future. **It is as much about *resourcefulness* as it is about *resources.***

Demography is the most important driver of demand and is a serious threat to CBNRM. A general lesson can be drawn: **national macro-economic health and CBNRM success are closely linked.** [P]

Community Conservation in Africa (2001a)

The idea of community conservation is evolving and is not fixed . . . individuals, groups and organisations compete to manipulate both the meaning that is invested in the term and the nature of its practice so as to achieve their personal, group or organisational goals (p5) [L] [General]

For generations, conservation policy in Africa has been socially illegitimate in the eyes of the continent's rural people. The task of creating a conservation policy that is embedded in African society, rather than imposed from above, will be the work of generations (p7) [L]

Community Conservation: from Concept to Practice (2001b)

Cohesion is the social glue which persuades people, in spite of their differences, to act collectively to enhance mutual interest and represent it to others (p26) [D] [General]

Demarcation is the definition of jurisdiction limits which reinforces authority and responsibility for the collective grouping and is necessary for efficient organisational activity (p27) [D] [General]

An internal legitimacy endogenously derived but also sanctioned by the state is likely to produce a more robust base for organisation [P] [General]

Resilience provides durability to organisations and creates scope for them to improve through processes of adaptive management [P] [General]

'Community' can be defined functionally as a principle manifest in social groupings with the actual or potential cohesion, incentive, demarcation, legitimacy and resilience to organise themselves for effective common pool natural resource management at levels below and beyond the reach of state bureaucratic management.[7] P [General]

Authority without responsibility is likely to be dysfunctional or obstructive; responsibility without authority lacks the necessary instrumental and motivational components for its efficient exercise (p30). P [Tenure]

The performance of community conservation initiatives will be determined by the degree to which they are able to reconcile the conflicts created by property regimes that emphasise the responsibilities of communities but devolve few rights to them (p31). P

Ultimately the effectiveness of organisation in community conservation is determined by the will and capacities of communities themselves and cannot be imported from outside. L [General] External agents can assist, but this assistance must largely be in creating conducive environments for the evolution of community organisation, the provision of training in specific skills and 'light touch' facilitation of a non-directive kind which elaborates on alternatives and their consequences.

The Evolution of Policy on Community Conservation in Namibia and Zimbabwe (2001c)

Policy is dynamic, in constant and evolving interaction with implementation (p38) D

Community Conservation as Policy: Promise and Performance (2001e)

Community conservation is no panacea for intra-communal differentiation or conflict. P [General] By raising economic stakes or creating new modes of access to resources it may exacerbate such tensions. The same can of course be said of virtually all other forms of local economic development initiative (p282).

'Best practice' in community conservation is not so much about transferring 'good' experiences from one programme to another – rather it is about strengthening the capacities of conservation agencies, communities and programme managers to experiment, learn and take effective decisions within the constraints under which they work. P [General]

- **the level at which benefits accrue should be the level at which management occurs** P
- **tenure over natural resources should be delegated to the lowest level of social scale possible** (p294). P [General]
- **Devolution needs to focus on creating 'nested sets' of institutions – at different levels of scale and sometimes involving federations of local organisations – rather than all-powerful authority**. P [Scaling up]

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7. Murphree's concepts align closely with complex systems thinking and may, in fact, pre-date more recent material.

Implementational stasis results when the State does not have the resources to effectively impose its policies and communities do not have the resources to implement locally generated policy alternatives. [L] [Policy] **This is a situation where the State is unwilling to surrender its technicist and proscriptive policy approaches while lacking the resources to make them effective and the local community lacks the authority and incentives to create effective policies and regimes responsive to local imperatives.** [D] [Policy]

Devolution of authority to communities or landholders for conservation and sustainable use of wild resources is a "cardinal input" [P] [Policy] *"A shift to a devolutionist stance, creating collective local regimes with strong legal entitlements would be the single most important step to revitalising common property resource policy."*

Expectations for the present must be tempered by the recognition that common property resources are currently hostage to larger politico-economic realities. This is not to suggest that the grail of good common property policy and practice is not worth pursuing. [P] [Policy]

COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT (CBNRM)

GENERAL

Laws

MURPHREE'S LAW OF EVOLVING COMMUNITY CONSERVATION

The idea of community conservation is evolving and is not fixed . . . individuals, groups and organisations compete to manipulate both the meaning that is invested in the term and the nature of its practice so as to achieve their personal, group or organisational goals

MURPHREE'S LAW OF THE CORE OBJECTIVE OF CBNRM

The core objective of CBNRM is increased communal capacity for adaptive and dynamic governance in the arena of natural resource use

MURPHREE'S LAW OF EFFECTIVENESS OF COMMUNITY CONSERVATION

Ultimately the effectiveness of organisation in community conservation is determined by the will and capacities of communities themselves and cannot be imported from outside

Principles

MURPHREE'S PRINCIPLE OF RIGHTS AND RESPONSIBILITIES

Performance of community conservation initiatives will be determined by the degree to which they are able to reconcile conflicts created by property regimes that emphasise responsibilities of communities but devolve few rights to them

MURPHREE'S PRINCIPLE OF DEVELOPING RESILIENCE

'Best practice' in community conservation is not so much about transferring 'good' experiences from one project to another – rather it is about strengthening capacities and developing resilience of conservation agencies, communities and programme managers through the process of adaptive management where they experiment, learn and take decisions within the constraints under which they work

General Principles *(continued)*

MURPHREE'S PRINCIPLES FOR VIABLE COMMUNAL PROPERTY REGIMES

1. **Effective management of natural resources is best achieved by giving it focussed value for those who live with them**
2. **Tenure over natural resources should be delegated to the lowest level of social scale possible**
3. **An internal legitimacy endogenously derived but also sanctioned by the state is likely to produce a more robust base for organisation**
4. **Differential inputs must result in differential benefits**
5. **There must be a positive correlation between the quality of management and the magnitude of benefit**
6. **The level at which benefits accrue should be the level at which management occurs**
7. **The unit of proprietorship should be the unit of production, management and benefit**
8. **The unit of proprietorship should be as small as practicable within ecological and socio-political constraints**

[**Associated Rules**]

The Relationship of Group Size to the Resource Base

- **Large groups with weak resource bases are unlikely to succeed**
- **Small dispersed groups with large valuable resource bases will have difficulty acting in cohesion**

The Design of Small Local Jurisdictions

- **The fewer members the better**
- **The closer they live together the better**
- **The more they interact together on a daily basis the better**

MURPHREE'S PRINCIPLE OF INTERNAL CONFLICT

CBNRM is no panacea for intra-communal differentiation or conflict

MURPHREE'S PRINCIPLE OF CBNRM AND THE ECONOMY

National macro-economic health and CBNRM success are closely linked

General Definitions

MURPHREE'S DEFINITION OF COMMUNITY

'**Community**' can be defined functionally as a principle manifest in social groupings with the actual or potential cohesion, incentive, demarcation, legitimacy and resilience to organise themselves for effective common pool natural resource management at levels below and beyond the reach of state bureaucratic management.

