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**'Mountains to the sea'
Implementation Planning Framework for the
Convention on Biological Diversity's thematic and
cross-cutting programmes of work**

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Executive summary

WWF commissioned the development of this Implementation Planning Framework (IPF) for the Parties to the Convention on Biological Diversity (CBD) to assist them adopting a 'mountains to the sea' or 'ridge to reef' approach for applying, through one integrated platform, the convention's thematic and cross-cutting programmes, and, to do so within the framework of the ecosystem approach.

The 2005 discussion paper which preceded this work (also commissioned by WWF) reviewed the contents of the programmes of work and proposed a single structure to accommodate all of them. This structure has now been further developed to accommodate the outputs from CBD's 8th CoP.

The proliferation of programmes of work (both thematic and cross-cutting) under the CBD has created an institutional challenge for Parties: how to avoid fragmentation and segregation, instead drawing together the various elements into one cohesive and integrated effort. A fundamental premise of the ecosystem approach is to recognize connectivity between biomes, and the need for management to focus on maintaining these ecological, hydrological and other linkages. Taken in isolation, the thematic programmes are not facilitating the application of the ecosystem approach as they should be.

This 'mountains to the sea' Implementation Planning Framework (IPF) was commissioned by WWF to encourage the CBD to recognise this fundamental issue that now faces the CBD and those implementing it; whether at the global, regional, national or local levels. On one hand, the principles and operational guidelines of the ecosystem approach promote cross-biome, integrated, scale-relevant management approaches; on the other hand, the CBD thematic programmes are in effect working against that aspiration. What the development of the CBD's thematic programmes has (inadvertently) begun to do is create a new set of sectors which those implementing the CBD must now address; namely, biome sectors.

In the Implementation Planning Framework (IPF) prepared here (section 4) the seven CBD thematic programmes have been condensed from over 150 pages (as downloaded from the CBD web site) to less than 50 pages without any significant loss of content. A key advantage, from an administrative perspective, is that with this IPF Parties can consult one cross-biome implementation plan for landscape/seascape-scale planning, and, if required, also consult the existing thematic programmes for further clarification in relation to a specific biome.

In undertaking the development of the 'mountains to the sea' IPF great care was taken to retain the intent and fundamentals of each thematic programme (goals, objectives, activities) so that the integrated, cross-biome plan did not lose any of the ideas and activities that each contained.

The 'mountains to the sea' IPF does not aim to make the thematic programmes redundant; simply to take their contents and re-present them in a standard framework of sub-programmes, many of which (as will be seen in section 4) correspond with the cross-cutting programmes of the CBD. As such, the 'mountains to the sea' IPF is designed to be a management matrix to help Parties with the complex task of implementing CBD's extensive and challenging agenda.

"Mountains to the sea" Implementation Planning Framework for CBD's thematic and cross-cutting programmes of work"

Cross-biome, ecosystem-based, integrated implementation of the CBD

1. Introduction

Since its inception in 1992 the CBD has approached its mandated task through various routes; the primary ones being: (a) the development of thematic programmes of work for the major biomes and (b) the development of the cross-cutting programmes for issues that, in most cases are common across each biome (as their name suggests). Table 1 below shows the current situation.

Table 1: CBD's current range of biome-specific thematic programmes of work and the cross-cutting issues and programmes

	Thematic programmes	Mountains	Forests	Inland waters	Dry & sub-humid lands	Agricultural lands	Marine and coastal	Islands
Cross-cutting issues	2010 targets							
	Access and benefits sharing							
	Alien species							
	Article 8(j), Traditional knowledge, innovations and practices							
	Tourism							
	Climate change							
	Incentive measures							
	Ecosystem approach							
	Plant conservation							
	Global Taxonomy Initiative							
	Impact assessment							
	Indicators							
	Liability and redress							
	Protected areas							
	Public education and awareness							
	Sustainable use							
	Technology transfer and cooperation							

The Parties to CBD have also moved to develop and articulate the ecosystem approach as the fundamental framework for implementation; firstly at COP5 when the approach and operational guidelines were adopted (decision V/6) and then again at COP7 when additional guidelines were endorsed (decision VII/11) along with a reaffirmation of the ecosystem approach as the overarching blueprint for CBD's implementation. Significantly (in this context at least), COP7 also began to focus on the issue of how to operationalise the biome-specific thematic programmes under the ecosystem approach (decision VII/11). However, while the ecosystem approach itself stresses the importance of integrated planning and implementation (see section 2), the proliferation of programmes of work under CBD has in turn created a different institutional challenge for Parties; how to draw together these thematic programmes of work into one cohesive and integrated effort that crosses, and doesn't segregate, biomes.

The ecosystem approach (see section 2) also recognises, through its operational guidelines, the importance of ensuring intersectoral cooperation. These guidelines state: *"There is ... a need to integrate the ecosystem approach into agriculture, fisheries, forestry and other production systems that have an effect on biodiversity. Management of natural resources, according to the ecosystem approach, calls for increased intersectoral communication and cooperation at a range of levels (government ministries, management agencies, etc.)."* While this is clearly a key issue with implementing the ecosystem approach, the development of the CBD's thematic programmes has (inadvertently) created a new set of sectors which those implementing CBD must now address; namely, biome sectors.

Anecdotal feedback also indicates that implementation of the CBD is now being hampered in some countries, and especially developing countries, by the complex environment of thematic and cross-cutting issues and programmes of work with (in many cases) associated guidance which CBD has generated (as shown by Table 1). At present there are seven thematic programmes of work plus 16 cross-cutting issues on the CBD agenda (the ecosystem approach is the 17th but has been omitted here due to its overarching role). As shown in Table 1 this creates a complex matrix of expectations and guidance for a Party to digest and then implement at the landscape/seascape level. One of the very tangible difficulties this causes is in the preparation of National Biodiversity Strategies and Action Plans (NBSAPs), where Parties are expected to consider all these various thematic programmes and cross-cutting issues.

In addition to the complexity brought about by the sheer number of thematic programmes and cross-cutting issues, the thematic programmes also differ considerably in their level of detail, while seemingly covering a similar range of management issues. The forerunner to this Implementation Planning Framework, prepared for WWF by one of the same authors (Phillips) looked in detail at the differences in the way these programmes are organized internally. This is in part due to the evolving way these programmes have been developed, and then—in most cases—revised or updated. As they currently stand, the thematic programmes are therefore not directly comparable and this becomes a difficulty for those trying to use them for implementation at a cross-biome, landscape, river basin or seascape scale. A fundamental premise of the ecosystem approach is to recognize connectivity between biomes and to manage them for maintaining these ecological, hydrological and other linkages. As they exist today the thematic programmes are not facilitating the application of the ecosystem approach as they should be.

