UNEP

CBD

CONVENTION ON BIOLOGICAL DIVERSITY

Distr.
GENERAL

UNEP/CBD/SBSTTA/12/INF/5
15 June 2007

ORIGINAL: ENGLISH

SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE
Twelfth meeting
UNESCO, Paris, 2-6 July 2007
Item 3.1 of the provisional agenda*

IN-DEPTH REVIEW OF THE APPLICATION OF THE ECOSYSTEM APPROACH

Barriers to the application of the ecosystem approach

Note by the Executive Secretary

I. INTRODUCTION

1. In decision VIII/11, the Conference of the Parties, in the refined multi-year programme of work (annex II), decided to undertake the in-depth review of the ecosystem approach at its ninth meeting and in decision VIII/15 (annex III) provided guidelines for the review of the programmes of work of the Convention. In decision VII/11, paragraph 12, the Conference of the Parties requested the Executive Secretary, in collaboration with Parties and relevant international and regional organizations, to assess the implementation of the ecosystem approach, in the light of experiences gained, for the consideration of the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) prior to the ninth meeting of the Conference of the Parties.

2. In decision VIII/15, annex III, the Conference of the Parties provided guidelines for the review of the programmes of work of the Convention. Section B, sub-section 1, paragraph 1(b) notes that the review could include identification of barriers to effective implementation.

3. In response to these decisions, the Executive Secretary has undertaken this review of relevant information available on barriers to effective application of the ecosystem approach. Section II of the document gives a brief background to the consideration of barriers by SBSTTA up to its ninth meeting in 2003. Section III presents a summary of the general barriers to the implementation of the Convention. Section IV provides a summary of the findings of a number of additional processes. Solutions to the barriers identified are discussed in document UNEP/CBD/SBSTTA/12/2.

II. BACKGROUND

4. Significant attention was given to the identification of barriers, obstacles and constraints to the application of the ecosystem approach during its development and these have been well addressed by previous meetings of the SBSTTA.

* UNEP/CBD/SBSTTA/12/1.

/…

5. The fifth meeting of SBSTTA considered the conceptual elaboration of the ecosystem approach in detail based upon document UNEP/CBD/SBSTTA/5/11. This built upon the Malawi principles, developed at the Workshop on the Ecosystem Approach held in Lilongwe in January 1998, as well as the experience and conclusions of a number of other workshops and initiatives. This consideration resulted in recommendation V/10 which provided a description of the ecosystem approach and its operational principles – subsequently endorsed in Decision V/6

6. In decision VI/12, para. 2(a), the Conference of the Parties requested the Executive Secretary to continue the collection, compilation and dissemination of case-studies and lessons learned and to prepare a report for consideration by the Subsidiary Body on Scientific, Technical and Technological Advice at a meeting prior to the seventh meeting of the Conference of the Parties.

7. An Expert Meeting on the Ecosystem Approach was held in Montreal from 7 to 11 July 2003. The report of the meeting (UNEP/CBD/SBSTTA/9/INF/4) considered at length the barriers to application of the ecosystem approach. The outcomes of the workshop included operational guidance for the application of the ecosystem approach, largely to address barriers, which was considered at SBSTTA 9 resulting in recommendation IX/6. This was considered by the seventh Conference of the Parties resulting in Decision VII/11. Annex I of that decision refined and elaborated the ecosystem approach, based on assessment of experience of Parties in implementation, and included implementation guidelines for each of the 12 principles. The guidelines essentially represent responses to overcome identified barriers.

8. In view of this background, this document presents the results of some major reviews that have addressed barriers to the application of the ecosystem approach undertaken from approximately 2002. Many of the barriers mentioned repeat those already identified under the above process.

III GENERAL BARRIERS TO IMPLEMENTATION OF THE CONVENTION

9. Obstacles to the implementation of the Convention have been well reviewed and are summarised in Decision VIII/8, annex, List B. It may be considered that all of these, as appropriate, apply generally to the application of the ecosystem approach.

10. The obstacles identified are:

1. Political/societal obstacles
   - (a) Lack of political will and support to implement the Convention on Biological Diversity
   - (b) Limited public participation and stakeholder involvement
   - (c) Lack of mainstreaming and integration of biodiversity issues into other sectors, including use of tools such as environmental impact assessments
   - (d) Political instability
   - (e) Lack of precautionary and proactive measures, causing reactive policies.
2. Institutional, technical and capacity-related obstacles
   - (a) Inadequate capacity to act, caused by institutional weaknesses
   - (b) Lack of human resources
   - (c) Lack of transfer of technology and expertise
   - (d) Loss of traditional knowledge
   - (e) Lack of adequate scientific research capacities to support all the objectives.

3. Lack of accessible knowledge/information
   (a) Loss of biodiversity and the corresponding goods and services it provides not properly understood and documented
   (b) Existing scientific and traditional knowledge not fully utilized.
   (c) Dissemination of information on international and national level not efficient
   (d) Lack of public education and awareness at all levels.
4. Economic policy and financial resources
   (a) Lack of financial and human resources
   (b) Fragmentation of GEF financing
   (c) Lack of economic incentive measures
   (d) Lack of benefit-sharing.
5. Collaboration/cooperation
   (a) Lack of synergies at the national and international levels
   (b) Lack of horizontal cooperation among stakeholders
   (c) Lack of effective partnerships
   (d) Lack of engagement of scientific community.
6. Legal/juridical impediments
   (a) Lack of appropriate policies and laws
7. Socio-economic factors
   (a) Poverty
   (b) Population pressure
   (c) Unsustainable consumption and production patterns
   (d) Lack of capacities for local communities.
8. Natural phenomena and environmental change
   (a) Climate change
   (b) Natural disasters.