MURPHREE'S DEFINITION OF COHESION

'**Cohesion'** is the social glue which persuades people, in spite of their differences, to act collectively to enhance mutual interest and represent it to others

MURPHREE'S DEFINITION OF DEMARCATION

'**Demarcation**' is the definition of jurisdiction limits which reinforces authority and responsibility for the collective grouping and is necessary for efficient organisation

COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT (CBNRM)

POLICY AND TENURE

MURPHREE'S LAW OF DYNAMIC POLICY

Policy is dynamic, in constant and evolving interaction with implementation

MURPHREE'S LAW OF CONSERVATION POLICY IN AFRICA

For generations, conservation policy in Africa has been socially illegitimate in the eyes of the continent's rural people

The task of creating a conservation policy that is embedded in African society, rather than imposed from above, will be the work of generations

Principles

MURPHREE'S PRINCIPLES FOR COMMUNITY PROPERTY REGIMES

1. **The era of externally-derived innovation in CBNRM should be brought to an end. The era of self-determined, tenurially robust communal natural resource management should be brought into being.**
2. **For long-term sustainability CBNRM requires a fundamental shift in national policies on tenure in communal lands. The core of the matter is strong property rights for collective communal units – not only over wildlife and other natural resources – but over the land itself.**
3. **The transition from "community participation" to a strong communal property regime is not easy but it is the only approach which can effectively insert wildlife resources sustainably into African rural development.**
4. **Devolution of authority to communities or landholders for conservation and sustainable use of wild resources is a "cardinal input".**
5. **The smaller a property regime the more effective and efficient it will be.**

[Associated Rules]

Sequencing Devolution

- **Authority is a pre-requisite for responsible management and should not be held out as a reward for it.**
- **Devolution carries with it the responsibility for organisation, management, control, self-sufficiency and, above all, for developing resourcefulness.**
- **These attributes cannot be imposed, they must be developed experimentally in the local setting and, without authority, such experiments are defective.**
- **The stimulus for this development arises not from the anticipation of future entitlement but from the imperative of immediate empowerment.**

Principles *(continued)*

MURPHREE'S PRINCIPLE OF THE POLICY GRAIL

Expectations for the present must be tempered by the recognition that common property resources are currently hostage to larger politico-economic realities

The grail of good common property policy and practice should still be pursued

MURPHREE'S PRINCIPLES OF AUTHORITY AND RESPONSIBILITY

Authority without responsibility is likely to be dysfunctional or obstructive

Responsibility without authority lacks the necessary instrumental and motivational components for its efficient exercise

Definitions

MURPHREE'S DEFINITION OF WILDLIFE OWNERSHIP

Ownership is seldom, if ever, absolute. Rights are stronger the longer they have been in place and the fewer conditionalities are attached to them.

MURPHREE'S DEFINITION OF THE POLITICO-LEGAL ENVIRONMENT

By placing policy and practice before politics, CBNRM has been born in a politico-legal environment which, if not hostile, is hardly nurturing

MURPHREE'S DEFINITION OF IMPLEMENTATIONAL STASIS

'**Implementational stasis**' results when the State does not have the resources to effectively impose its policies and communities do not have the resources to implement locally generated policy alternatives.

This is a situation where the State is unwilling to surrender its technicist and proscriptive policy approaches while lacking the resources to make them effective and the local community lacks the authority and incentives to create effective policies and regimes responsive to local imperatives.

COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT (CBNRM)
SCALING UP

MURPHREE'S DEFINITION OF CLOSING THE BOUNDARIES

Devolution involves the creation of relatively autonomous realms of authority, responsibility and entitlement, with a primary accountability to their own constituencies. Boundaries have to be "closed" through negotiated and reciprocal exclusion.

"**Closing the boundaries**" is not an exercise in isolationism. Rather it is a search for local regime independence within the larger setting of interdependence at many scales.

MURPHREE'S LAW OF SCALING UP

"Scaling Down" to be sustainable involves "Scaling Up"

*Three themes emerge as **principles** for linking and matching functional, ecological and jurisdictional scales –*

THE PRINCIPLE OF JURISDICTIONAL PARSIMONY

Management institutions need to be matched to the specific requirements of the resources to be managed and should be no larger than necessary

THE PRINCIPLE OF DELEGATED AGGREGATION

To meet the ecological imperatives of larger scales, management institutions must be expanded through a process of aggregation rather than expropriation

THE PRINCIPLE OF CONSTITUENT ACCOUNTABILITY

To reach the desirable situation where local groups influence the allocations of entitlements through the political process, local jurisdictions must become a significant political constituency of the state and one to which the state is accountable

Devolution needs to focus on creating 'nested sets' of institutions – at different levels of scale and involving federations of local organisations – rather than all-powerful authority

State Protected Areas

The March 2002 issue of the Common Property Digest (No. 60)[8] is dedicated to the subject of protected areas and the contribution which social science scholarship might make to influencing national protected area policies. Murphree (2002a) has written the lead article and it is followed by responses from a number of authors. Murphree's article opens the door for questioning a number of axioms characterising State protected areas.

Protected Areas and the Commons (2002a)

- Protected areas have generally been uncritically linked with State ownership and management;
- The IUCN definition of a protected area, however, makes no mention of State ownership;
- The IUCN World Commission on Protected Areas tends primarily to assign intrinsic and aesthetic conservation values to protected areas;
- Other IUCN Commissions observe that protected areas address only a fraction of global biodiversity concerns and point out the sense of alienation experienced by local peoples whose land and resources have been expropriated to create national parks;
- These commissions advocate inclusive policies where local people, acting collectively, are provided with incentives to take responsibility for and benefit from the economic development which protected areas can provide;
- Similar policy shifts are occurring in a number of international conservation and development agencies and **the old notion of "fortress conservation" is being displaced by new ideas of development through community conservation and sustainable use**; [P]
- Performance of projects based on these new approaches has generally been well below expectations. Amongst the proximate reasons for failure are the following –
  - ➤ **Cohesive communities have been hard to identify;** [R]
  - ➤ **Incentives for cohesion are absent or do not cover the transaction costs involved in developing or maintaining cohesion;** [R]
  - ➤ **The process requires time frames well beyond the impatient log frames of conventional donor project development;** [R] and
  - ➤ **Conservationists have tended to 'colonise' and capture projects and local actors have diverted projects away from their central objectives.** [R]
- **The ultimate and most fundamental reason for failure has been that the critical ingredient for project success, that of devolution of authority and responsibility, has been missing**; [P]

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8. The Common Property Resource Digest is a quarterly publication of the International Association for the Study of Common Property.

- Governments (and NGO implementing agencies) have continued to —
  - ➤ **retain ultimate power to shape objectives and control benefits**;
  - ➤ **see community involvement as the same thing as "compliance"**;
  - ➤ **see participation as the same thing as "co-opting" communities**; and
  - ➤ **be reluctant, as politicians and bureaucrats, to surrender the power and control of access to resources which is essential for robust devolution**.

  Hence most of the projects involving communities in natural resource management have simply become an exercise in "aborted devolution". [D]

- The result of this is a backlash where disillusionment has set in at local, national and international levels. Two reactions are coming out of the failures –
  - ➤ One group wants to return to fortress-type protected areas e.g. Conservation International's "Back to the Barriers" policy;
  - ➤ The other group, informed largely by social scientists, wants to see the critical ingredients for success included in the recipe.