This Implementation Planning Framework was commissioned by WWF's Global Freshwater Programme to assist the Parties to the CBD in addressing this fundamental issue that now faces the CBD and those implementing it; whether at global, regional, national or local level. As shown in the following section, the principles and operational guidelines of the ecosystem approach are on one hand promoting cross-biome, integrated, scale-relevant management approaches, yet on the other hand the CBD thematic programmes are in effect working against that aspiration.

The 2005 discussion paper which preceded this work reviewed the contents of the programmes of work and proposed a single structure to accommodate all of them. This has now been further developed to accommodate the outputs from CBD's 8th CoP.

This Implementation Planning Framework provides a structure to assist Parties with taking a comprehensive 'Mountains to the Sea' approach to implementing CBD's thematic and cross-cutting programmes of work through one integrated platform. The alternative is for Parties to develop implementation plans that respond to the seven thematic programmes (bearing in mind that not all programmes of work will be relevant to all Parties, since the geographical distribution of different biomes varies) and the 17 cross-cutting programmes.

2. Understanding the ecosystem approach

The emergence and elaboration of what the CBD calls 'the ecosystem approach' as a cornerstone of the CBD is summarized chronologically in Box 1. Box 2 provides a 'simple English' interpretation of the concept to assist those not familiar with the special international jargon used by the multilateral environmental treaties.

The two main documents that provide an understanding of how the CBD interprets the ecosystem approach are:

- The description, principles and operational guidance endorsed by CoP5 in 2000; and,
- The further guidance and explanatory notes welcomed by CoP7 in 2004.

The following is a summary of some key points contained in these documents.

1. CoP5 description, principles and operational guidance

The **description** states *inter alia* that:

- The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.
- There is no single way to implement the ecosystem approach, as it depends on local, provincial, national, regional or global conditions.

There are 12 **principles** of the ecosystem approach, each of which is supported by an explanatory paragraph or 'rationale', though most are fairly self-explanatory and will be familiar concepts to those involved in biodiversity conservation:

- **Principle 1:** The objectives of management of land, water and living resources are a matter of societal choice.
- **Principle 2:** Management should be decentralized to the lowest appropriate level.
- **Principle 3:** Ecosystem managers should consider the effects (actual or potential) of their activities on adjacent and other ecosystems.
- **Principle 4:** Recognizing potential gains from management, there is usually a need to understand and manage the ecosystem in an economic context.
- **Principle 5:** Conservation of ecosystem structure and functioning, in order to maintain ecosystem services, should be a priority target of the ecosystem approach.
- **Principle 6:** Ecosystems must be managed within the limits of their functioning.
- **Principle 7:** The ecosystem approach should be undertaken at the appropriate spatial and temporal scales.
- **Principle 8:** Recognizing the varying temporal scales and lag-effects that characterize ecosystem processes, objectives for ecosystem management should be set for the long-term.
- **Principle 9:** Management must recognize that change is inevitable.
- **Principle 10:** The ecosystem approach should seek the appropriate balance between, and integration of, conservation and use of biological diversity.
- **Principle 11:** The ecosystem approach should consider all forms of relevant information, including scientific and indigenous and local knowledge, innovations and practices.
- **Principle 12:** The ecosystem approach should involve all relevant sectors of society and scientific disciplines.

In addition, there are five points of **operational guidance**, which again are relatively generic issues and will be familiar to many biodiversity conservation managers and practitioners:

- Focus on the functional relationships and processes within ecosystems.
- Enhance benefit-sharing.
- Use adaptive management practices.
- Carry out management actions at the scale appropriate for the issue being addressed, with decentralization to lowest level, as appropriate.
- Ensure intersectoral cooperation.

2. COP7 further guidance on implementation of the 12 principles and explanatory notes on cross-cutting issues related to operational guidance

The **further guidance on implementation of the 12 principles** clarifies that:

"The ecosystem approach provides an integrating framework for implementation of objectives of the Convention on Biological Diversity. The approach incorporates three important considerations:

- (a) Management of living components is considered alongside economic and social considerations at the ecosystem level of organisation, not simply a focus on managing species and habitats;*
- (b) If management of land, water, and living resources in equitable ways is to be sustainable, it must be integrated and work within the natural limits and utilize the natural functioning of ecosystems;*
- (c) Ecosystem management is a social process. There are many interested communities, which must be involved through the development of efficient and effective structures and processes for decision-making and management."*

It also stresses that:

"The approach is an overall methodological framework for supporting decisions in policy-making and planning, within which those implementing the Convention can develop more specific approaches appropriate to their particular circumstances. The ecosystem approach is a tool that contributes to the implementation of various issues addressed under the Convention, including the work on, inter alia, protected areas and ecological networks."

And that:

"...in applying the ecosystem approach, all its principles need to be considered in a holistic way, and appropriate weight given to each, according to local circumstances."

The **explanatory notes on cross-cutting issues related to operational guidance** expand on five issues:

- Initiating the [ecosystem] approach;
- Capacity-building and collegiate will;
- Information, research and development;
- Monitoring and review; and,
- Good governance.

The document is completed by a lengthy table which, for each of the 12 principles, provides an expanded rationale ("annotations to the rationale") and tips for implementation ("implementation guidelines").

The ecosystem approach and Integrated River Basin Management (IRBM)

IRBM is the process of coordinating conservation, management and development of water, land and related resources across sectors within a given river basin. In large river systems, this clearly requires a 'Mountains to the Sea' approach, involving the principal biomes covered by the seven CBD thematic programmes and most of the 17 cross-cutting issues. In essence, therefore, IRBM is a means of implementing the ecosystem approach and largely synonymous with it.

Box 1: Development of the Ecosystem Approach by the CBD — a summary of COP decisions

Decision II/8 – Preliminary consideration of components of biological diversity particularly under threat and action which could be taken under the Convention (November 1995)

Stated that: "...the ecosystem approach should be the primary framework of action to be taken under the Convention"

Decision IV/1 B, Ecosystem Approach — Report and recommendations of the third meeting of the Subsidiary Body on Scientific, Technical and Technological Advice, and instructions by the Conference of the Parties to the Subsidiary Body on Scientific, Technical and Technological Advice (May 1998)

Requested SBSTTA to "develop principles and other guidance on the ecosystem approach" and to report to COP5.

Decision V/6 — Ecosystem approach (May 2000)

Endorsed a description of the ecosystem approach and operational guidance and recommended the application of 12 principles (each supported by a rationale), while encouraging further conceptual elaboration, and practical verification.

Called upon Parties and others (a) to apply the ecosystem approach, identify relevant case-studies/lessons learned, and implement pilot projects, and (b) to organize workshops, and consultations to enhance awareness, share experiences, and strengthen capacities in relation to the ecosystem approach.

