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Clustering of the Maputo Principles and addition of explanatory notes with a view to making the principles more accessible

1. At the request of Mr. David Lawson, of the Parks and Wildlife Commission of the Northern Territory of Australia, the Executive Secretary is circulating herewith, for the information of participants in the Hanoi workshop on sustainable use of biological diversity, a document which is based on the Maputo principles on sustainable use contained in document UNEP/CBD/SBSTTA/7/INF/9. The document consists of a clustering of the Maputo principles and of the addition of explanatory notes with a view to making the principles more accessible.

2. The document is being circulated in the language and form in which it was received by the Secretariat of the Convention.

Maputo
Principles of Sustainable Use

"Sustainability is the capacity to create, test and maintain adaptive capability [1]."

INTRODUCTION

The challenge facing sustainable use of biodiversity is balancing the need to maximize human livelihoods against the necessity of conserving the underlying natural resource base.

The diagram illustrating Southern African drylands ecosystem, Figure 1, may be applicable elsewhere, and illustrates the following:

- In dryland ecosystems efforts are focussing on enhancing the livelihoods of the majority of people by maximizing the benefits gained from using biological diversity.

- Optimally sustainable livelihoods will be achieved through multiple uses of the biodiversity. These multiple-usage systems are extremely diverse (e.g. crop farming, livestock farming, tourism, hunting, artisanal fisheries, etc.) and include both extractive and non-extractive uses. Each use has the potential to negatively impact the resource being used as well as other ecosystem components and land use options [2] if not managed properly.

- Ecosystem goods and services are necessary to support human livelihoods. They consist of a number of components (e.g., soil, water, aquatic micro-organisms, vegetation, wild fauna), which if depleted reduces the opportunities for humankind to sustain their livelihoods.

- Monitoring systems are essential to provide critical feedback on the success or failure of the multiple use systems in the context of an adaptive management approach.

Sustainable use in the context of the ecosystem approach

In the context of the ecosystem approach, we recognize that maintenance of ecosystems is essential to ensure goods (e.g., clean water, fertile soils, clean air) and services (e.g., carbon sequestration, water filtration, oxygen production). Unsustainable uses of species and habitats have the potential to adversely affect the delivery of such ecosystem goods and services.

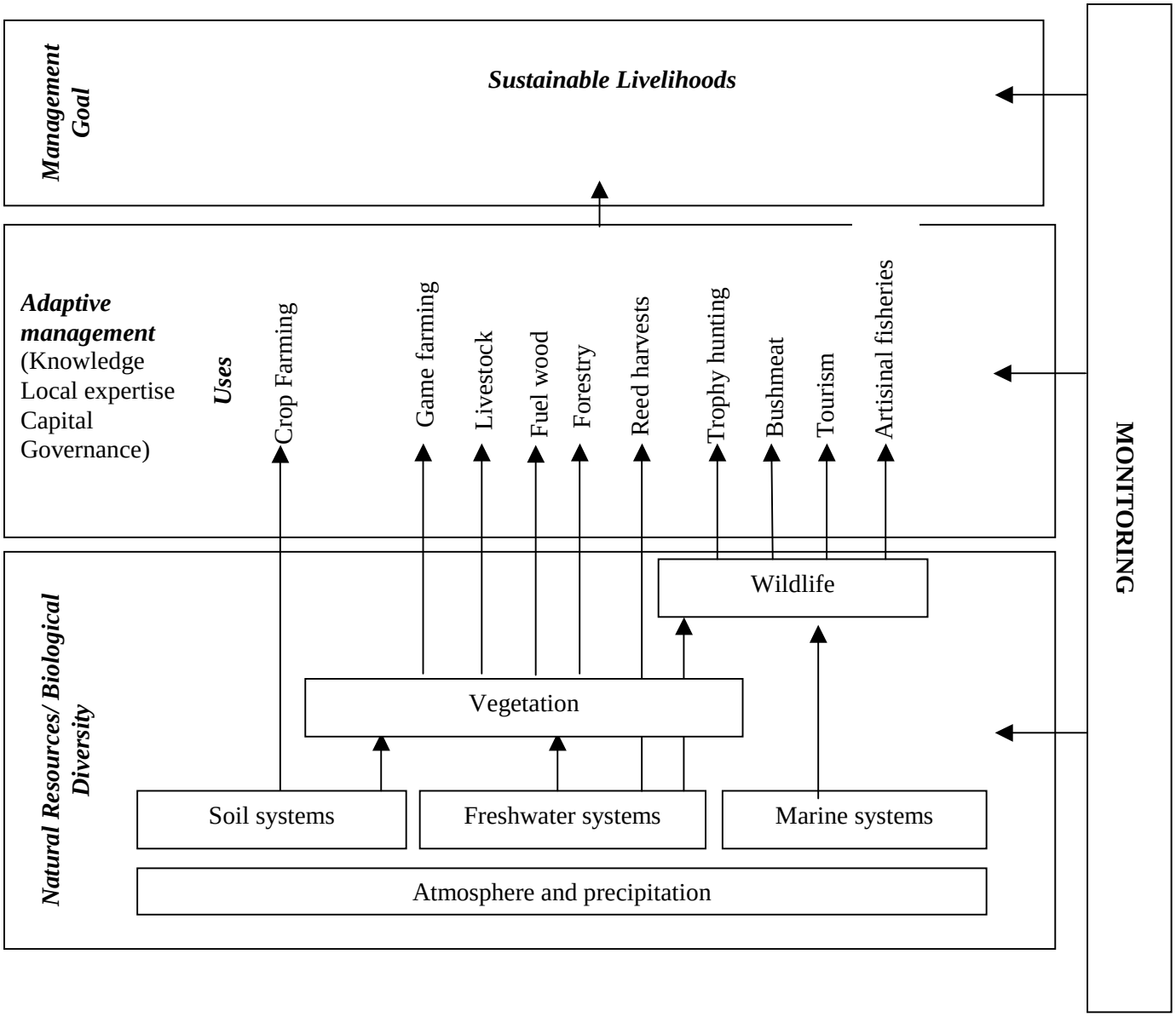
As in the ecosystem approach, the axioms and principles presented are all complementary and interlinked, and thus each must be considered in relation to the others. Because there are any number of configurations of biological, social, and economic conditions that can enhance the sustainability of uses these axioms and principles should not be viewed as prescriptive guidance – but rather as a broad framework of key factors or