IV BARRIERS IDENTIFIED BY RECENT REVIEWS OF THE APPLICATION OF THE ECOSYSTEM APPROACH

(1) Obstacles to implementing Marine and Coastal Area Management

11. An Ad Hoc Technical Expert Group on the Implementation of Integrated Marine and Coastal Area Management (IMCAM) was held in Montreal, Canada, 11 - 15 July 2005. The report of the meeting (UNEP/CBD/AHTEG-IMCAM/1/1/2) identified the constraints to implementing IMCAM fall into six broad categories as follows:

   (a) Lack of political support and participation;
   (b) Insufficient public awareness and participation;
   (c) Weak institutional structures;
   (c) Limited institutional capacity;

(d) Conflicting and weak legislation; and

(e) Limited scientific support for management decisions.

12. It was emphasised that not all six categories are necessarily found in any given country or IMCAM programme. However, the categories are indicative of the often seemingly insurmountable, obstacles that must be overcome to achieve progress in IMCAM.

(2) Using the Ecosystem Approach to Implement the Convention on Biological Diversity: Key Issues and Case Studies (IUCN 2003)[1]

13. This study was based upon the analysis of 26 case studies. The following barriers were identified and elaborated:

Participation and societal choice

Successful use of the Ecosystem Approach depends on sustained stakeholder participation. However, achieving effective and sustained stakeholder participation is a significant challenge. Active and sustained participation will typically require diverse communities to adopt a common vision and, for many countries, will entail capacity building, in areas such as taxonomy and in management techniques appropriate for holistic decision-making. The potential for using the Ecosystem Approach in conflict resolution needs to be tested.

Scale

The case studies demonstrated that the Ecosystem Approach can be applied from an individual farm to transnational regions. It can also be applied at the global scale. The Ecosystem Approach may be an appropriate framework for ensuring that international trade does not compromise the objectives of the CBD. Although decentralised management is often needed, in practice, there are a number of significant obstacles to it. The most appropriate scale for management, however, is probably best determined by the specific biodiversity problem being addressed. A combined bottom-up and top-down approach may be the best way to identify the most appropriate management scales and mechanisms.

There are differences between the timelines of various stakeholders. These need to be managed. Some stakeholders — those whose livelihoods depend on biodiversity — have immediate needs and require immediate benefits in order to participate.

Adaptive management is new to many organisations and individuals and training is needed. Management should adapt to lessons learned in the field and be responsive to ongoing advances in scientific understanding. Monitoring of appropriate indicators is vital for adaptive management, but there are few guidelines or case studies on this subject.

Benefit sharing and incentives

There are many possible innovative approaches to benefit sharing under the Ecosystem Approach, although further guidance is needed. Management based on ecological principles often results in significant financial savings. However, it is unlikely that costs and benefits can always be internalised within ecosystems. For example, when ecosystems are managed to sequester carbon, benefits are global but costs are local.

Removing the distorting influence of perverse incentives is a priority if people's economic and other needs are to be balanced with their biodiversity concerns.

[1] Using the Ecosystem Approach to Implement the Convention on Biological Diversity: Key Issues and Case Studies. R.D. Smith and E. Maltby. (2003). IUCN, Gland, Switzerland and Cambridge, UK. x + 118 pp.

Science, information and decision-making

Decision support systems that integrate diverse types of scientific and local knowledge can greatly assist decision-making. Existing scientific and socio-economic knowledge, including that which has not been widely published, should be made easily available.

Structural and inter-sectoral issues

The sectoral structure of decision-making is a major constraint to adoption of the Ecosystem Approach. Harmonising policies, laws, fiscal measures, incentives and institutional mandates is a priority to facilitate use of the approach. The Ecosystem Approach need not require legal enforcement: win-win situations can be voluntarily adopted. Existing or new inter-ministerial mechanisms may establish the necessary inter-sectoral linkages. The Ecosystem Approach's compatibility with the objectives of other conventions can be used to promote collective implementation. In many countries, implementation of Decision V/6 would be enhanced if the capacity of the CBD National Focal Point or other coordinating authority were strengthened.

These barriers were summarized as follows:

(a) Ineffective stakeholder participation in planning and management;

(b) Inconsistent use of terminology and definitions;

(c) The lack of capacity for decentralised and integrated management;

(d) Insufficient institutional cooperation and capacity;

(e) Lack of dedicated organisations able to support delivery of the EA; and

(f) Overriding influence of perverse incentives and conflicting political priorities.

(3) The International Debate on The Ecosystem Approach - Critical Review of International Actors Obstacles and Challenges (2003)[2]

14. This document reviews previous critical reviews of the ecosystem approach giving the following conclusions:

Obstacles and Challenges

There are challenges in the need for a clarification of the codification of the EA and in the needs of demonstrating the usefulness of the guidance it is supposed to provide:

The concept of the EA of the CBD is the centre of a critical debate concerning its theoretical foundation, its logical consistency and its value as a practical guide.

It is a demanding approach in terms of complexity and coordination requirements - the claims towards a paradigm shift make the adoption difficult. At the same time, there is not only in science a need for an integrative approach with an open decision-making process with a long term perspective.

Internationally, there are a number of early adopters (World Bank, EC, US AID, UNEP, WRI) of the ESM (ecosystem management), but with a slight degree of conceptual and definitorial variation. But

[2] The International Debate on The Ecosystem Approach - Critical Review of International Actors Obstacles and Challenges. Hartje V, Klaphake A. and Schliep R. 2003. Federal Agency for Nature Conservation. BfN – Skripten 80. [previously published as ecosys-01-INF-03.en]

there are competing approaches as well (sustainable livelihood) guiding international actors and there is an open relationship to the concept of sustainable development.