Requested (a) the CBD Secretariat to collate case-studies and lessons learned and (b) SBSTTA to review these prior to COP7 and to prepare guidelines for implementation of the ecosystem approach.

Decision VI/12 – Ecosystem approach (Apr 2002)

Renewed the call for case-studies and lessons learned on development and implementation of the ecosystem approach at national and regional levels, and the request for the CBD Secretariat to synthesize these prior to COP7.

Requested the CBD Secretariat "to develop proposals for the refinement of the principles and operational guidance of the ecosystem approach on the basis of case-studies and lessons learned."

Decision VII/11– Ecosystem Approach (Feb 2004)

Welcomed the document 'Refinement and elaboration of the ecosystem approach, based on assessment of experience of Parties in implementation', consisting of: 'A. Further guidance on the implementation of the ecosystem approach principles' and 'B. Additional explanatory notes on cross-cutting issues related to operational guidance'.

Box2: Understanding the Ecosystem Approach — saying it in another way

The 'Ecosystem Approach' is right at the core of delivering the international conservation commitments made by governments under international treaties, especially the CBD. But what IS the 'Ecosystem Approach' and why is it so important?

In essence it's an astonishingly simple concept that has been given a slightly baffling name. It basically means looking at conservation challenges and solutions from an all-round perspective, that takes into account the links between plants and animals, their habitats, and the way in which those habitats are affected by people.

The ecosystem approach recognizes that individual species cannot be protected unless their habitat is maintained and that – in turn – the survival of habitats depends on the earth's major life-support systems (or 'ecosystems') such as oceans, forests and freshwater, all connected by the global climate.

The ecosystem approach therefore says that we need to look at the real, living connections between species, habitats and global systems and to make sure those connections are reflected in joined-up or 'integrated' decisions about how we manage our own impacts on nature. In short, it's a way of thinking and behaving; it's not a detailed recipe that tells you precisely what to do.

This is most easily illustrated in thinking about a river, flowing from the mountains to the sea. If we are interested in protecting a fish species that lives in the river mouth, we have not only to look after the river mouth, but also make sure that nothing happens upstream that could damage the fishes' downstream habitat (e.g. due to pollution). Likewise, it is not even enough to protect the whole length of the river if the forest in its catchment that ensures a constant supply of water is cut down, or if global warming causes severe, long-term drought.

Until quite recently, conservationists have typically concentrated on trying to save individual species or habitats. This has resulted in a well-intentioned but ultimately confusing and unmanageable array of local, national and international conservation initiatives. The CBD has recognised the need to take a step back and to look at the way in which all these initiatives are linked by the common thread of ecosystems. Contribute to protecting ecosystems and there is a fighting chance that the variety of Earth's species and habitats can be saved.

The 'mountains to the sea' concept touched on above provides a simple framework that can be used by everyone involved in biodiversity conservation—from politicians to landowners and from individual citizens to corporations—to unite diverse initiatives and commitments. Thinking and taking action in a connect way, where ecosystems are the 'glue' is not only more coherent, more efficient and more cost-effective, but actually stands a chance of delivering real results on the ground at a scale large enough to make a difference to all our futures.

3. How to use the 'Mountains to the Sea' Implementation Planning Framework

The 'Mountains to the Sea' Implementation Planning Framework provides a structure designed to accommodate all aspects of what the CBD has urged Parties to consider when implementing its seven thematic and 17 cross-cutting programmes. As such, one of its real benefits is to draw together the responses being made by each Party into one document, rather than to have biome-by-biome responses or stand-alone responses to cross-cutting themes.

The structure of the 'Mountains to the Sea' (henceforth referred to here as M2C) Implementation Planning Framework can be seen below. This structure is ready-made as a format for a National Biodiversity Strategy and Action Plan; another of key advantages of this approach.

Structure of the M2C Implementation Planning Framework

Overarching programme

Integrated, ecosystem approach

Programme element 1 — Conservation, sustainable use and benefit-sharing

- 1.1 Protect, recover, restore biological diversity
- 1.2 Prevent, reduce, mitigate threats to biological diversity
 - 1.2.1 Invasive alien species
 - 1.2.2 Climate change
 - 1.2.3 Land use practices
 - 1.2.4 Pollution
 - 1.2.5 Fires
 - 1.2.6 Threats specific to a particular biome thematic programme (not relating to any of the above)
- 1.3 Protected area systems
- 1.4 Sustainable use
- 1.5 Access and benefit sharing
- 1.6 Participation by local and indigenous communities and application of traditional knowledge

Programme element 2 — Institutional and socio-economic enabling environment

- 2.1 Institutions, plans, policies, programmes and laws
- 2.2 Incentives, economic instruments and issues
- 2.3 Impact assessment
- 2.4 Communication, education and public awareness
- 2.5 Innovative and appropriate technologies
- 2.6 Transboundary and regional cooperation

Programme element 3 — Knowledge, assessment and monitoring

- 3.1 Status and trends — assessment and monitoring
- 3.2 Research
- 3.3 Data management and infrastructure

In using the M2C Implementation Planning Framework, Parties can simply transfer and integrate their existing programme-by-programme action or implementation plans (or NBSAPs) into this format. The process of doing so will highlight any key oversights or omissions that may exist in the way Parties are responding to CBD's various thematic and cross-cutting programmes. Equally, it will show up duplications or overlaps between the responses to CBDs programmes, especially the thematic ones.

To further assist Parties, WWF has joined forces with UNITAR to build on M2C to develop a practical and interactive electronic training tool designed to assist CBD Focal Points in implementing the CBD and to facilitate public participation and understanding of the ecosystem-approach. This platform will present M2C as an electronic tool that will include the necessary user friendly learning environments, so that users can easily access and navigate through the M2C contents.

4. 'Mountains to the sea' Implementation Planning Framework

Over-arching Programme: Integrated, ecosystem-based approach

Applying the ecosystem approach

Goal :

To apply the ecosystem approach to the integrated management of all biomes from the mountains to the sea.

Operational objectives:

- (a) Adopt integrated management approaches for the land (mountains, forests, dry and sub-humid lands and agricultural lands), inland water, coastal and marine and island biomes that incorporate the ecosystem approach, and the conservation and sustainable use of biodiversity.
- (b) Apply integrated, ecosystem-based management approaches, where appropriate, for transboundary land, inland water, coastal and marine and island systems.
- (c) Integrate into landscape/seascape management approaches appropriate adaptive management and mitigation responses to combat, and prevent where possible, the negative impacts of climate change, El Niño, unsustainable land use, desertification and other threatening processes (see Sub-program 1.2).

The following format is recommended throughout, but the this restructuring has not been done for time reasons now.