Murphree argues that **Protected Areas are no more than another form of "commons" – areas set aside for a constituency which require protection through controls on their access and use. Seen as an area of "commons", a number of false perceptions need to disappear – protected areas do not have to be managed by the State, they are not about use versus non-use, and they are not about exclusion rather than regulated access**. [P]

MURPHREE'S PRINCIPLE OF REPLACING 'FORTRESS' CONSERVATION

The old notion of "fortress conservation" is being displaced by new ideas of development through community conservation and sustainable use

MURPHREE'S DEFINITION OF 'PEOPLE & PARKS' PROJECT FAILURES

The proximate reasons for the failure of projects linking local people and State protected areas are –

- Cohesive communities have been hard to identify;
- Incentives for cohesion are absent or do not cover the transaction costs involved in developing or maintaining cohesion;
- The process requires time frames well beyond the impatient log frames of conventional donor project development; and
- Conservationists have tended to 'colonise' and capture projects and local actors have diverted projects away from their central objectives.

The ultimate and most fundamental reason for failure has been that the critical ingredient for project success, that of devolution of authority and responsibility, has been missing

MURPHREE'S DEFINITION OF 'PEOPLE & PARKS' PROJECT FEATURES

Governments (and NGO implementing agencies) have –

- retained ultimate power to shape objectives and control benefits
- treated community involvement as the same thing as "compliance"
- treated participation as the same thing as "co-opting" communities

and

- been reluctant, as politicians and bureaucrats, to surrender the power and control of access to resources essential for robust devolution

Hence most of the projects involving communities in natural resource management have simply become an exercise in

"ABORTED DEVOLUTION"

STATE PROTECTED AREAS

continued

MURPHREE'S PRINCIPLE OF PROTECTED AREAS AS COMMONS

Protected Areas are no more than another form of "commons" – areas set aside for a constituency which require protection through controls on their access and use

Seen as an area of "commons", a number of false perceptions need to disappear –

- **protected areas do not have to be managed by the State**
- **they are not about use versus non-use, and**
- **they are about regulated access rather than exclusion**

Bureaucracy

Communities as Resource Management Institutions (1991c)

Communally-based management regimes require far more than 'involvement', 'participation' and decentralisation. **Participation and involvement turn out to mean the co-option of local elites and leadership for derived programmes and decentralisation turns out to mean simply the addition of another obstructive layer to the bureaucratic hierarchy which governs natural resource management.** [D]

Synergising Conservation Incentives:
Sociological and Anthropological Dimensions of Sustainable Use (1997c)

Local incentives indicate devolution in proprietorship. Unfortunately, establishment incentives tend to resent it. [P] **These incentives include the bureaucratic mind, disposed to the centralization of authority and the technocratic mind, which is disposed to see devolution as the surrender of professional management to the vagaries of cost/benefit decisions by unsophisticated peasants. They also include the appropriative incentives of central political elite and their private sector allies. Whatever the specific configuration of incentive is, the result is commonly that "community-based" resource management initiatives turn out to be efforts to co-opt or bribe local peoples while authority still effectively remains firmly in state hands. This is institutionally fatal, since authority and responsibility are separated.** [L]

Incentives for Sustainability (1998a)

Power structures at the political and economic centre are not disposed to surrender their privileges and will use their power, including their abilities to shape policy and law, to maintain the monopolies of their position. [P]

Community Conservation as Policy: Promise and Performance (2001e)

Those who hold power at the local level – traditional leaders, local officials and business people – are likely to use that power to capture new sources of income and resist any erosion of their position. [P]

Policy Implications of Common Pool Resource Knowledge:
A Background Paper on Zimbabwe (2002b)

Current usage of the term "equity" implies the elimination of gross disparities arising from situations or structures which concentrate and maintain power in the hands of a narrow band of elites. [D] "Equity is thus a relative, dynamic and subjective concept arising from both material conditions and normative perceptions. . . . 'Equity', in effect becomes a synonym for 'legitimacy' – the legitimacy of structures and processes of entitlements, controls and obligations that hold a broad social consensus of normative support."

BUREAUCRACY

Laws

MURPHREE'S LAW OF THE BUREAUCRAT'S BEHAVIOUR

Power structures at the political and economic centre are not disposed to surrender their privileges and will use their power, including their abilities to shape policy and law, to maintain the monopolies of their position

MURPHREE'S LAW OF THE OUTCOME OF ESTABLISHMENT INCENTIVES

Local incentives indicate devolution in proprietorship. Unfortunately, establishment incentives tend to resent it. These incentives include –

- **the bureaucratic mind, disposed to the centralization of authority**
- **the technocratic mind disposed to see devolution as the surrender of professional management to the vagaries of cost/benefit decisions by unsophisticated peasants**
- **the appropriative incentives of central political elite and their private sector allies**

Whatever the specific configuration of incentive is, the result is that "community-based" resource management initiatives turn out to be efforts to co-opt or bribe local peoples while authority still effectively remains firmly in state hands

This is institutionally fatal since authority and responsibility are separated

BUREAUCRACY

Definitions

MURPHREE'S DEFINITIONS: PARTICIPATION, INVOLVEMENT AND DECENTRALISATION

Communally-based management regimes require far more than
'involvement', 'participation' and decentralisation

'**Participation**' and '**involvement**' turn out to mean
the co-option of local elites and leadership for derived programmes
and
'**Decentralisation**' turns out to mean simply the addition of another obstructive layer to the bureaucratic hierarchy which governs natural resource management

MURPHREE'S DEFINITION OF EQUITY

Current usage of the term "equity" implies the elimination of gross disparities arising from situations or structures which concentrate and maintain power in the hands of a narrow band of elites

'**Equity**' is thus a relative, dynamic and subjective concept
arising from both material conditions and normative perceptions

'**Equity**', in effect, becomes a synonym for '**legitimacy**' –
the legitimacy of structures and processes of entitlements, controls and obligations
that hold a broad social consensus of normative support

International Treaties

In Search of Pragmatism:
Efficiency in Coalitional Global Environmental Management (1997b)

The ratio between human demands and the capacity of the earth's renewable resources has shifted radically in the last century towards a condition of unsustainability. Any adequate response to this must consider the demand dimensions of this ratio, particularly human demography and life-style aspirations. It must also address the supply side of this ratio, in terms of our husbandry and management of the earth's resources.

These over-arching issues and concerns have fuelled international environmentalism since the 1960's and have lead *inter alia* to the creation of a number of international environmental conventions, including CITES and the CBD. But has this type of response worked? Have the trajectories in the demand / resource ratio been significantly altered? Generally and globally the answer is not propitious.