The concept lacks guidance for the balancing between conservation and sustainable use, particularly in view of the renewed emphasis of poverty reduction.

There are applications of the ESM on an ecosystem-specific level that have progressed further in their conceptual basis and are more specific (FAO fisheries: Ecosystem-based fisheries management; North Sea Conference: Ecosystem Approach to the management, protection and restoration of the North Sea).

There seems to be progress towards integration among the international actors, but it can only be identified on a conceptual level, i.e. on paper, but not yet on the programmatic or project level.

Within these international actors, the change towards integration comes from the conservation side to integrate sustainable use, although selectively, from the user side - forestry and fisheries and sometimes water management - to the conservation side.

(4) Applying the Ecosystem Approach in High-Mountain Ecosystems in Germany: Experiences with the Alpine Convention (2003)[3]

15. The case study presented investigated how far the principles of the Ecosystem Approach are manifested in the international agreement of the Alpine Convention and its protocols. Although the Alpine Convention was formulated before the CBD was developed, nearly all fundamental ideas and goals of the Ecosystem Approach are integrated. Nevertheless, implementation of the Alpine Convention and ratification of the protocols are slow and have to deal with many political obstacles. The following are the conclusions on barriers:

The Ecosystem Approach itself bears some implicit problems that render the implementation difficult:

First of all, the wording of the principles and the guidelines is held so general that it can not be used as a direct *modus operandi* to implementation. Here, a need of concrete rules for action (or restraint from action) is obvious. Of course, such rules cannot be postulated for all ecosystems worldwide (as the CBD is), but have to be modulated for regions and ecosystem types. Research efforts in this direction have to be strengthened.

The same is true for the goals of the approach and the CBD as a whole:

There are no concrete figures or dates, which goals should be achieved when. Even the Johannesburg Declaration of the World Summit in 2002 agreed only on slowing down the process of species extinction until 2015 “significantly”. A further definition of the word “significantly” is not given. If it is impossible to formulate concrete worldwide goals, at least every signatory party should be urged to formulate national goals and report on the success.

Secondly, the Ecosystem Approach (Principle 1, societal choice, and Principle 2, decentralization) requires more or less democratic structures. Unfortunately, these structures are not given everywhere, sometimes especially not in areas with high biodiversity.

The demand for decentralization bears another problem, which is an everyday-obstacle in practical implementation of management measures: the more political institutions, political levels and local stakeholders are involved, the more complicated it is to come to a decision. As outlined in the Resume chapter, the sectoral responsibility of different ministries for different parts of the same ecosystem (ministries of environment, traffic, economy, land-use, health) calls for centralization of competence

[3] Paulsch A. Dziedzioch C. and Plän T. 2003. Applying the Ecosystem Approach in High-Mountain Ecosystems in Germany: Experiences with the Alpine Convention. Federal Agency for Nature Conservation. Germany. BfN – Skripten 76.

and power in one hand. This centralization-decentralization paradox is a basic problem of democratic structures. Moreover, the call for flexibility (Principle 9) of managing measures should include a call for more flexibility at all political levels and in every bureaucracy.

Third, the Ecosystem Approach calls for an appropriate balance between conservation efforts and use in managing measures (Principle 10). This principle allows wide interpretation inasmuch as the need to use ecosystems (or to change and destruct them) directly depends on the economic needs of the state hosting the ecosystem under question. An "appropriate balance" of conservation and use of mountain ecosystems in the Alps in a developed country like Germany means completely different things than an "appropriate balance" for mountain ecosystems in a developing country, where the economic needs force people to use even unattractive sites with a high risk of causing irreversible damage.

In Principle 10, a clear commitment to set areas under protection and leave them completely untouched is missing and the danger of justifying destruction of biodiversity by economic needs is not banned.

Principle 9 remarks, that change in ecosystems is inevitable. Of course, this is true and there has always been and will always be a kind of natural change in number of species, composition of species, and the mosaic of ecosystems, driven by changes in climatic or geologic (e.g. volcanism) conditions. Evolution and extinction of species work hand in hand. Nevertheless, the acceptance of changes needs a definition of the word "inevitable". Climatic change in recent (and future) decades might not be inevitable inasmuch as human production of gases intensifying the greenhouse effect could be reduced, if the political will to do so was world wide (or at least would include all highly industrialized nations who are responsible for most of the production). The rational of Principle 9 mentions natural disturbance regimes as inevitable changes in ecosystems. Of course, in the Alps avalanches and mud streams are natural phenomena, but frequency and intense are strongly influenced by human measures like construction of ski-runs, deforestation of steep hillsides or simply skiing offside marked skiing grounds. Hence, the natural disturbance by avalanches can not just be defined as inevitable. The same is true for floods (as became obvious in central Europe in summer 2002). High amounts of rain and the resulting rising of rivers with an enormous destructive power might be inevitable. But regulating riverbeds and hindering the rivers to flood natural depressions worsened the flood to reach catastrophic dimensions. Therefore, the word "inevitable change" needs a clearer definition.

The Ecosystem Approach sees humans as a part of most ecosystems and demands cautious management of ecosystems (Principle 6). Nevertheless, it must be accepted, that in some ecosystems the functioning cannot be guaranteed (as demanded in Principle 5), if humans try to use the system or to become part of it. An alpine sphagnum bog cannot be used without causing destruction, not even by cautious tourists. Here, an appropriate balance can only mean exclusion of humans and strict conservation. (Switzerland even integrated the protection of bogs into its constitution).