Activities recommended for Parties:

- (i) Implement the M2C integrated cross-biome programme of work (following).
- (ii) Develop and implement legal and policy strategies, and institutional arrangements for land and water-use planning at the landscape* level, taking into account issues of ecological integrity and connectivity, while emphasizing upstream-downstream relations, the prevention of losses of mountain and forest biological diversity due to fragmentation and land-use conversion, and linkages with the coastal and marine biomes.
- (iii) Develop practical methods, guidelines, indicators and strategies to apply the ecosystem approach across the biome transition from the mountains to the sea.
- (iv) As part of integrated, ecosystem-based management approaches establish ecological corridors on a national and regional basis.
- (v) Promote effective collaboration among scientists, local stakeholders, planners, engineers, and economists, and including indigenous and local communities with their prior informed consent (both within and among countries) in the planning and implementation of development projects to better link the conservation and sustainable use of biological diversity into integrated, ecosystem-based management approaches.
- (vi) Encourage the development of new methodologies and new mechanisms, such as the upland-lowland contract that sustain biological diversity and the provision of goods and services.
- (vii) Hold workshops to train and familiarize decision makers and managers with the foundations, principles and modalities of the integrated, ecosystem-based planning and management approach.
- (viii) Identify obstacles to the implementation of integrated, ecosystem-based planning and management nationally and regionally, and develop and implement strategies, such as partnerships, tools and other means, to overcome those obstacles, including provision of guidance on the application of such tools.
- (ix) Establish, within the integrated, ecosystem-based planning and management framework, effectively managed networks of protected areas comprising the appropriate blend of management regimes across the IUCN categories (see Sub-programme Program 1.3).
- (x) Promote and implement "whole island" or "ridge-to-reef" planning and legislation/regulations to anticipate and

prevent cumulative impacts from incremental development. (Islands, Activity 5.1.1.8)

(xi) Develop and implement watershed integrated management to prevent siltation and run-off impacts on island coastal ecosystems (Islands: Activity 7.2.2)

*= for many Parties river basins may provide a useful scale in order to achieve integrated, 'mountains to the sea' planning and management.

Context and linkages:

Article(s) of the Convention on Biological Diversity: 8 (f), 9 (c), 10 (d)

Strategic Plan objective(s): 1.5, 3.1, 3.3 and 3.4

Source elements from thematic programmes: Mountains: Goal 1.2; Forests: Goal 1, Objectives 1; Inland waters: Goal 1.1; Dry and sub-humid lands: Activity 7 (f & l); Agricultural: none; Coasts and marine: Operational objectives 1.1 and 6.1; Islands Goal 1, Target 1.1 and Goal 5, Target 5.1

Related cross-cutting programme of work: All

Supporting activities of the Executive Secretary

(x) Support efforts to clarify the conceptual basis of the ecosystem approach in relation to sustainable use of the biodiversity-derived resources within each biome, and develop guidance for applying the ecosystem approach in these ecosystems, and within the framework of integrated, ecosystem-based management.

(xi) In collaboration with relevant partners as appropriate, compile and disseminate, including through the clearing-house mechanism of the Convention on Biological Diversity case-studies, lessons learned and best-practice guidance on ways and means to promote integrated, ecosystem-based planning and management approach.

Main partners:

Ramsar Secretariat and STRP, River Basin Initiative, UNEP, UNESCO, International Water Management Institute (IWMI), subsidiary scientific bodies of UNFCCC, CCD and the Ramsar Convention, IPCC, WMO. [it is acknowledged that this is an incomplete list]

Other collaborators:

Relevant international, regional and national organizations such as UNEP, International Council of Scientific Unions (ICSU), DIVERSITAS, IUCN, FAO.

Programme element 1. Conservation, Sustainable use and Benefit-sharing

1.1 Protect, recover, restore biological diversity

Goal: To protect, recover and restore biological diversity across all biomes.

Context and linkages:

Article(s) of the CBD: 8 (d, f, k) and 9.

Strategic Plan objective(s): none

Source elements from thematic programmes: Mountains: Goal 1.2; Forests: Goal 3, Objectives 1; 2 & 3; Inland waters: Goal 1.3; Dry and sub-humid lands: Activity 7(b); Agricultural: none; Coasts and marine: none; Islands: Goal 1, Target 1.1, Goal 2, Target 2.1; Goal 3, Target 3.1, Goal 4, Target 4.3; Goal 7, Targets 7.1 and 7.2; Goal 8, Targets 8.1 and 8.2.

Related cross-cutting programme of work: Protected areas, Climate change, Restoration and rehabilitation (when in place).

Plan of Implementation of the World Summit: Paragraphs 26(c) and 37(d).

Operational objectives:

(a) Degraded ecosystems are rehabilitated or restored, where appropriate and possible.

(b) The conservation status of threatened species is improved.

(c) Promote land, water and sea management practices that further the conservation of endemic and threatened

species.

Activities of the Parties:

Cross-biome

1.1.1 Identify national priority candidate ecosystems and/or sites for rehabilitation or restoration and proceed to undertake such works, as resources allow. In identifying potential candidate sites, consider the relative conservation status of the threatened species involved, and the potential gains for the overall ecosystem functioning, productivity and "health" within each biome.

1.1.2 Identify and protect unique, fragile ecosystems, other biological diversity hotspots and their associated species, especially threatened species, giving priority consideration to measures aimed at strict *in situ* protection and/or developing *ex situ* mechanisms whenever feasible.

1.1.3 Establish and strengthen adequate, effective national, regional and international networks of protected areas, in accordance with decisions of the Conference of the Parties on protected areas, while respecting the rights and full participation of indigenous and local communities (see also Sub-Programme 1.6).

1.1.4 Identify nationally and then act, as appropriate, to improve the conservation status of threatened species, including migratory species, endemic, or ecologically or culturally important species (from Islands programme Activity 2.1.1) taking into account the programme of work on restoration and rehabilitation of degraded ecosystems being developed by the Conference of the Parties as part of its multi-year programme of work up to 2010.

1.1.5 Develop and implement conservation strategies for endemic, threatened and narrowly-distributed taxa for global or regional application, and practical systems of adaptive management at national level.

1.1.6 Develop and implement programmes to restore degraded ecosystems and protect natural dynamic processes and maintain biological diversity in order to enhance the capacity of ecosystems to resist and adapt to climate change, or recover from its negative impacts including, *inter alia*, by establishing corridors and taking appropriate measures to maintain ecological functions of natural corridors, where appropriate, to enable vertical migration of species, ensuring minimal viable population sizes to enable genetic adaptation to changing environmental conditions. These programmes should include socio-economic considerations, especially in relation to indigenous and local communities.