Part of the answer to the question as to why international environmentalism has failed to reverse these negative trends lies in the fact that it has not until recently seriously addressed the demand side of our equation since issues like population control and the alteration of life-style aspirations are not politically expedient for powerful segments of its constituency. **But part of the answer also lies in the inadequacies of its conventions, its instruments of collective international husbandry and management of the resources themselves.** [P] **Manifestly these have not adequately produced the effects for which they were created and their design, their implementation and the role we assign to them bear re-examination. They are extremely costly in time, effort and money. and unless they can be made to work we should throw them out and start again**. [P]

Regime congruence

Generally, the smaller a regime is the more effective and efficient it will be. [P] **Increases in scale complicate communication and decision-making, and beyond certain levels regimes must bureaucratise with attendant costs. Compliance inducement shifts from low-cost modes of moral and peer pressure to the high cost methods of policing and formal coercion. Increase in scale erodes the sense of individual responsibility**. [P] These insights led Garrett Hardin to once remark that in environmental affairs "globalization favors evasion" and he went on to advocate a simple rule: "Never globalize a problem if it can possibly be dealt with locally."

There are global environmental problems requiring global responses and it is to these that our global conventions should give priority. There are sub-global environmental issues requiring management responses at this scale. But **most environmental management requirements lie at lower levels and can be most efficiently dealt with at these levels**. [P] The criterion of efficiency suggests that **our conventions should be designed with these scale considerations in mind, place their priorities on issues requiring global action, and refrain from intruding on the operations of smaller-scale regimes more suited to the management requirements of the resources they address**. [P] If they do not, **they can themselves become perverse incentives, resulting in the evasion of responsibility to achieve the results they advocate**. [P]

Synergising Conservation Incentives:
Sociological and Anthropological Dimensions of Sustainable Use (1997c)

In the interplay between local and global benefits in biodiversity there is a critical nexus which largely determines the success or failure of sustainable use initiatives at both levels. "Use" can be defined as "the derivation of benefit," but the incentives which determine preferences for the mode of use vary significantly from global to local levels. Unless these incentives are made compatible the necessary collaboration for their attainment will be lacking. Bromley comments that:

> *Incentive compatibility is established when local inhabitants acquire an economic interest in the long-run viability of an ecosystem that is important to people situated elsewhere. ... Such ecosystems represent benefit streams for both parties: those in the industrialized North who seek to preserve biodiversity and those who must make* a *living amid this genetic resource.*

Without incentive compatibility stasis occurs, since each party has an operational veto over the other. [P] Through policy, legislation and fiscal controls governments and international agencies can deny local people the organizational conditions necessary for the attainment of their conservation incentives. Through their in-place location and *de facto* managerial status local people can render external initiatives futile. The central challenge is, therefore, to transform such initiatives into sets of congruent, although not necessarily identical, incentives.

Values and Goals

There is nothing inherently incompatible in the two incentive profiles I have just described. The differences between them can be seen as differences in means-end sequencing, the one stance being livelihood enhancement as a means to conservation and the other being conservation as a means to continued well-being. Dissonance arises when the two are brought together in one arena of action and where one stance is accorded "privileged problem" status. At present **the tendency is for international intrinsic and existence valuations to be accorded higher order level status and for project strategies to regard local and instrumental conservation incentives as lower level factors to be co-opted in the pursuit of these values**. **This does not work. Aside from their inherent merits, local incentives have a powerful veto dimension. Unless they are accommodated, international values and goals will be subverted by local responses ranging from defiance to covert non-compliance**. [P]

If the GEF and the CBD take this point seriously, they will need to re-think their conceptual and programmatic compartmentalizations. The CBD, for instance, by virtue of the language of the Convention, considers the concepts of conservation, sustainable use and equity as three distinct and separate issues. As a result, activities associated with each are developed separately. Local perspectives roll these three into one interactive bundle and programmatic interventions are unlikely to work if they are not responsive to this synthesis.

Science

The cognate nature of new directions in conservation biology and local science, both acknowledging indeterminacy and emphasizing experimentation and adaptation, holds vast potential for improving conservation science and enhancing its impact on policy and practice. It is as yet under-exploited, with old oppositional constructs still common. **Science is still regarded as a specialized domain outside the realm and mandate of local people**. P

Our language often betrays this, as when for instance we read the following criterion for sustainable use: "*Governments involve local people in decisions affecting the use while continuing to base management decisions on science*." **The GBF and the CBD should take pains to avoid the dichotomizations and condescension of this stance and strive to build synergy between professional and citizen science**. P

Specifically, the GBF and the CBD should invest significantly in the facilitation of a new profile for the nature and role of science and its insertion into the policy and practice of sustainable use. P One of the best mechanisms to achieve this is through the sponsorship of debate involving rural managers, policy makers and in scholars at regional and national levels, since these are the arenas where professional and local science interface.

Socio-Ecological Topography

Social topography suggests "small-scale" regimes while ecological considerations tend to mandate "large-scale" regimes. P Dissonance arises when larger ecosystem regimes are imposed rather than endogenous. Such impositions in the form of ecologically-determined project domains often force together social units which have not negotiated between each other or worse still cut through existing social units. In so doing **they concentrate on ecological sustainability at the cost of ignoring the institutional sustainability on which it depends**. P

The GBF and CBD should keep in mind that **project approaches which start with a defined land area may not have as much potential as those which start with a focus on social units of organization**. P Such units may effectively manage large land areas and may be in a position to sponsor lateral incrementalism through example and mutual interest.

INTERNATIONAL TREATIES

MURPHREE'S PRINCIPLE OF RE-EXAMINING INTERNATIONAL CONVENTIONS

International environmentalism has failed to reverse negative trends in the global environment. This is because –

- **it has not seriously addressed the demand side of the resource equation: issues like population control and alteration of life-style aspirations are not politically expedient for powerful segments of its constituency;**
- **there are inadequacies in its conventions – its instruments of collective international husbandry and management of resources.**

Manifestly, these have not adequately produced the effects for which they were created and their design, their implementation and the role assigned to them bear re-examination

They are extremely costly in time, effort and money and, unless they can be made to work, we should throw them out and start again.

MURPHREE'S PRINCIPLE OF SCALE IN INTERNATIONAL CONVENTIONS

Most environmental management requirements lie at lower levels and can be most efficiently dealt with at these levels

Increases in scale complicate communication and decision-making and, beyond certain levels, regimes must bureaucratise with attendant costs

Compliance inducement shifts from low-cost modes of moral and peer pressure to the high cost methods of policing and formal coercion

Increase in scale erodes the sense of individual responsibility.