Principle 8 demands to consider future benefits and to favour long-term gains instead of immediate but unsustainable uses. Unfortunately, in many cases, those who renounce from immediate benefits cannot be sure to benefit from future gains in a long term perspective or can not afford to abstain from immediate use due to vital economic needs. Signatory States must seek solutions that enable people to economize in a long-term perspective (e.g. by balancing losses and supporting long-term efforts or guaranteeing landownership).

The CBD itself claims the goal of fair and equal benefit sharing between all stakeholders. Nevertheless, there is no further definition, what fair and equal means and who is to be seen as a stakeholder. Here, case studies for the implementation of a benefit sharing model are needed.

Furthermore, there is no easy way to define the benefits itself in an economic context. If a mountain farmer in the Alps hinders avalanches by leaving protection forests untouched, he helps to avoid economic losses by damage. But how can this economic long-term gain be put into figures and

rewarded in a fair manner? Here, policy is asked to give economic value to measures that protect from avalanches, floods or desertification or guarantee purity of air and water.

Principles 4 mentions incentive measures, but case studies, which investigate how to give economic value to protective ecosystem functions are needed. In Austria, a model to certificate the quality of mountain forests and reward good results is actually tested.

Principle 11 and 12 kind of overlap in their rationales: "considering all forms of relevant information, including scientific and indigenous and local knowledge" (Principle 11) more or less implies to "involve" all relevant sectors of society and scientific disciplines" (Principle 12).

To sum up, the ecosystem approach should be understood as a basic guideline for the integrated management of ecosystems but not as a *modus operandi*. Due to its highly theoretical organization, it is not adequate as guidance for concrete measures.

Nevertheless, it is certainly possible to successfully employ the approach for introducing the concerns of the CBD into relevant areas of politics.

(5) Report of the International Workshop on the "Further Development of the Ecosystem Approach" (2003).[4]

16. This meeting was attended by experts from 16 countries in Africa, America, Asia and Europe and was held in October 2002. The conclusions of the workshop regarding barriers were:

Creating an Enabling Environment for the Application of the Ecosystem Approach:

The creation of an enabling environment for the application of the Ecosystem Approach of the CBD needs to take into account political, social and economic aspects on the global, national and regional level of integrated ecosystem management. Amongst other references, the CBD adopted in its Decision V/6 an Operational Guidance for application of the Ecosystem Approach and acknowledges in point 4 of the guidance that the Ecosystem Approach will imply the proper empowerment of stakeholders on the level of local communities which needs to be supported by enabling policy and legislative framework.

The Global Environment Facility (GEF) in its Operational Program #12 (Integrated Ecosystem Management) refers to the development of appropriate policies, regulations and incentive structures in the political, legislative and economic realm as part of creating an enabling environment to support integrated ecosystem management.

The report includes a list of the most essential measures to be undertaken to create an enabling environment identified on the basis of a specified list of tasks and target groups to be addressed.

Opening the discussion on the presentation of case studies and lessons learnt, a list of problems and questions concerning the Ecosystem Approach were identified:

(a) Some of the Principles of the Ecosystem Approach were not agreed by all Parties;

(b) The overall concept and explanation frame of the Ecosystem Approach needs clarification;

(c) Must the Principles of the Ecosystem Approach be seen as a package, or might a stepwise implementation be feasible?;

(d) The relationship of the Ecosystem Approach to other approaches needs clarification;

(e) There is a lack of guidelines for the application of the Ecosystem Approach in the field;

[4] Report of the International Workshop on the "Further Development of the Ecosystem Approach. 2003. Korn H., Schliep R. and J. Stadler (Eds.). Federal Agency for Nature Conservation. Germany. BfN – Skripten 78.

(f) There is a need for capacity building;

(g) There is a need for public awareness;

(h) There is a need for economic incentives;

(i) What is the role of adaptive management?;

(j) How can we promote active participation?;

(k) Scale-related issues need to be clarified; and

(l) Monitoring-related issues need to be clarified.

(6) Report of the International Workshop on "Ways to Promote the Ideas behind the CBD's Ecosystem approach in Central and Eastern Europe" (2004)[5]

17. This workshop brought together 26 experts from 10 European countries in 2004. The conclusions in relations to barriers were as follows:

Obstacles for the Implementation of the Ecosystem Approach of the CBD

Intersectoral aspects -

(a) Sectoral approach in institutions, education, minds etc. results in lacking intersectoral cooperation;

(b) Traditional sectoral planning may fear to lose competencies and importance what results in resistance from sectoral planning disciplines;

(c) Missing flexibility of bureaucracy (institutional inertia);

(d) Lacking tools of acquiring and applying transdisciplinary knowledge;

(e) Relationship between the Ecosystem Approach and other approaches - in some cases the Ecosystem Approach is seen as a competitive approach; and

(f) Selective use of Ecosystem Approach Principles by other approaches

Legal aspects and law enforcement -

(a) Low governmental capacities to implement the CBD and the Ecosystem Approach and to integrate it into existing legislation;

(b) Problem regarding decentralization: Lack of capacity in local authorities;

(c) Outdated and inconsistent laws; and

(d) Implementing the Ecosystem approach may be difficult in certain cases under the conditions of centralistic systems of management of natural resources by the State.

Public awareness and communication of the Ecosystem Approach -

(a) Ecosystem Approach is a complex, demanding concept (holistic, cross-cutting); and

(b) Lack of knowledge and promotion of the Ecosystem Approach philosophy

(c) Information exchange -

(d) Lack of information exchange between research, science and practice; and

[5] Report of the International Workshop on "Ways to Promote the Ideas behind the CBD's Ecosystem approach in Central and Eastern Europe". 2004. Korn, H., Schliep R. and J. Stadler (Eds.). Federal Agency for Nature Conservation. Germany. BfN – Skripten 120.