1.1.7 Develop and enforce measures to stop illegal, unreported and unregulated harvesting and trading of endangered species of wild flora and fauna. (Islands: Activity 4.3.2)

1.1.8 Provide, as appropriate, to the Executive Secretary case-studies, national experiences and any relevant local, national or regional guidance relating to the successful rehabilitation or restoration of degraded ecosystems, and the recovery of threatened species.

Specific to a particular biome thematic programme

Islands:

1.1.9 Undertake measures to restore at least 15% of degraded island ecosystems. (Activity 1.13)

1.1.10 Develop and implement measures to strengthen *in situ* or on-farm conservation of wild plants and animals and traditional crops and associated knowledge of indigenous and local communities, recognizing the widespread use of land-races of crops and stock strains on islands (Activity 3.1.1).

1.1.11 Develop national and regional gene-pools and gene-banks for the conservation of genetic material of significance to the islands for food sources and health care enhancement and food security and/or that address threats to the high levels of island endemism (Activity 3.1.2).

1.1.12 Re-establish depleted species into marine ecosystems, e.g., artificial reefs, coral transplanting, and species restocking (Activity 1.1.2.4).

1.1.13 Restore degraded mangrove, sea-grass and coral reef ecosystems (Activity 1.1.3.4).

1.1.14 Implement inter-island translocation of threatened species, especially within archipelagos, in cases where this will improve chances for survival, and conduct risk assessment about hybridization and out-breeding processes before implementation (Activity 2.1.1.5).

Supporting action(s) of the Executive Secretary:

1.1.15 Collaborate with relevant organizations and bodies to compile and disseminate information on:

(a) Components of biodiversity important for conservation, in particular, on endemic species, hotspots and their associated species and threatened species;

(b) Best practices for their conservation, sustainable use and benefit-sharing.

1.1.16 Compile and disseminate case-studies on methods and economic aspects of restoration of degraded ecosystems and recovery of endangered species.

Main partners: Ramsar Secretariat and STRP, Wetlands International, CMS Secretariat and Scientific Council, CMS related agreements, IUCN, DIVERSITAS [it is acknowledged that this is an incomplete list].

Other collaborators: Relevant international, regional and national organizations, and stakeholders [it is acknowledged that this could be better articulated].

1.2 Preventing, reducing, mitigating threats to biological diversity

Goal: To reduce the threats and mitigate the impacts of threatening processes on biological diversity.

Context and linkages:

Article(s) of the CBD: 7(c), (g), (h), 10 (b)

Strategic Plan objective(s): none

Source elements from thematic programmes: Mountains: Goal 1.1; Forests: Goal 2, Objectives 1; 2, 3, 4, 5, 6; Inland waters: Goal 1.4; Dry and sub-humid lands: Activity 7(c); Agricultural: none; Coasts and marine: Operational objectives 1.2, 2.2, 2.3, 4.1, 5.1, 5.2 & 5.3; Islands: Goal 2, Target 2.1; Goal 6, Targets 6.1 and 6.2; Goal 7, Targets 7.1 and 7.2

Related cross-cutting programme(s) of work: Alien invasive species, Climate change

Plan of Implementation of the World Summit: none

1.2.1 Invasive alien species

Operational objective: Prevent the introduction of invasive alien species, including exotic stocks that potentially threaten biological diversity, and control and, where possible, eradicate established invasive species.

Activities of the Parties:**Cross-biome**

(i) Reinforce, develop and implement strategies at regional and national level to prevent and mitigate the impacts of invasive alien species that threaten biodiversity and ecosystems, including risk assessment, strengthening of quarantine regulations, and containment or eradication programmes, taking into account the guiding principles on invasive alien species.

(ii) Promote and implement relevant guidelines and/or guiding principles in relation to invasive alien species making use of the expert guidance available such as through the "toolkit" of the Global Invasive Species Programme (GISP), the Scientific Committee on Problems of the Environment of the International Council of Scientific Unions (ICSU), and other relevant sources.

(iii) Provide the Executive Secretary, as appropriate, with examples of the impacts of invasive alien species and of programmes used to control their introduction and mitigate negative consequences on biodiversity within each biome.

(iv) Raise awareness, as part of communication, education and public awareness-raising activities (see Sub-Programme 2.4) of the possible problems and costs associated with the deliberate or accidental introduction of alien species, including exotic stocks and alien genotypes and genetically modified organisms that potentially threaten biological diversity, taking into consideration the Cartagena Protocol on Biosafety to the CBD.

(v) Within the context of transboundary catchments, watershed and river basin management, and especially in relation to inter-basin water transfers, provide appropriate mechanisms to prevent the spread of invasive alien species (see Sub-Programme 2.6).

(vi) Develop close collaboration between national agencies responsible for development of controls on pathways for entry of alien species and national input into the work of the International Plant Protection Convention (IPPC), the Organization Internationale des Epizooties (OIE), IMO and other relevant international agreements.

(vii) Identify means to support capacity-building in developing countries to strengthen their ability to conduct work related to alien species.

See also Decision VIII/27 containing a number of additional recommendations for action by the Parties.

Specific to a particular biome thematic programme

Marine and coastal

(viii) Prevent the introduction of invasive alien species and restore, where appropriate, indigenous wild-capture fisheries stocks in preference to other aquaculture developments [could also apply to inland waters].

(ix) Implement measures to address invasive alien species in ballast water, including through the International Convention for the Control and Management of Ships' Ballast Water and Sediments.

Islands

(x) Establish effective control systems at national island borders and between and within islands to prevent the movement of invasive alien species (Activity 6.1.1).

(xi) Develop protocols for translocation of island endemics threatened by invasive alien species to different islands or new locations within the same island (Activity 2.1.1.12).

(xii) See Activities 6.1.1.1-7, 6.1.2.1-4, 6.1.3.1-10, 6.2.1.1-8 and 6.2.2.1-4 in the Island Biodiversity Programme of Work.

Supporting activities of the Executive Secretary:

(xii) Maintain an incident list on introductions of alien species and continue making updated information on introductions of alien species available through the clearing-house mechanism or other appropriate mechanisms.

Inland waters

(xiii) In collaboration with the Global Invasive Species programme (GISP), implement the project on assessment of impacts of invasive alien species in inland waters and make proposals on future assessments for consideration by SBSTTA.

(xiv) CITES, the Ramsar STRP, TRAFFIC and other appropriate collaborators should be invited to advise Parties on the impact of the aquarium trade and the use of exotic pasture grasses on the conservation of biodiversity in inland water ecosystems and make the results of this study available to Parties.