Our conventions should be designed with these scale considerations in mind – place their priorities on issues requiring global action and refrain from intruding on the operations of smaller-scale regimes more suited to the management requirements of the resources they address

If they do not, they can themselves become perverse incentives, resulting in the evasion of responsibility to achieve the results they advocate

INTERNATIONAL TREATIES

continued

MURPHREE'S PRINCIPLE OF INCENTIVE COMPATIBILITY

- **Through policy, legislation and fiscal controls governments and international agencies can deny local people the organizational conditions necessary for the attainment of their conservation incentives**
- **Through their in-place location and *de facto* managerial status, local people can render external initiatives futile**

Without incentive compatibility stasis occurs,
since each party has an operational veto over the other

The central challenge is, therefore, to transform such initiatives into sets of congruent, although not necessarily identical, incentives

MURPHREE'S PRINCIPLE OF HIERARCHY IN CONSERVATION VALUES

Intrinsic and existence valuations of biological diversity tend to be accorded a higher status at the international level than local and instrumental conservation incentives – which are regarded as lower level factors to be co-opted in the pursuit of the higher values

This does not work

Aside from their inherent merits,
local incentives have a powerful veto dimension

Unless they are accommodated, international values and goals will be subverted by local responses ranging from defiance to covert non-compliance

INTERNATIONAL TREATIES

continued

MURPHREE'S PRINCIPLE OF SOCIO-ECOLOGICAL TOPOGRAPHY

Social topography suggests "small-scale" regimes while ecological considerations tend to mandate "large-scale" regimes

When international treaties impose large-scale ecologically-determined project domains on local situations, they may force together social units which have not negotiated between each other or, worse still, cut through existing social units

In so doing they concentrate on ecological sustainability at the cost of ignoring the institutional sustainability on which it depends

The GBF and CBD should keep in mind that project approaches which start with a defined land area may not have as much potential as those which start with a focus on social units of organization

MURPHREE'S PRINCIPLE OF SCIENCE AS A SPECIALISED DOMAIN

The GBF and the CBD tend to regard science as a specialized domain outside the realm and mandate of local people, e.g. –

"*Governments should involve local people in decisions affecting use while continuing to base management decisions on science*"

The GBF and the CBD should take pains to avoid the dichotomisations and condescensions of this stance and strive to build synergy between professional and citizen science

Specifically, the GBF and the CBD should invest significantly in the facilitation of a new profile for the nature and role of science and its insertion into the policy and practice of sustainable use

Science

Strategic Roots and Implementational Evolution. (1996b)

. . . This pushes the study of sustainable use toward more complex and less determinate conclusions. In science there is usually an inverse relationship between exactitude and the number of relevant variables. This is used by critics to raise the canard that it is unscientific. **To the contrary while good science regards exactitude as desirable, it regards validity as necessary.**[L] Validity requires that analysis addresses all the relevant variables of the topic under consideration. In other words, eliminate or at least reduce the number of "black boxes". **Given the nature of sustainable use, its study can only be considered scientific if it is systemic**. [L]

Synergising Conservation Incentives:
Sociological and Anthropological Dimensions of Sustainable Use (1997c)

For local communities, dealing with uncertainty is a continuing factor in their lives and risk-aversion a pervasive feature of their farming strategies. They use a methodology of the highest scientific credentials – adaptive management – which is elegant in its simplicity, robust in its empiricism and striking in its tight application to management decisions. It is also pregnant with potential for the development of locally-based environmental science which moves beyond issues of species off-take. **Such science, flexible in its foci and dynamic in its analysis, is far more important than the static domain of "indigenous technical knowledge," the box to which we condescendingly assign local insight and experience**. [L]

Local communities have problems with the scientific environmental technicism of governments and international agencies. [P] They do not have the resources to conduct it themselves and its conduct by others involves a significant loss of control. They see it as a device which can be applied to stop use which their own science indicates is viable. And they have a healthy scepticism of its ability to produce the predictive certainties which are expected of it.

This perspective on professional science's epistemology and role is cognate to local science. In its applied form it has "emerged regionally in new forms of resource and environmental management where uncertainty and surprises become an integral part of an anticipated set of adaptive responses". **Dissonance remains, however, where bureaucracies retain the expectation that science can provide *a priori* certainties**. [L]

Community Conservation in Africa (2001a)

The intrinsic values that rural people hold for their environment are a cultural resource which is often ignored, or undermined, by external researchers and consultants whose personal values and training may lead them to believe that rural people see species and habitats purely in utilitarian terms (p6) [L]

Accurate measurements of natural resources may be desirable in theory but, in practice, they are often infeasible and may undermine natural resource management regimes (p7) [P]

Community Conservation as Policy: Promise and Performance (2001e)

If there is a clear practical lesson from our research it is for the need to avoid seeing the organisation of community conservation in terms of a 'project model', especially during the early phases of implementation (p293). [P]

Experiments with the Future (2001f)

Our methodology in dealing with local communities should be –

- **invited rather than imposed;**
- **directed rather than directive;**
- **facilitative rather than manipulative.**

It should represent professional science in the service of local civil science. [P]

Policy Implications of Common Pool Resource Knowledge: A Background Paper on Zimbabwe (2002b)

The powerful alliance between bureaucracy and science evident in Zimbabwe's environmental policy history has, at times, compromised an essential component of good science – the recognition of contingency and uncertainty in its findings. "**Awareness of uncertainty has a habit of disappearing when science interacts with policy**."(p42)

MURPHREE'S LAW OF THE STUDY OF SUSTAINABLE USE

Study of sustainable use entails more complex and less determinate conclusions

In science there is an inverse relationship between exactitude and the number of relevant variables. This is used by critics to raise the canard that it is unscientific.

To the contrary, while good science regards exactitude as desirable it regards validity as necessary

Validity requires that analysis addresses all the relevant variables of the topic under consideration

In other words, eliminate or reduce the number of "black boxes"

Given the nature of sustainable use, its study can only be considered scientific if it is systemic

MURPHREE'S PRINCIPLES OF SCIENCE AND LOCAL COMMUNITIES

Dealing with uncertainty is a continuing factor in the lives of local communities and risk-aversion a pervasive feature of their farming strategies

Their methodology – ADAPTIVE MANAGEMENT – has the highest scientific credentials

It is elegant in its simplicity, robust in its empiricism and striking in its tight application to management decisions

It has huge potential for the development of locally-based environmental science which moves beyond issues of species off-take

Such science, flexible in its foci and dynamic in its analysis, is far more important than the static domain of "indigenous technical knowledge" – the box to which local insight and experience is condescendingly assigned

Local communities have problems with the scientific environmental technicism of governments and international agencies

They do not have the resources to conduct it themselves and its conduct by others involves a significant loss of control. They see it as a device which can be applied to stop use which their own science indicates is viable. And they have a healthy scepticism of its ability to produce the predictive certainties expected of it.

This perspective on professional science's epistemology and role is cognate to local science. In its applied form it has emerged regionally in new forms of resource and environmental management where uncertainty and surprises become an integral part of an anticipated set of adaptive responses.

Dissonance remains, however, where bureaucracies retain the expectation that science can provide *a priori* certainties

MURPHREE'S PRINCIPLE OF RURAL PEOPLE'S INTRINSIC VALUES

The intrinsic values that rural people hold for their environment are a cultural resource which is often ignored, or undermined, by external researchers and consultants whose personal values and training may lead them to believe that rural people see species and habitats purely in utilitarian terms

MURPHREE'S PRINCIPLE OF PROJECT MODELS

A clear practical lesson from current research is the need to avoid seeing the organisation of community conservation in terms of a 'PROJECT MODEL'

MURPHREE'S PRINCIPLE OF ENGAGEMENT WITH LOCAL COMMUNITIES

Our methodology in dealing with local communities should be –

- **invited rather than imposed;**
- **directed rather than directive;**
- **facilitative rather than manipulative.**

It should represent professional science in the service of local civil science

MURPHREE'S PRINCIPLE OF NATURAL RESOURCE MENSURATION

Accurate measurements of natural resources may be desirable in theory but, in practice, they are often infeasible and may undermine local natural resource management regimes

MURPHREE'S PRINCIPLE OF SCIENCE INTERACTING WITH POLICY

The powerful alliance between bureaucracy and science evident in environmental policy history has, at times, compromised an essential component of good science – the recognition of contingency and uncertainty in its findings.