(e) Relevant data on conservation and sustainable use of biological diversity are not freely available in many countries.

Participation -

(a) The common perception of participatory processes as being time-intensive and costly;

(b) Lack of trust and awareness on the side of local population;

(c) Lack of capacity for effective participation of local population; and

(d) With regard to private land, implementation of participatory concepts may be a difficult task (for example due to legal constraints);

Ecosystem management practices -

(a) Low acceptance of adaptive management and participatory approaches;

(b) Uncertainties with regard to and too little emphasis on ecosystem functioning;

(c) Too little emphasis on protection of landscape diversity;

(d) Lacking integration of physical and chemical processes with biological ones in management; and

(e) Increasing loss of traditional knowledge relevant for the conservation and sustainable use of biological diversity in Europe.

Economic aspects -

(a) Predominance of large scale economic interests; and

(b) Conflict between long-term ecological and short-term social and economical aims.

(7) Policy proposals and operational guidance for ecosystem based management of marine capture fisheries (2002)[6]

18. The ideas expressed within this paper build on the initiatives and events of the 1990s, including the development of the FAO Code of Conduct for Responsible Fisheries and the 1998 WWF/IUCN International Marine Policy, Creating a Sea Change. WWF seeks to maintain the momentum for marine conservation highlighted in 1998, the International Year of the Ocean. Additionally, it is useful and timely to build on the October 2001 FAO *Reykjavik Conference on Responsible Fisheries in Marine Ecosystems*, strengthening the discourse and providing clear guidance for the effective implementation of the objectives of these initiatives.

19. The main conclusions regarding obstacles are as follows, some of which are specific to marine fisheries:

Critical obstacles to achieving ecosystem based management at the international level

To achieve healthy and well-managed fisheries and marine ecosystems globally, Ecosystem-Based Management (EBM) is required at the level of each managed fishery. Many fisheries fall within the scope of a single national jurisdiction; others are jointly managed by two neighbouring nations with the fisheries (usually coastal) falling wholly within their EEZs. However, the need for EBM goes well beyond the need for each jurisdiction to accept and implement EBM for its fisheries. At the international level, cross boundary issues that need to be addressed include:

[6] Policy proposals and operational guidance for ecosystem based management of marine capture fisheries. WWF, Australia.

(a) Trans-boundary stocks;

(b) High seas stocks;

(c) Agreed international management frameworks;

(d) Trans-boundary impacts of fishing; and

(e) Action plans for priority habitats and species.

Each of these issues can be linked to obstacles related to governance, i.e. the structure, functions, linkages and responsibilities of the people and institutions that manage control measures. It has been argued that governance and institutions are the key problems facing the restructuring of global fisheries to meet the demands of EBM and this is consistent with the experiences in other sectors. This problem of designing and implementing an appropriate form of governance exists at all levels in fishery management systems, and is as acute at the international level as it is at the national or fishery levels of jurisdiction.

International Action Required

There are five key international arenas where action is urgently required to promote the development of broad-scale activities consistent with the international dimensions of EBM:

(a) Improve governance of marine ecosystems by global advocacy for EBM in fisheries in a range of international forums, key global protocols, and support for the international implementation of the relevant UN treaties and agreements. This must include developing the capacity to create legally enforceable high seas protected areas;

(b) Improve governance of marine ecosystems through integrating the efforts of regional bodies responsible for various components of managing global marine systems (e.g. fisheries, environment and geophysical regional bodies) with a view to identifying a specific focus for integrated action in EBM;

(c) Develop international controls for IUU fishing activities;

(d) Develop species-specific protocols for international implementation to respond to the terms of UNCLOS, CBD and other related treaties; and

(e) Develop suitable EBM procedures for use by small-scale or under-resourced fisheries.

Access Agreements

Many countries use Access Agreements as tools to both permit and control the exploitation of their EEZs by distant water fishing fleets. These Agreements usually set out the basis by which vessels are permitted to fish within an EEZ, including, amongst many others, rules for where fishing can occur and the required catch reporting procedures. Without robust Access Agreements, fishing of migratory species, such as tuna, is difficult to manage, and achieving EBM of such fisheries is highly dependent on the performance of the large, often dominant, distant water fleets.

Fishing Capacity

Within the context of effective EBM, and in relation to both national and international waters, it is critical that plans of action to reduce capacity are developed and that fishing fleets are managed in accordance with the principles of EBM.

(8) The FAO Technical Guidelines for Responsible Fisheries - The Ecosystem approach to fisheries (2003)[7]

20. These guidelines were finalized by the FAO Fishery Resources Division based on the draft developed during the Expert Consultation on Ecosystem-based Fisheries Management, Reykjavik, Iceland, 16–19 September 2002.