Marine and coastal

(xv) Invite relevant organizations such the International Maritime Organization (IMO), the Global Invasive Species Programme (GISP), the Food and Agriculture Organization of the United Nations (FAO), and the Ramsar Convention on Wetlands to work together to develop an international cooperative initiative to address impediments to the management of marine alien species, particularly to address technical problems related to the identification and control of marine invasions.

Partners: GISP, ICSU-SCOPE.

Other collaborators: Secretariat and STRP of the Ramsar Convention and its STRP, CITES, TRAFFIC, Commonwealth Secretariat, FAO, IUCN, UNEP-WCMC, IWMI, WorldFish, Global Programme of Action for the Protection of the Marine Environment from Land-based Activities, International Coral Reef Initiative and its partners, the regional seas programmes of the United Nations Environment Programme, the InterGovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization, and other relevant organizations.

1.2.2 Climate change

Operational objective: Mitigate the negative impacts of climate change on biodiversity.

Activities of the Parties:

Cross-biome

(i) Monitor and exchange information on the impacts of global climate change on biological diversity across all biomes, and identify and implement ways and means to reduce the negative impacts.

(ii) Taking into account the work of the Ad Hoc Technical Expert Group on Climate Change and Biodiversity:

- a. Promote monitoring and research on the impacts of climate change on biological diversity;
- b. Develop coordinated response strategies and action plans at global, regional and national levels;
- c. Promote the maintenance and restoration of biodiversity across all biomes in order to enhance their capacity to resist to, and recover from and adapt to climate change;
- d. Promote biodiversity conservation and restoration in climate change mitigation and adaptation measures;
- e. Assess how the conservation and sustainable use of biological diversity can contribute to the international work relating to climate change.

(iii) Research and implement adaptation and mitigation measures in land-use and coastal zone planning and strategies to strengthen local-level biodiversity resilience to climate change (Islands: Activity 7.1.1).

Specific to a particular biome thematic programme

Marine and coastal

See specific work-plan on coral bleaching.

Islands

(iv) See activities 7.1.1.1-7 in the Island Biodiversity Programme of Work.

Supporting activities of the Executive Secretary: advice needed

Partners: advice needed

Other collaborators: advice needed

1.2.3 Land use practices

Operational objective: Prevent and mitigate biodiversity losses due to fragmentation and conversion to other land uses.

Activities of the Parties:

Cross-biome

(i) Implement measures to reduce and prevent key pressures such as deforestation, fragmentation, unsustainable harvesting, inappropriate reforestation or afforestation, human-induced forest fires, overgrazing, inappropriate mining practices and urban expansion resulting in land degradation, degradation of inland water ecosystems, disruption of water flow, and consequent losses of biological diversity.

(ii) Prevent or mitigate the negative impacts of economic development, infrastructure projects and other human-induced disturbances on biological diversity at all levels, where applicable, taking into consideration the results of environmental and social impact assessment, paying particular attention to cumulative impacts.

Specific to a particular biome thematic programme

Mountains

(iii) Develop mechanisms and implement measures to reduce human-induced slope instability, adverse effects of natural geological hazards, and to maintain and/or enhance soil stability and ecosystem integrity by way of a diverse and natural vegetation cover that will also promote soil biodiversity function.

Supporting activities of the Executive Secretary:

Mountains

(vi) Compile, in collaboration with relevant bodies and organizations, and disseminate through the clearing-house mechanism and other means:

(a) Information on degraded mountain ecosystems as well as key threats to mountain biodiversity and their ecological and socio-economic impacts;

(b) Case-studies, lessons learned and best-practice guidance on ways to prevent and mitigate the negative impacts of key threats to mountain biodiversity.

Partners: advice needed

Other collaborators: advice needed

1.2.4 Pollution

Operational objectives: Prevent and mitigate the impacts of pollution in its many forms on biodiversity across all biomes.

Activities of the Parties:

Cross-biome

(i) Identify local and long-range pollution (air, water and soil), which threaten biodiversity at all levels and across all biomes take appropriate measures to prevent and mitigate the impacts.

(ii) Support monitoring programmes that help evaluate the impacts of air, soil and water pollution on ecosystems, and address the impacts of changing environmental conditions on ecosystems.

(iii) Develop and implement measures to prevent and reduce the impact of pollution and waste, also by developing and implementing pollution and waste management plans, including contingency plans, with special attention to solid and hazardous waste (Islands: Activity 7.2.1).

(iv) Implement measures to prevent eutrophication of island coastal ecosystems caused by, *inter alia*, wastewater and agricultural run-off and infiltration (Islands: Activity 7.2.3).

Specific to a particular biome thematic programme

Marine and coastal

(v) Promote action to reduce and control sea-based sources of pollution, seek to protect the marine environment from land-based activities through effective application of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities and other appropriate instruments, including proper coastal land use, watershed planning, and integration of integrated marine and coastal area management into key sectors.

Islands

(vi) See activities 7.2.1.1-7, 7.2.2.1 and 7.2.3.1 in the Island Biodiversity Programme of Work.

Supporting activities of the Executive Secretary: advice needed

Partners: advice needed

Other collaborators: advice needed

1.2.5 Fires

Operational objectives: Prevent and mitigate the adverse effects of fires and fire suppression.

Activities of the Parties:

Cross-biome

(i) Identify policies, practices and measures aimed at addressing the causes and reducing impacts on biological diversity resulting from human-induced uncontrolled/unwanted fires, often associated with land clearing and other land use activities.

(ii) Promote understanding of the role of human-induced fires on ecosystems and on species, and develop prevention plans against devastating fires and integrate them into national plans targeting biological diversity conservation and sustainable use.

(iii) Develop and promote the use of fire management tools for maintaining and enhancing biological diversity, especially when there has been a shift in fire regimes.

(iv) Promote development of systems for risk assessment and early warning, monitoring and control, and enhance capacity for prevention and post-fire biodiversity restoration at the community, national and regional levels.