Awareness of uncertainty has a habit of disappearing when science interacts with policy

Summary

This exercise has yielded **a total of 12 laws, 31 principles and 11 definitions**. Some of the principles contain multiple parts and some rules are embedded amongst the principles. The breakdown of laws, principles and definitions is shown below –

Natural resources management and sustainable use . . . . . 3 laws, 6 principles

Community-based Natural Resource Management (CBNRM)

General . . . . . 3 laws, 5 principles, 3 definitions

Policy and tenure . . . . . 2 laws, 3 principles, 3 definitions

Scaling up . . . . . 1 law, 3 principles, 1 definition

State protected areas . . . . . 2 principles, 2 definitions

Bureaucracy . . . . . 2 laws, 2 definitions

International treaties . . . . . 6 principles

Science . . . . . 1 law, 6 principles

To claim that this is a definitive classification would be pretentious in the extreme. It is imbued with subjectivity and the decisions about where to place items are arbitrary. Marshall Murphree might be very uncomfortable with the outcome and might have selected an alternative list of topics, other titles for his dictums and better text to express them.

It nevertheless seems to me that there is considerable substance in these laws, principles and definitions. It might well be worth reviewing this initial exercise, improving the classification and editing the text to produce a booklet which summarises the valuable lessons which have come from a career of Murphree's scholarship. But that task is not for one person.

MURPHREE'S LAWS

applied to

The Addis Ababa Principles for Sustainable Use[9]

In the abstract for the paper submitted last year, it was promised that the Addis Ababa Principles would be reviewed against Murphree's Laws – which were yet to be developed. In the event, the development of Murphrees laws and principles have occupied some 40 pages of text and this paper would become unwieldy were it also to contain a thorough review of the Addis Ababa Principles. Moreover, I have done a detailed review of these principles elsewhere.[10]

Not unexpectedly, given Murphree's in-depth consideration of issues relating to the CBD, much of what is contained in the Addis Ababa Principles contravenes many of the laws and principles which have been put forward in this paper. The first two Principles (amongst a total of fourteen) illustrate the point very well.

In the second paragraph of the **preamble** to the Addis Ababa Principles, it states –

Sustainable use is a valuable tool to promote conservation of biological diversity

Murphree's Law of Conservation and Sustainability
says that conservation is the same thing as sustainability

Practical principles, rationale and operational guidelines for the sustainable use of biodiversity

Practical principle 1: *Supportive policies, laws, and institutions are in place at all levels of governance and there are effective linkages between these levels.*

Rationale: *There is need to have congruence in policies and laws at all levels of governance associated with a particular use. . . .*

There are thousands of uses – are the proponents of the principle seriously suggesting that a policy and law is in place for every use? The Principle requires supportive policies, laws and institutions . . . perhaps all that is needed is devolutionary legislation.

. . . There must be clear and effective linkages between different jurisdictional levels to enable a "pathway" to be developed which allows timely and effective response to unsustainable use . . .

Outside interventions to prevent unsustainable use need to be treated very carefully. A key aspect of devolution is that the users are allowed to make mistakes and learn from those mistakes. Outside intervention erodes the rights of those who have been empowered.

Both of these clauses contravene **Murphree's Principle of Scale in International Conventions**

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9. Decision VII/12 on Sustainable Use (Article 10), Seventh Conference of the Parties to the CBD, Kuala Lumpur, Malaysia, 9-20 February 2004

10. Martin R.B. (October 2006). **Addis Ababa Principles for Sustainable Use of Biological Diversity: Detailed Comments**. (Appendix 5) in: *Sustainable Development, Sustainable Use and Conservation of Biological Diversity in Africa: The Development of New Principles for Sustainability*. First Draft. Document prepared for the Southern Africa Sustainable Use Specialist Group and presented at its Annual General Meeting held in Grootbos, Cape, South Africa 1-5 May 2007.

Practical principle 2: *Recognizing the need for a governing framework consistent with international, national laws, local users of biodiversity components should be sufficiently empowered and supported by rights to be responsible and accountable for use of the resources concerned.*

At first sight this principle should be applauded. However, the seeds of disquiet are sown when –

(a) empowerment is constrained by and follows only after a governing framework consistent with international laws and national laws;

(b) empowerment is tempered by the word 'sufficiently' – which tends to imply 'enough empowerment and not more';

(c) local users are made *accountable* to some unspecified body for their use of resources.

Murphree's Principle of Hierarchy in Conservation Values applies

The principle is further weakened by statements in the rationale and guidelines –

Rationale:. . . *resource users should participate in making decisions . . .*

If rights have been devolved, they will make the decisions !

Operational guidelines

Where possible adopt means that aim toward delegating rights, responsibility, and accountability to those who use and/or manage biological resources;

Review existing regulations to see if they can be used for delegating rights; amend regulations where needed and possible; and/or draft new regulations where needed. Throughout local customs and traditions (including customary law where recognized) should be considered.

A curious sentence – *local customs and traditions . . . should be considered* [in relation to delegating rights] – this is a clear indication that the drafters of the principles are considering partial devolution at best. The remaining guidelines under Principle 2 reinforce the impression that local communities will be permitted to use natural resources only at the pleasure of higher authority.

Murphree's Principle of Rights and Responsibilities applies to all the above

Numerous other Operational Guidelines under the other Principles negate the intent of devolution expressed in Principle 2, e.g. –

4.2 *Require adaptive management plans to incorporate systems to generate sustainable revenue, where the benefits go to indigenous and local communities and local stakeholders to support successful implementation* . . . if rights have been devolved, benefits should automatically go to local entities

4.4 *Include clear descriptions of their adaptive management system* . . . for whom are these plans intended ? . . . *which includes means to assess uncertainties* . . . adaptive management is primarily aimed at coping with uncertainties rather than assessing them;

4.5 *Respond quickly to unsustainable practices* . . . who responds ?

6.7 *Investigate and develop means of ensuring rights of access and methods for helping to ensure that the benefits derived from using components of biodiversity are equitably shared* . . . surely this is a given under Principle 2 ?

7.1 *Link responsibility and accountability to the spatial and temporal scale of use* . . . who links ?

7.2 *Define the management objectives for the resource being used* . . . who defines ?