21. The conclusions of this process regarding threats to implementing the ecosystem approach to fisheries (EAF) included:

> There are substantial obstacles to the effective implementation of EAF, as evidenced by the difficulties of countries in implementing the requirements of the Code. Key impediments to EAF include the following:
>
> The mismatch between expectations and resources (both human and financial) will need to be carefully managed. EAF has much to offer, but lack of investment in the process will certainly slow progress and might mean failure in the end. The differing timetables of the political and the management process may also mean that insufficient commitment and resources are made available. EAF is a long-term commitment with long-term benefits, which may be difficult to present convincingly to governments, which normally work in shorter cycles, and especially when EAF competes with short-term socio-economic objectives.
>
> Difficulty may be foreseen in reconciling competing objectives of the multiple stakeholders. In some, perhaps many, cases the participatory process may be insufficient for finding compromises that satisfy all stakeholders. Conflicts may then require higher-level intervention to determine the relative priorities and possibly, compensation. This is already a serious problem in many fisheries, and will be exacerbated by EAF.
>
> Insufficient or ineffective participation of stakeholders in the development and implementation of EAF may occur, even when competing objectives can be reconciled. This deficiency could be caused by a number of factors including:
>
> (a) An unwillingness of stakeholders to participate openly and transparently in the process or to make concessions, believing that they will fare better by non-cooperation than by cooperation;
>
> (b) Inadequate and fuzzy user rights that fail to recognize long-term interests and responsibilities leading to poor stewardship;
>
> (c) A lack of access to necessary information;
>
> (d) Inadequate consultation process or arrangements;
>
> (e) Insufficient resources being invested to improve fisheries and their management;
>
> (f) A lack of capacity to participate effectively (e.g. knowledge, financial or other resources, geographical dispersion); and
>
> (g) Hidden agendas (e.g. expectations that are not transparent to all participants, leading to distorting behaviour and mistrust).
>
> The time and cost required for effective consultation with a wide range of stakeholders could be substantial but, in many cases, a good start can be made with the resources already being used.

[7] FAO Fisheries Department. The ecosystem approach to fisheries. *FAO Technical Guidelines for Responsible Fisheries*. No. 4, Suppl. 2. Rome, FAO. 2003. 112 p.

Insufficient knowledge will continue to be a constraint. Biological uncertainty is recognized as a substantial problem in management of fisheries and the combined biological and ecological uncertainty under EAF will be even greater. One manifestation of this will be an inability in some instances to identify meaningful, cost-effective indicators for important objectives. The sum of these uncertainties will require robust and precautionary approaches that could cause substantial difficulties in some cases for certain stakeholders, both social and economic. A further source of uncertainty is a widespread lack of adequate knowledge of fleet and fisher behaviour and dynamics.

A lack of adequate capacity for informative compilation and analysis of the available information will often add to the uncertainty. In cases where there are or have been inadequate monitoring and data storage systems in place, the problems will be particularly acute.

Insufficient education and awareness will also be a problem. This will apply to all stakeholders in exercising their responsibilities, including the fishery management agencies and the public, who will need to be better educated on their roles in the process.

Equity issues will always be difficult to resolve in relation to responsibility for ecosystem degradation, between fisheries and other economic activities such as agriculture (including forestry), chemical industries, urban and coastal development, energy and tourism.

Aligning the boundaries of the ecosystems and of the jurisdictions of the management authorities (whether at regional, national or sub-national levels), as well as between jurisdictions of the different authorities responsible for competing sectors, will continue to be a challenge. Trans-boundary issues will require particular attention. As foreseen in the United Nations Fish Stock Agreement (FSA), EAF measures adopted by different countries sharing an ecosystem will need to be compatible across the whole geographical range of the ecosystem.

Another impediment, which will continue to be a threat, is illegal stakeholder behaviour: illegal fishing, lack of implementation of flag state and port state responsibilities, and misreporting.

While these types of practices continue, it is difficult to see how the principles and processes outlined in these guidelines can be implemented successfully, especially on the high seas. The Compliance Agreement and the International Plan of Action on Illegal, Unreported and Unregulated fishing should play a useful role in changing this situation for the future.

Poverty is a major threat to EAF. While poor coastal dwellers have few other options to derive livelihoods, fishing will continue to be the occupation of last resort for growing and displaced populations, resulting in excessive fishing effort, depletion of resources and ecosystem degradation. This will often occur in desperate circumstances where the incentive to care for the ecosystem is overshadowed by daily necessities.

(9) The ecosystem approach to fisheries. Issues, terminology, principles, institutional foundations, implementation and outlook. 2003.[8]

22. This review addresses implementation issues regarding the application of the ecosystem approach to fisheries (EAF).

[8] Garcia, S.M.; Zerbi, A.; Aliaume, C.; Do Chi, T.; Lasserre, G. The ecosystem approach to fisheries. Issues, terminology, principles, institutional foundations, implementation and outlook.
FAO Fisheries Technical Paper. No. 443. Rome, FAO. 2003. 71 p.

23. The following conclusions were drawn:

EAF: Hurdle or Opportunity?

The intention behind implementing an EAF is to improve fisheries management. One of the conclusions stemming from the scientific symposium organized during the Reykjavik Conference was that there was largely enough knowledge available to start implementing an EAF without delay. It was stressed that the existing imperfections in the knowledge should not be used as an excuse for not acting (a statement which recalls the formulation of the Precautionary Approach in the UNCED Declaration). As the paper has abundantly shown, there is pressure from many leading countries and NGOs to start implementing EAF as soon as possible and the WSSD Plan of Implementation asks for its implementation by 2010 (Paragraph 29d). It has been argued, however, that EAF will be a more complicated endeavour than conventional fisheries management and even suggested that "*the attempts to implement ecosystem-based management programmes may actually slow progress towards … sustainable fisheries*". This pessimism is based on the fact that the chronic and generalized absence of fishing and other property and use rights in the oceans promotes institutional and political short-sightedness strongly biasing governance towards short-term interests against conservation objectives and the interests of future generations. It is also based on the assumption that the "ecological angle", with its emblematic species and simplistic approaches, would detract from the strict and priority attention to be given to the interwoven issues of overcapacity, allocation and user rights. Ensuring the success of EAF requires therefore deep changes in governance (reviewed above) with the key introduction of user rights.