Supporting activities of the Executive Secretary: advice needed

Partners: advice needed

Other collaborators: advice needed

1.2.6 Threats specific to a particular biome thematic programme

Activities of the Parties:

Marine and coastal

(i) Adopt the use of relevant methods, techniques and practices for avoiding the adverse effects of mariculture on marine and coastal biological diversity, and to incorporate them into national biodiversity strategies and action plans as appropriate, including:

(a) The application of environmental impact assessments, or similar assessment and monitoring procedures, for mariculture developments, with due consideration paid to the scale and nature of the operation, as well as carrying capacities of the ecosystem, taking into account the guidelines on the integration of biodiversity considerations in environmental impact assessment legislation and/or processes and in strategic impact assessment, endorsed by CBD Decision VI/7 A, as well as the recommendations endorsed in CBD Decision VI/10, Annex II, on the conduct of cultural, environmental and social impact assessments regarding developments proposed to take place on, or which are likely to impact on, sacred sites and on lands and waters traditionally occupied or used by indigenous and local communities. There is a need to address the likely immediate, intermediate and long-term impacts on all levels of biodiversity;

(b) Development of effective site-selection methods, in the framework of integrated marine and coastal area management, taking into account the special needs and difficulties encountered by stakeholders in developing countries;

(c) Development of effective methods for effluent and waste control;

(d) Development of appropriate genetic resource management plans at the hatchery level and in the breeding areas, including cryo-preservation techniques, aimed at biodiversity conservation;

(e) Development of controlled low-cost hatchery and genetically sound reproduction methods, made available for widespread use, in order to avoid seed collection from nature, where appropriate. In cases where seed collection from nature cannot be avoided, environmentally sound practices for spat collecting operations should be employed;

(f) Use of selective fishing gear in order to avoid or minimize by-catch in cases where seeds are collected from nature;

(g) Use of native species and subspecies in mariculture;

(h) Implementation of effective measures to prevent the inadvertent release of mariculture species and fertile polyploids, including, in the framework of the Cartagena Protocol on Biosafety, living modified organisms (LMOs);

(i) Use of proper methods of breeding and proper places of releasing in order to protect genetic diversity;

(j) Minimizing the use of antibiotics through better husbandry techniques;

(k) Ensure that fish stocks used for fish meal and fish oil are managed in such a way as to be sustainable and to maintain the trophic web;

(l) Use selective methods in industrial fisheries to avoid or minimize by-catch;

(m) Considering traditional knowledge, where applicable as a source to develop sustainable mariculture techniques.

(ii) Adopt best-management practices and legal and institutional arrangements for sustainable mariculture, taking into account the special needs and difficulties encountered by stakeholders in developing countries, in particular through implementing Article 9 of the Code of Conduct on Responsible Fisheries, as well as other provisions in the Code dealing with aquaculture, recognizing that it provides necessary guidance to develop legislative and policy frameworks at the national, regional and international levels.

(iii) Undertake a comprehensive review of relevant documents on best practices relevant to mariculture, and to disseminate the results, as well as relevant case-studies, through the clearing-house mechanism.

(iv) Facilitate the implementation of the research and monitoring priorities outlined in appendix 5 (of the Marine and coasts thematic programme) in collaboration with FAO and other relevant organizations.

(v) Undertake regional and international collaboration to address transboundary impacts of mariculture on biodiversity, such as the spread of disease and invasive alien species (see also Sub-Programme 2.6).

(vi) Promote adequate protection of areas important for reproduction such as spawning and nursery areas and restoration of such areas and other important habitats for marine and freshwater living resources.

(vii) Promote urgent and special attention and measures in respect to closed and semi-closed seas.

(viii) Take measures to reduce by-catch in fisheries [could also apply to inland waters].

(ix) Identify activities and processes under national jurisdiction or control which may have significant adverse impact on deep seabed ecosystems and species beyond the limits of national jurisdiction, in order to address Article 3 of the CBD.

(x) Pursue the activities relating to coral bleaching and physical degradation and destruction of coral reefs as adopted in Decision VI/3 and as amended in decision VII/5 are contained in appendices 1 and 2 of the Coasts and Marine thematic programme.

Forests

(xi) Develop and promote management methods that restore or mimic natural disturbances such as fire, wind-throw and floods.

Mountains

(xii) Identify factors responsible for and possible measures to prevent the retreat of glaciers in some mountain systems and implement measures to minimize the impact of this process on biodiversity.

Inland waters

(xiii) Use, where appropriate, all available information on dams in order to ensure that biodiversity considerations are fully taken into account in decision-making on large dams.

(xiv) Develop effective management strategies to maintain or improve the sustainability of water-dependent ecosystems, including those identified as most stressed and facilitate a minimum water allocations to the environment to maintain ecosystem functioning and integrity. In so doing, consideration should also be given to the likely impacts of climate change and desertification and suitable mitigation and adaptive management approaches should be factored in.

Islands

(xv) See Activities 8.1.1.1-2, 8.1.2.1-2, 8.1.3.1-2 and 8.2.1.1 in relation to islands and the issue of reducing vulnerability to natural hazards and disasters.

Supporting activities of the Executive Secretary: advice needed

Partners: advice needed

Other collaborators: advice needed

1.3 Protected area systems

Goal: To establish and maintain effectively managed systems of protected areas within the framework of landscape*/seascape management at both the national and, where appropriate, regional levels.

Context and linkages:

Article(s) of the CBD: 8 (a), (b), (c), (d) and (e)

Strategic Plan objective(s): none

Source elements from thematic programmes: Mountains: Goal 1.2; Forests: Goal 3, Objective 3; Inland waters: Goal 1.2; Dry and sub-humid lands: Activity 7(a); Agricultural: none; Coasts and marine: Programme element 3, Operational objectives 3.1, 3.3, 3.4 and 3.5; Islands Goal 1, Target 1.2; Goal 7, Target 7.1

Related cross-cutting programme of work: Protected areas, Article 8(j)

Plan of Implementation of the World Summit: Paragraph 32 (c)

Operational objectives:

(a) Comprehensive, adequate and representative systems of protected areas across all biomes (including all IUCN protected area categories, as appropriate) are developed and maintained within the framework of landscape*/seascape management.

(b) Where appropriate, transboundary and regional collaborative approaches to identifying, recognizing and managing protected areas are undertaken between neighbouring Parties (see also Sub-Programme 2.6).

(c) Effective management of existing and future protected areas occurs through good governance, clear legal or customary frameworks to prevent damaging activities, effective compliance and enforcement, ability to control external activities that affect the protected area, strategic planning, capacity-building and sustainable financing.

(d) Relevant stakeholder and indigenous and local community participation is recognized as an essential component of establishing and managing protected areas (see also Sub-Programme 1.6).

Activities of the Parties:

Cross-biome

1.1.1 Apply across all biomes, and through an integrated cross-biome approach, the programme of work on Protected Areas as endorsed by CBD Decision VII/28.

1.1.2 Identify, and seek to protect sites important for migratory species, working collaboratively with neighbouring or species' range states and, where appropriate, work collaboratively with neighbouring Parties to identify, have formally recognized and managed, transboundary protected areas (see also Sub-Programme 2.6).

1.1.3 Use the clearing-house mechanism to assist the exchange of information on research, management issues and problems (including incentive measures) between protected area managers, to facilitate continuous improvement in management effectiveness across the global network of protected areas.

1.1.4 Provide, as appropriate, to the Executive Secretary, examples of protected-area establishment and management strategies that are supporting the conservation and sustainable use of biodiversity.

1.1.5 — See Activity 1.6.7 below.