1 Holling, C. S. 2000. *Theories for Sustainable Futures*. Conservation Ecology 4 (2) http://www.consecol.org/journal/vol4/

2 Whilst livestock farming has a direct impact on rangeland, it also impacts on wildlife (through competition for forage and through predator control programmes) and other land use systems such as tourism.

conditions which governments, resource managers, and other interested stakeholders should consider to optimise the sustainability of uses of biological diversity.

Figure 1. ***Relationships between biological diversity and representative natural resource use systems to achieve sustainable livelihoods in the African dry land ecosystem.***



Like the ecosystem approach they provide a framework within which those who have responsibility for managing biological diversity for sustainable use can be accountable for their actions. But, again, it most likely will require different institutional structures for different modes of use, (e.g., marine fisheries harvests will require different regulatory mechanisms than dry grassland herbivores in Africa). In all cases management should be directed at reducing the risk of compromising key functions at the ecosystem level and thus should be done with precaution.

Sustainable use, both consumptive and non-consumptive, is increasingly viewed as a dynamic process toward which one strives in order to maintain biodiversity and enhance ecological and socio-economic services for livelihood security. In the context of the African region, these axioms and principles apply equally to both consumptive and non-consumptive uses of biological diversity.

Axioms

Axioms, as used here, are considered universal truths. We provide them in this format to establish a common ground in relation to which a series of guiding principles derived from this workshop are presented. They have been developed in the context of terrestrial dryland ecosystems with the emphasis on the African region. These axioms are intimately linked together and must be read in total.

Ecological context

1. Ecosystems, ecological processes within them and genetic variation change over time whether or not they are used.

   The fossil record clearly shows that ecosystems and the species within them change over time in the absence of human influence.

2. Resilience of ecosystems depends on maintaining key ecological processes and species above their thresholds for long-term viability.

   Ecosystems can continue to function when some processes or components are degraded or missing. However, if such degradation continues there will come a point beyond which an ecosystem cannot function and its processes will break down. It is obviously important that such 'thresholds of viability' are not exceeded. The problem is that these thresholds are unknown and therefore it is prudent to prevent losses of ecosystem components and function wherever possible.

3. Sustaining biological diversity depends on maintaining ecological functions and species above their thresholds for long-term viability.

   Just as ecosystems cannot continue to function with increasing losses of components so the components themselves (such as biological diversity) cannot survive without the ecological functions necessary to keep those components alive. Once again there will be thresholds below which such ecological functions and species numbers and diversity must not drop lest ecosystem collapse occurs.

Demand

4. Uses of biological diversity take place.

   This is self evident.

5. Such use can take place without the loss of ecological processes, species and genetic variability.

   Since they first eveolved humans have been using biological diversity. For the greater part of human history such use has not led to any loss of ecological processes, species or genetic diversity as long as the use was within sustainable limits.

6. Survival of all people is dependent on using biological diversity.

The basic necessities of life such as food and shelter are produced either directly or indirectly from using biological diversity. Increasingly other uses such as pharmaceuticals for disease prevention and cure are becoming evident and are also met from using biological diversity.