Rhetoric Versus Commitment

The international instruments already adopted by coastal and fishing nations, either specific to fisheries or of relevance to them, already include a wealth of agreements at the highest level, as well as provisions and guidance constituting a sound basis for implementation of the Ecosystem Approach to Fisheries. Many, if not all, of the principles of EAF have already been adopted in theory, albeit not yet widely applied in practice, and are very intricately meshed into the Code. This conclusion is reinforced by the fact that a number of principles described as part of the ecosystem approach in general are also advocated (if not generally applied) principles of good practice in conventional fisheries management (e.g. those related to participation, decentralization, subsidiarity, transparency, precaution, flexibility and adaptation). However, despite the availability of this global consensual framework, a major drawback is that many States are not party to the relevant fisheries or other agreements (when ratification is required) or merely pay lip service to the concept in large international fora while demonstrating limited political will to implement the approach effectively at national or regional levels (Aqorau, 2003). The main reasons behind such behaviour tend to be (1) the lack of capacity to implement, particularly in developing countries, and (2) the perceived or real political, social and economic costs of the transition required. The shift from rhetoric to commitment and implementation is needed urgently, if a major negative reaction from consumers and the society at large is to be avoided.

Capacity, Pragmatism and Stepwise Implementation

Even if political will and resources were available, any fishery manager, contemplating the actions needed to bring fisheries under an EAF framework, would be overwhelmed by the potential task. It must be recognized that, while most conceptual objectives and principles proposed are generally acceptable, it is unlikely that all the possible implications will be agreed to by all parties. A complex debate can be expected about them in a participatory, bottom-up implementation process. In addition, all the actions listed under Section 8 (in a list that is probably not exhaustive) may not be absolutely needed from the onset. Their practical implementation raises scientific and managerial challenges often

incompatible with the available human and financial resources and, in many cases, with the economic value of the fisheries themselves. To illustrate this point, it is sufficient to remember that the fundamental principles of sustainable development adopted at UNCED and formulated in Agenda 21 a decade ago have proven to be very difficult to implement, despite the political will and the high scientific and technical capacity available. The situation of countries confronted with the implementation of the EAF ten years later has not really improved in most cases.

Considering the rigidities in most administrations and institutions, and the limited resources usually available, the implementation of EAF can only be through a stepwise process, the speed and priorities of which will depend on local conditions (history, emergencies, capacity). The difficulty will reside in allocating between areas and steps the resources available for the process, selecting the priorities so as to maximize effectiveness (e.g. in terms of stock or environment rehabilitation) while reducing human impacts and conflicts to the minimum possible.

The Need for Sub-sectoral Approaches

The difficulties met during implementation may be partly different for small-scale and industrial fisheries but generalizations are dangerous. Small-scale fisheries are often considered as less threatening to the ecosystem (Mathew, 2003) but are also affected by overcapacity, overfishing and destructive practices in many areas. Industrial fisheries may represent a threat to sustainability (e.g. through illegal fishing or use of flags of convenience) but they have also shown to be strong supporters of EAF in some contexts.

Difficulties may be particularly acute with small-scale fisheries because of their size (in number of people concerned), diversity of gear and practices, geographical dispersion, low level of education, low political influence, etc. On the other hand, however, these fisheries, which are essentially coastal area-based, with traditional management structures and rules often still operational, flexible and multi-species, and which often draw additional resources from other natural resources (e.g. through small-scale agriculture, aquaculture and forestry), should be particularly adapted and receptive to an ecosystem approach to their livelihood.

Role of NGOs

The role of environmental and sectoral NGOs cannot be understated. They can play a role as interface between the fishers and the government, as well as with society at large. They can also help improve the coherence and coupling between the action taken in the environmental and fishery ministries, an area in need of significant progress. A difficulty in the process is that there is not always common understanding within environmental or sectoral NGOs or between them.

It is impossible to date accurately the process of development of an ecosystem approach to fisheries. It probably started unconsciously when the first groups of fishers, most likely in inland waters, realized they had depleted a small stream and had to do something to deal with the problem. In its more formalized, modern form, it is a product of the 20th century and has developed inland before spreading into oceans as their exploitation increased together with the environmental risk resulting from it. The process was fuelled by concerns about pollution, principally from the oil industry, and it progressively extended to fisheries impacts in the late 1990s. From an environmental angle, the process is one of inclusion of fisheries as an additional source of impact in the ecosystem governance. From a fisheries point of view, it is one of extension of the conventional concern about the fishers and the resources to other essential elements of the exploited ecosystem. In addressing this extension, its principles and institutional basis, as well as its aims and means, this paper does not dwell on EAF implementation *stricto sensu*.

EAF is an attempt to graft additional ecosystem considerations to conventional fisheries management, giving to the former more weight in decision-making than they historically had. It is certainly an institutional "evolution" (and not a "revolution") looking at ecosystem-related outcomes but with significant social and economic consequences in both the short and long terms. It is obvious that the fisheries sector cannot avoid it, and some parts of the sector will even intend to "ride the wave" with the hope to attract consumers (e.g. through ecolabelling). It is more obvious that, following the high-level support expressed in FAO and at WSSD (Johannesburg, 2002) governments will have no other choice than to foster its implementation. Two issues require attention: (1) the implementation challenge and (2) the potential collision between ecosystem and fisheries management paradigms and requirements.