7.3 *Enable full public participation in preparation of management plans to best ensure ecological and socio-economic sustainability* . . . (a) This may be appropriate for a resource managed by the State but not for a devolved situation; (b) Public participation will not ensure sustainability

9.1 *Set standards for resource management activities that promote interdisciplinary consultations* . . . sounds overly bureaucratic;

9.5 *Take account of socio-economic, political, biological, ecological, institutional, religious and cultural factors that could influence the sustainability of the management* . . . implies devolution will not take place;

9.6 *Seek guidance from local, traditional and technical specialists in designing the management plan* . . . yet under Principle 2, rights have been devolved to these actors;

11.3 *Endeavour to have an independent review of harvests to ensure that greater efficiencies in harvest or other extractive uses do not have a deleterious impact on the status of the resource being used or its ecosystem* . . . this tells local communities they do not own the resource;

12.4 *Consider ways to bring uncontrolled use of biological resources into a legal and sustainable use framework, including promoting alternative non-consumptive uses of these resources* . . (a) This appears redundant given the rationale for Principle 2; (b) Why should non-consumptive uses be promoted ?;

12.5 *Ensure that an equitable share of the benefits remains with the local people in those cases where foreign investment is involved* . . . if devolution occurs, this is up to the local people;

12.6 *Involve local stakeholders, including indigenous and local communities, in the management of any natural resource and provide those involved with equitable compensation for their efforts, taking into account monetary and non-monetary benefits* . . . Previous comments apply – but perhaps this guideline, in particular, illustrates a syndrome which assumes that the primary motivation for all actors is the conservation of biological diversity – instead of human development;

12.7 *In the event that management dictates a reduction in harvest levels, to the extent practicable assistance should be provided for local stakeholders, including indigenous and local communities, who are directly dependent on the resource to have access to alternatives* . . . clearly, the State will manage the resource – this negates any prior statements about devolution;

13.2 *Ensure that harvest levels and quotas are set according to information provided by the monitoring system, not the economic needs of the management system* . . . there is nothing in the principle or the rationale which warrants this sort of statement;

13.3 *Provide guidelines for resource managers to calculate and report the real cost of management in their business plans* . . . report to whom ?;

13.5 *Provide economic incentives for managers who have already internalized environmental costs, e.g., certification to access new markets, waiver or deferral of taxes in lieu of environmental investment, promotion of "green-labelling" for marketing* . . . It will not help the quest for sustainability to build subsidies into uses of biodiversity – by the same set of arguments that seek subsidies to be removed from land uses which destroy biodiversity;

14.6 *Ensure that resource users report to Government on their activities in a manner that facilitates broader communications* . . . Is this intended to be a condition for devolution of resource rights or is it an indication of aborted devolution ?

Most of the above clauses conflict directly with **Murphree's Principles for Viable Communal Property Regimes**, **Murphree's Law of the Farmers First** and **Murphree's Law of Effectiveness of Community Conservation**

It becomes unnecessary to go further. By now the reader will have deduced for himself/herself that there is a large inconsistency between the doctrine preached by Murphree and the expression of these principles. Much of the conflict lies in the condescending and patronising tone of the statements. Murphree captures this when he says "The GBF and the CBD tend to regard science as a specialized domain outside the realm and mandate of local people . . . Our language often betrays this, as when for instance we read the following criterion for sustainable use: "*Governments involve local people in decisions affecting the use while continuing to base management decisions on science.*" The GBF and the CBD should take pains to avoid the dichotomizations and condescension of this stance . . ." (included in the **Principle of Science as a Specialised Domain**).

In the Addis Ababa Principles, the proponents of "**Big Government**" have triumphed over the advocates of "**Small is Beautiful**".

MURPHREE REFERENCES

Compliled from the author's collection of papers and –

CASS List of Publications (January 1996): Natural Resources Management Occasional Paper Series

Community-based Natural Resource Management (CBNRM) – A Select Foundation Biography with Emphasis on Southern Africa compiled by M. Taylor, December 1996 for Africa Resources Trust, Avondale, Harare, Zimbabwe. 242pp

A Select Biography relevant to CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) – compiled by M. Taylor, December 1996 for Africa Resources Trust and the CAMPFIRE Association, Harare, Zimbabwe. 51pp

African Wildlife & Livelihoods: The Promise and Performance of Community Conservation. Eds: Marshall Murphree & David Hulme, James Currey Ltd. Oxford. 336pp

Papers shown in grey font have not been read and are not included amongst the documents from **Murphree's Laws and Principles** have been extracted

---

1985 The Inshore Fishing Industry of the Binga District – a Socioeconomic Study. Interim Report for the University of Zimbabwe's Sebungwe Research Projects Workshop, Binga, 21-23 May 1985. 62pp

1988a Decentralizing the Proprietorship of Wildlife Resources in Zimbabwe's Communal Lands: An Outline of the Central Issues. CASS (Centre For Applied Social Sciences) Occasional Paper No.23, University of Zimbabwe, Harare. 10pp

1988b Proposals for Wildlife Management Areas, Northern Gokwe District. Report to the District Administrator, Gokwe, on an Investigative Visit, 23-26 June 1988. 15pp

1988c Socio-economic Research Components in Tropical Soil Biology and Fertility Studies. Report of the 4th Tropical Soil Biology and Fertility (TSBF) Programme International Workshop, arare, Zimbabwe 31 May - 8 June 1988, Eds. J.S.I. Ingram & M.J. Swift, Biology International Special Issue 20: p31-40

1988d Wildlife Management in Kanyati and Gatshe Gatshe – Institutional Issues and Guidelines. CASS 1988. 118pp

1989 Wildlife Utilization in the Tsholotsho Communal Land, Nyamandlovu District. CASS Occasional Paper No. 22, University of Zimbabwe, Harare. 16pp.

1990a Decentralizing the Proprietorship of Wildlife Resources in Zimbabwe's Communal Lands: An Outline of the Central Issues. Second Edition. CASS Occasional Paper No.24, University of Zimbabwe, Harare. 25pp

1990b Research on the Institutional Contexts of Wildlife Utilization in Communal Areas of Eastern and Southern Africa. CASS Occasional Paper No. 25, University of Zimbabwe, Harare. 9pp

1991a [& D.H.M. Cumming] **Savanna Land Use: Policy and Practice in Zimbabwe**. Paper presented at the IUBS, UNESCO/UNEP Workshop: *Economic Driving Forces & Constraints On Savanna Land Use*, Nairobi, January, 1991.Centre For Applied Social Sciences And World Wide Fund For Nature; CASS/WWF Paper No.1, 1991. 33pp

1991b Proposed World Bank Wildlife management and Environmental Conservation Project (Zimbabwe) Pre-Identification Mission, January 1991: Background report on the CAMPFIRE Programme. Unpublished report for the World Bank. 31pp

1991c Communities as Institutions for Resource Management. Paper presented to the *National Conference on Environment & Development*, Maputo, Mozambique, 7-11 October, 1991 and re-published in 1993 under the Gatekeeper Series N. SA36, IIED Publications, London. 13pp

1992 Wildlife Management in Kanyati and Gatshe: Institutional Issues and Guidelines. CASS Occasional Paper No.29. 118pp

1993a Decentralizing the Proprietorship of Wildlife Resources in Zimbabwe's Communal Lands. In: D. Lewis & N. Carter (Eds) *Voices from Africa: Local Perspectives on Conservation.* WWF, Washington D.C. p403-427

1993b "Keeping Ourselves Honest and Seeing the Whole Picture". Presentation for CASS (Centre for Applied Social Sciences) to the CAMPFIRE Association Board of Management meeting, 22-23 July 1993. 62pp

1993c Communal Land Wildlife Resources and Rural District Council Revenues. CASS Occasional Paper No.53/93. 10pp

1993d Rural Poverty, Democracy and the Sustainable Use of Wildlife in Africa. Proceedings of the Symposium *Conservation and Sustainable Use of Wildlife (Kyoto Forum)*: *in Harmony with Wildlife.* Y. Kaneko (Editor), Nagao Environmental Foundation, Tokyo. p14-25

1994a The Role of Institutions in Community-based Conservation. In: D. Western & R.M. Wright (Eds), *Natural Connections. Perspectives in Community-based Conservation*, Island Press Washington D.C.