7. Some people and cultures are directly dependent on consumptive and non-consumptive uses of biological diversity.

Indigenous people are often intricately dependent on biological diversity for their survival. There are numerous examples such as the rain forest tribes of the Amazonian rain forests to the San people of the Kalahari.

8. Human population growth and modern consumptive patterns is placing increasing demands on biological diversity.

Disease prevention and increased food production has resulted in greatly increased human population growth. This, coupled with an acquisitive nature has led to human populations using a greter variety and amounts of natural resources, including biological diversity.

9. Biological systems have intrinsic limits to providing livelihood benefits

Systems dependent on cycling of finite resources have limits on what they can achieve. Biological systems are no different, there are finite amounts of resources contained within such systems and consequently limits on the amounts of those resources that can be used.

Incentives for conservation

10. Sustainable use of biological diversity is a means to conserve species and habitats.

If a component of biological diversity is used for human benefit then it is more highly valued than a component that has no benefit to humans. This value may be monetary but could equally be aesthetic, cultural or social.

11. Sustainable use is crucial for the survival of certain species and habitats.

Some habitats and the species complement within them depend on use for their survival. For example, in South Africa the fastest growing land use is game farming and consequently those species of most value in such enterprises are expanding their populations and distributions

12. Use of biological diversity is a means of realizing its value.

Another way of describing axiom 10 above

13. The value of biological diversity includes market and non-market values such as aesthetic, recreational, scientific, religious, social, cultural and ecosystem functions.

Self evident. Humans prescribe value in many ways other than monetary.

14. Depriving stakeholders access to the use of biological diversity and associated benefits derived from such use is a threat to the maintenance of biological diversity.

If sustainable use of biological diversity is prevented in a particular area then that area may be converted to another use and the biological diversity removed.

Variability in Management

15. The most efficient means of conserving and sustainably utilizing biodiversity varies from one location to another and is a matter of societal choice.

What may be acceptable use of biological diversity in one area may not be acceptable in another. The acceptance of use may depend heavily on the cuturally or socially accepted norms of the society in which the particular use takes place. For example hunting may be acceptable in one culture but not in another.

16. A long-term process of public education is needed to bring about changes in behaviour and lifestyles, and to prepare societies for the changes needed for sustainability.

With the majority of 'western' lifestyles leading to greater and faster consumption of resources it is necessary that people are informed of the inevitable consequences of such consumption.

17. The incentives for biological diversity conservation must outweigh the disincentives.

If humans derive greater benefit from the use of biological diversity than non-use then the biological diversity will be valued and conserved. However the benefits of such conservation may not be immediate so it is important that people are encouraged to conserve by placing appropriate incentives before them.

18. Individuals, communities, and/or other entities, including public, private and non–government organisations may be responsible for the management of biological diversity.

Ultimately, conservation is for the good of people. It is therefore the responsibility of people to carry out such conservation. It should not be the sole responsibility of Governments.

Guiding Principles

Sustainability of uses of biological diversity will be enhanced if the following guiding principles are applied.

Legal Policy Framework

1. Governments devolve authority, responsibility and accountability to resource managers.

Resources viewed as common property are often over utilised as people try to maximise their personal benefits from the resource while it is available. Resources which are owned by individual people or communities are generally used more responsibly as the need to maximise benefits before they are used by someone else is removed. It follows therefore that 'ownership' or 'stewardship' of resources must pass to people who manage the resource and this needs the devolution of authority, responsibility and accountability from governments.

2. Supportive incentives, policies, laws and institutions are in place at all levels of governance and there are effective linkages between these levels.

There is little point in developing a use structure at village or community level if the national law prohibits the use of the resource or an international agreement severely limits access to free markets. There must be clear and effective linkages at all levels to enable a 'pathway' to be developed which allows use of a resource to proceed from collection or harvest through to final markets without impediment.

3. Local communities and other parties, who have management responsibility for the resource, are sufficiently empowered to participate in making all key decisions and are supported by established rights and the means to manage that resource.

This is closely allied to principle 1. In order to establish a sense of ownership of the resource use and the corresponding responsibility for its conservation that such ownership engenders, resource users must be involved in any decisions about the resource use and be able to carry out any actions arising from those decisions.

4. Managerial jurisdictions are matched with the ecological and socio-economic scale of the use.

If fish are being harvested from a lake and that lake is on the property of a single individual then it is that individual who should make management decisions about that harvesting. Likewise if neighbouring countries share a resource then appropriate authorities from those states should participate in all management decisions about that resource.

5. National and international policies that distort markets, promote habitat alteration or destruction, and unsustainable use are identified and removed.

With the best intentions, national and international policies can act in previously unforeseen ways to promote unsustainable use. For example, giving preferential access to markets in developed nations for food commodities from developing countries has resulted in wildlife conservation problems associated with the alteration of habitats in those producing countries. As an example, beef production often calls for stringent disease control measures by use of veterinary cordon fences. The fences are necessary for the host country to fulfil the conditions of disease control set by the receiving countries but have disrupted migration patterns of large ungulates within the host countries and caused large die-offs of these species.