(10) The Ecosystem Approach to Fisheries: Implementation and lessons learnt (2006)[9]

24. This review updates understanding of the ecosystem approach as applied to fisheries (EAF). The following conclusions were drawn:

Selected implementation challenges

Despite the fact that EAF has formally been on the world's agenda for only 4-5 years, the challenges faced during implementation are known because they are the same already met when implementing strategies for integrated natural resources management (of watersheds or coastal areas) or ecologically sustainable development (ESD). Not surprisingly, perhaps, most of the challenges are of an institutional nature and include the following:

(a) **Preparedness**: identification of likely obstacles early enough and preparing for them;

(b) **Boundaries**: definition of and agreement on meaningful boundaries compatible both with the ecosystem functioning and the social institutions;

(c) **Capacity**: early development of an implementation capacity (skills, tools, institutions, resources, legislative framework; research capacity), including the capacity to adapt to change (flexibility) at the appropriate level of decentralization;

(d) **New policies**: re-orientation of present policies, revisiting priorities, re-ranking objectives, re-designing strategies and action plans as well as the allocation of wealth (resources, costs and revenues);

(e) **Mainstreaming**: institutionalization of the implementation process, nesting it in adequate national policy and regulatory frameworks and reducing bureaucratic inertia;

(f) **Legislation and regulations**: simplification of the regulatory frameworks which have accumulated layers of complexity (and often contradiction) over the years;

(g) **Integration**: reduction of policy, sectoral, institutional and scientific fragmentation;

(h) **Participation**: ensuring adequate participation at an affordable interaction cost;

(i) **Scientific support**: improvement of data collection; integration of the best natural and social sciences available, collecting and validating informal knowledge; improvement of ecosystem modelling and developing systems of indicators; and

[9] The Ecosystem Approach to Fisheries: Implementation and lessons learnt.
S. M. Garcia, Fisheries Department, Food and Agriculture Organization of the United Nations
(A first version of this paper was developed in support to a short presentation made at the Global Fisheries Forum, in IOC-UNESCO, Paris, in January 2006. The present draft was further developed for the 30th Virginia Law of the Sea Conference on Law, Science & Ocean Management, organized by the Center for Oceans Law and Policy, University of Virginia, Dublin, Ireland, 12th - 14th July 2006.)

(j) **Commitment:** increase governments' willingness to delegate enough powers, e.g. to decentralized or regional fishery management institutions, and improve significantly flag and port states control.

(11) Report of the Regional Synergy Workshop for Latin America and the Caribbean on the Biological Diversity of Agro-ecosystems within Dry and Sub-humid Lands, Antigua and Barbuda, 20-23 November 2006 (UNEP/CBD/WS-SynLAC/1/4)

25. The meeting addressed obstacles specific to the application of the ecosystem approach in annex I of document UNEP/CBD/WS-Syn.Lac/3 on obstacles to the achievement of the 2010 target in agro-ecosystems within dry and sub-humid lands. These were:

(a) Lack of appropriate enabling environments to facilitate the decentralization processes;

(b) Weak political commitment regarding the resolution of resource-use conflicts; and

(c) Disconnect between the extent to which the assistance being provided to Parties is adequately and appropriately addressing needs.

26. Annex II of the workshop report (UNEP/CBD/WS-Syn.Lac/1/4) identifies in more detail obstacles to the achievement of synergies and ways and means to overcome them. Many of these reflect obstacles in the application of the ecosystem approach in as much as the synergies considered require actions across disciplines, biomes and conventions. These are summarised as follows.

27. Workshop participants identified a number of obstacles to enhancing implementation of synergistic activities in agro-ecosystems within dry and sub-humid lands. These were identified carried on both a sub-regional and a regional level:

Caribbean sub-regional priority obstacles:

1. Capacity Constraints

   (a) Institutional/technical and financial constraints;

   (b) Focal point duties competing with national duties;

   (c) Few people doing a great deal of work (small numbers of technicians); and

   (d) Imbalance of support for work on the various conventions

2. Lack of Public Awareness

   (a) Policy makers do not recognize the importance and advantages of addressing synergy issues; and

   (b) Stakeholders do not recognize how the various issues/conventions impact on their daily lives.

3. Poor Policy & Legal Framework

   (a) Limited mandate for collaboration at either the national or international level; and

   (b) No clear mechanism to support collaboration.

4 Lack of Science & Technology

   (a) No base line data – poor funding or imbalanced funding;

   (b) Relevant institutions are not able to support/conduct necessary research;

   (c) Limited indicators specific to island ecosystems (within the UNCCD process a regional workshop was held but the next phases were never completed);

(d) There is a need for the UNCCD to develop a similar approach as the CBD in terms of recognizing the specific needs of islands – i.e. an island programme of work.

Meso-American sub-regional priority obstacles:

(a) Human and financial constraints - limited resources due to low priority assigned by the government and as a result, there are people and not enough financial resources;

(b) The imbalance between the various conventions was also seen as a major constraint as it placed them in competition for resources instead of supporting each other;

(c) Poor recognition of the issues by financial institutions;

(d) Rapid changes of focal points;

(e) Various focal points (territoriality and duplication);

(f) Poor representation at meetings (representatives at regional and national levels do not have the mandate to implement);

(g) No monitoring and evaluation (and hence revision) of programmes;

(h) No life after project. (no finances and capacity after project); and

(i) Public participation is key to the success of the project.

South American sub-regional priority obstacles:

Institutional:

(a) Different objectives, policies, programs and activities of the three conventions;

(b) National focal points in different institutions, without coordination; and

(c) Lack of the necessary decision-making level in the countries' representations at the conventions meetings and processes

Informational:

(a) Insufficient, scattered and unavailable information on the conventions;

(b) Lack of dissemination of the Conventions deliberations inside the countries; and

(c) Lack of the conventions' implementation adequate monitoring processes.

Management:

Adoption of legal, financial and administrative measures, by governments as well as the private sector, that do not consider adequately the objectives of the three conventions.