1994b The Evolution of Zimbabwe's Community-based Wildlife Use and Management Programme. Mimeo, Community Conservation Workshop, Tanzania, 8-11 February, AWF, Arusha, Tanzania.

1995a The Economics and Politics of Citizen Sport Hunting in Zimbabwe. Address to the Annual general meeting of the Zimbabwe Hunters' Association, 3 March 1995. 5pp

1995b Optimal Principles and Pragmatic Strategies: Creating an enabling politico-legal environment for community-based natural resource management. Keynote address to the *Conference of the National Resources Management Programme*, SADCC Technical Coordination Unit, Malawi, USAID-NRMP Regional, Chobe, Botswana, 3 April 1995.

1995c The Sustainable Use of Wild Life living Resources: The "Southern" Perspective. In: Proceedings of symposium titled: *Conservation of Southern Africa's Wild Living Resources: Exploitation sustainability and ethics*. 5 May 1995, University of Capetown hosted by Southern African Institute of Ecologists and Environmental Scientists, the South African Wildlife Management Association and the Marine Society of Southern Africa. pp2-6

1996a Wildlife in Sustainable Development: Approaches to Community Participation. Presentation to the ODA, *African Wildlife policy Consultation*, Sunningdale, UK. 18-19 April 1996. 28pp

1996b *Ex Africa semper aliquid novi ?* Possibilities for linking African Environmental Scholarship, Policy and Practice. Address delivered to the *Pan African Symposium on the Sustainable Use of Natural Resources and Community Participation*, Harare, 24-27 June 1996. 7pp

1996c Strategic Roots and Implementational Evolution. Address delivered to the workshop on *Enhancing Sustainability: Resources for our Future*. World Conservation Congress, Montreal, 17th October 1996.

1997 [& S.C. Metcalfe] **Conservancy Policy and the CAMPFIRE Programme in Zimbabwe**. Discussion Paper.

1997a Congruent Objectives, Competing Interests and Strategic Compromise: Concept and Process in the Evolution of Zimbabwe's CAMPFIRE Programme. Paper presented to a Conference titled *Representing Communities: Histories and Politics of Community-Based Resource Management* Held at Unicoi Lodge, Helen, Georgia, USA 1-3 June 1997. 50pp

1997b Articulating Voices from the Commons, Interpretation, Translation and Facilitation: Role and modes for Common property Scholarship. Society and Natural Resources (10), p415-421

1997b In Search of Pragmatism: Efficiency in Coalitional Global Environmental Management. Introductory Overview Address to the 7th Session of the Global Biodiversity Forum, Harare, 6th June 1997. 7pp

1997c Synergising Conservation Incentives: Sociological and Anthropological Dimensions of Sustainable Use. Paper presented to the *STAP Expert Workshop on the Sustainable use of Biodiversity*, Kuala Lumpur, Malaysia, 24-26 November 1997.

1998a Incentives for Sustainability. Keynote Address at the Symposium Workshop on *Conservation*, topic 1(d) *Sustaining Use of Species and Ecosystems*, IUCN 50th Anniversary Celebration, Fontainebleu, 3-5 November 1998. 15pp

1998b Profits and Benefits. Letter to Bill Adams, copied to David Hulme. 4pp

1998c Investigation into the Performance of non-lease Tourism Projects in the Communal Lands of Zimbabwe. ISCS IRT/Speciss Consulting Services on behalf of WWF, Harare. 4 volumes

1999a [& D. Hulme] **Communities, Wildlife and the "New Conservation" in Africa**. Journal of International Development 11(2). p277-286

1999b Enhancing Sustainable Use: Incentives, Policy and Science. Working Papers of the *Berkeley Workshop on Environmental Politics*. Paper WP99-2. 9pp

2000a Boundaries and Borders: The Question of Scale in the Theory and Practice of Common Property Management. Paper presented at the Eighth Biennial Conference of the International Association for the Study of Common Property (IASCP), Bloomington, Indiana, USA 31 May-4 June 2000.

2000b Community-Based Conservation: Old Ways, New Myths and Enduring Challenges. Key Address for Theme *Community-Based Conservation – The New Myth?* at a conference on *African Wildlife Management in the New Millenium*, College of African Wildlife Management, Mweka, Tanzania 13-15 December 2000. 16pp

2001 [& David Hulme (Eds)]. **African Wildlife & Livelihoods: The Promise and Performance of Community Conservation**. James Currey Ltd. Oxford. 336pp

2001a [& David Hulme] **Community Conservation in Africa: An Introduction**. In: *African Wildlife & Livelihoods: The Promise and Performance of Community Conservation*. Eds: Marshall Murphree & David Hulme, James Currey Ltd. Oxford. p1-8

2001b [& Edmund Barrow] **Community Conservation: From Concept to Practice**. In: *African Wildlife & Livelihoods: The Promise and Performance of Community Conservation*. Eds: Marshall Murphree & David Hulme, James Currey Ltd. Oxford. p24-37

2001c [& Brian Jones] **The Evolution of Policy on Community Conservation in Namibia & Zimbabwe**. In: *African Wildlife & Livelihoods: The Promise and Performance of Community Conservation*. Eds: Marshall Murphree & David Hulme, James Currey Ltd. Oxford. p38-58

2001d Community, Council and Client: A Case Study in Ecotourism Development from Mahenye, Zimbabwe. In: *African Wildlife & Livelihoods: The Promise and Performance of Community Conservation*. Eds: Marshall Murphree & David Hulme, James Currey Ltd. Oxford. p177-194

2001e [& David Hulme] **Community Conservation as Policy: Promise and Performance**. In: *African Wildlife & Livelihoods: The Promise and Performance of Community Conservation*. Eds: Marshall Murphree & David Hulme, James Currey Ltd. Oxford. p280-297

2001f Experiments with the Future. A Prologue to a Seminar on *An interdisciplinary, longitudinal and interactive methodology to explore environmental and institutional sustainability in the human use of nature*. UCB Botanic Garden, Berkeley, 20th October 2001. 6pp

2002a Protected Areas and the Commons. Common Property Resource Digest No.60:1-3

2002b [& David Mazambani]. **Policy Implications of Common Pool Resource Knowledge: A Background Paper on Zimbabwe.** Study carried out as part of a larger initiative titled *Policy Implications of Common Pool Resource Knowledge in India, Tanzania and Zimbabwe* under the UK Department for International Development's Natural Resources Programme: Semi-Arid Production Systems (Project R7973). 127pp.

2005 Matching Management to Regime across the Protected Area Spectrum. Presentation to the Ninth Meeting of SASUSG, Gondwana, Namibia, May 2005. 5pp

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