6. The international framework affecting the use of living natural resources is supported by sound, verifiable scientific information and takes full account of these guiding principles.

International conventions that affect trade should always use the best scientific information on which to base decisions and be aware of the local circumstances where a use is undertaken. For example, blanket bans on the use of elephants are not conducive to long-term conservation of the species where certain countries have elephant populations which are larger than can be sustained and habitat degradation is accelerating.

7. Stakeholders who have the responsibility to conserve, use or manage biological diversity are accountable for their actions.

Effective accountability of involved stakeholders ensures that properly set management regimes are adhered to.

8. National and international policies take into account the full economic value of the use of biological diversity.

The intrinsic economic value of biological diversity has often been ignored in pursuing economic development. Recent work in calculating the potential costs of replacing natural systems with man-made alternatives has shown that such natural systems should be valued very highly. It follows that national and international policies that guide trade and development should compare the real value of natural systems against any intended replacement uses before such development is undertaken.

Framework for Management

9. Socio-political, economic, biological, ecological, institutional and cultural factors are considered, at the individual, community, sub-national, national, and international levels in an interdisciplinary approach.

Sustainability of use depends on factors other than purely biological parameters of the resource being utilised. It is recognised that socio-political, economic and other factors are equally important. It is therefore necessary to take all of such factors into consideration and involve the expertise of people experienced in these different fields, at all levels of decision making.

10. Effective communications are in place between and among stakeholders at the individual, community, sub-national, national, regional and international levels.

Effective communications between all levels of management are necessary to ensure that the best information is used on which to base decisions and new information about the resource that could affect the use is disseminated quickly.

11. Adaptive management, relying on an iterative process of timely and transparent feedback from use, socio-economic, resource and ecological monitoring, is applied.

Biological systems and the economic and social factors that can affect the use of them are all hugely variable. It is not possible to have up-front knowledge of all aspects of such systems so it is necessary to have in place an effective system which allows the use to take place but which monitors the effects of that use and allows adjustment of the use as necessary.

12. Cultural considerations including traditional and local knowledge are used in management systems.

In many societies traditional and local knowledge has led to much use of biological diversity being sustainable over long time periods without detriment to the environment or the resource. Incorporation of such knowledge into modern use systems can do much to avoid inappropriate use of a resource.

13. The best scientific information, and traditional and local knowledge about the nature of the resource being used and its ecological, socio-political and economic context are included in adaptive management.

It is preferable to use all sources of information about a resource when deciding how to use that resource. There may be good scientific information about a resource and its use may seem feasible but the use may be against cultural beliefs or social norms of the society in which the use will take place. Under such circumstances the use will not be sustainable.

14. In all cases management is directed at reducing the risk of compromising key functions at the ecosystem level and is done with precaution.

Use of any resource must take into account any other function that resource may fulfil within the ecosystem in which it occurs and the use must not be at levels that would adversely affect that ecosystem function. For example, it may be possible to selectively harvest trees in a watershed for the timber resource. Clear felling in the watershed could lead to erosion of soil and impairment of the water filtration function of the ecosystem. Avoidance of this situation would involve setting conservative cutting quotas with appropriate harvesting techniques and monitoring the effects of the harvest as it occurs.

15. Governments and private sector promote research into all aspects of the use and conservation of biological diversity

Research into natural resource use is vital to discover new commodities, open up new economic opportunities for stakeholders and formulate new conservation approaches. Such research should be actively promoted and should not be confined to either governments or the public sector.

Conservation Incentives

16. The contribution and needs of those who live with and are impacted by the use and conservation of biological diversity, in particular indigenous peoples and local communities, are appropriately reflected in the distribution of the benefits from the use of those resources.

People who live with biological resources often have to endure adverse effects from those resources. This is most evident where people share space with large, potentially dangerous animals. In order to conserve such species any use of them must allow for benefits from the use to flow to those local people who suffer from the presence of those animals with livestock and crops destroyed and lives lost. If no benefit is seen to come from such species then local people will not view them as a resource but as a menace and treat then accordingly by trying to eliminate them.

17. The contribution and costs of those who manage wild living resources are appropriately reflected in the distribution of the benefits from the use of those resources.

The management of natural resources incurs costs. If these costs are not adequately covered then management will decline and the amount and value of the natural resources may also decline. It is necessary to ensure that some of the benefits from use flow to the natural resource managers so that essential management necessary to sustain resources may be maintained. Such benefits may be direct, such as gate payments from a National Park direct to the management authority or indirect, such as tax revenue from natural resource companies which flows through a national treasury to a management authority.

These guiding principles are applicable to both consumptive and non-consumptive uses by individuals, communities, the public and private sectors and other entities.