1.1.6 Create where feasible viable national systems of protected areas that are resilient to climate change. (Islands: Activity 7.1.2)

1.1.7 — See Activity 2.1.9 — Sub-Programme 2.1 (Protected Area Systems).

1.1.8 Consider ratification or accession to the Convention on Migratory Species and/or its subsidiary agreements (Islands: Activity 1.2.1.7).

1.1.9 Encourage the establishment of transboundary marine protected areas where appropriate, consistent with the United Nations Convention on the Law of the Sea (Islands: Activity 2.1.1.1). See also Sub-programme 2.6.

Specific to a particular biome thematic programme

Inland waters:

1.1.10 Undertake the necessary assessments to identify priority sites for inclusion into a system of protected areas; in particular for inland water ecosystems, apply the guidance on operationalizing Annex I of the CBD and its

harmonized application with the criteria for identifying Wetlands of International Importance under the Ramsar Convention.

1.1.11 In undertaking Activity 1.1.5 above, those Parties to the CBD that are also Parties to the Ramsar Convention should harmonize this work with the development of national networks of wetlands of international importance, which are comprehensive and coherent in line with the Ramsar strategic framework for the future development of the List of Wetlands of International Importance and taking into account ecological connectivity/ and the concept, where appropriate, of ecological networks, in line with the programme of work on protected areas (CBD DecisionVII/28).

Supporting activities of the Executive Secretary:

1.1.12 Review and disseminate relevant information and guidance, including through the clearing-house mechanism, on national and transboundary experiences and case-studies to assist efforts in establishing and maintaining protected areas considering, *inter alia*:

- (a) The range of resource materials and guidance available through the IUCN Commission on Protected Areas;
- (b) The Ramsar Convention strategic framework for the future development of the List of Wetlands of International Importance, and its specific guidance in relation to the identification and designation of certain inland water ecosystem types such as karsts and subterranean hydrological systems, peatland, wet grasslands, etc;
- (c) The new Ramsar guidelines on management planning for Ramsar sites and other wetlands, adopted by the Conference of the Contracting Parties to the Ramsar Convention at its eighth meeting; and
- (d) Advice and guidance available from the UNESCO Man and the Biosphere programme, International Hydrological Programme (IHP) and World Heritage Centre.

1.1.13 In collaboration with the secretariats of the Convention on Migratory Species and the Ramsar Convention identify opportunities for collaborative work on protected area networks for migratory species dependent on inland water ecosystems, through the respective bilateral joint work-plans.

Main partners: Ramsar Secretariat and STRP, CMS secretariat and Scientific Council, UNESCO-MAB, World Heritage Centre, IUCN [it is acknowledged that this is an incomplete list].

Other collaborators: Relevant international, regional and national organizations, interested Parties and stakeholders [it is acknowledged that this could be better articulated].

Footnotes: * = for many Parties river basins may provide a useful scale in order to achieve integrated, 'mountains to the sea' planning and management.

1.4 Sustainable use

Goal: To promote sustainable use of biological diversity.

Context and linkages:

Article(s) of the CBD: 8 (c), (e), (i), 10 (a), (b) & (e)

Strategic Plan objective(s):

Source elements from thematic programmes: Mountains: Goals 1.3 and 1.5; Forests: Goal 1, Objective 4, Goal 4, Objectives 1, 2, 3 & 4; Inland waters: none; Dry and sub-humid lands: Activity 7(d, e, h), Activity 9 (b, c); Agricultural: Programme element 2; Coasts and marine: Operational objectives 2.1, 2.4 & 3.2; Islands: Goal 3, Target 3.1; Goal 4, Targets 4.1, 4.2 and 4.3.

Related cross-cutting programme(s) of work: Sustainable use, Tourism.

Plan of Implementation of the World Summit: none

Operational objectives:

(a) Promote sustainable land-use and water resource management practices in relation to human livelihood needs (agriculture, pastoralism, animal husbandry, forestry, aquaculture, inland water fisheries, etc.), taking into account the CBD principles for sustainable use and the ecosystem approach.

(b) Prevent the loss of biodiversity caused by unsustainable harvesting of biological diversity.

(c) Enable indigenous and local communities to develop and implement adaptive community-management systems to conserve and sustainably use biological diversity (see also Sub-Programme 1.6).

Activities of the Parties:

Cross-biome

1.4.1 Develop, validate and implement sustainable use practices for plants, animals and micro-organisms at the genetic, species, population, community and ecosystem levels.

1.4.2 Support the development of sustainable livelihoods through, *inter alia*:

(a) Promoting sustainable harvesting including of wildlife, as well as ranching, including game-ranching;

(b) Exploring innovative sustainable uses of the biological diversity for local income generation, and promoting their wider application;

(c) Promoting the sustainable use of economically valuable wild plants and animals, as an income-generating activity for the local inhabitants.

1.4.3 Support activities of indigenous and local communities involved in the use of traditional knowledge, in particular concerning sustainable management of biodiversity, soil, water resources etc. (see also Sub-Programme 1.6).

1.4.4 Apply the CBD Guidelines on Biodiversity and Tourism Development and strengthen local capacity for sustainable tourism management, in order to ensure that benefits derived from tourism activities are shared by indigenous and local communities, while preserving natural and cultural heritage values (see also activities 4.2.5.1-4.2.5.7 in the Island Biodiversity Programme of Work).

1.4.5 Encourage implementation of voluntary third-party credible certification schemes that take into consideration relevant biodiversity criteria and that would be audited, taking into consideration indigenous and local community rights and interests.

1.4.6 Set up demonstration sites that illustrate biodiversity conservation and on-ground delivery of goods and services through sustainable management, which are also representative of various types of biomes, themes and regional needs.

1.4.7 Facilitate and support a responsible private sector committed to sustainable harvesting practices and compliance with domestic laws through effective development and enforcement of laws on sustainable harvesting of biodiversity-derived resources (see also Sub-Programme 2.1).

1.4.8 Develop and forward to the Secretariat case-studies and research on the impacts of unsustainable harvesting and related trade.

1.4.9 Remove subsidies that encourage unsustainable use of island biodiversity and, where livelihoods are resource-based, support the development of sustainable economic activities. See also M2C Programme 2.2 (Islands: Activity 4.1.1).

1.4.10 States not yet parties to accede to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and all States implement that convention (Islands: Activity 4.3.1).

1.4.11 Manage trade in those species not covered by CITES to ensure that their wild populations are sustained (Islands: Activity 4.3.3).

1.4.12 Identify and support mechanisms for the restoration of lost germplasm and associated information to communities and countries (Islands: Activity 3.1.1.3).

1.4.13 Support projects of indigenous and local communities to perpetuate and revitalize customary use of wild species and traditional crops and livestock in accordance with traditional cultural practices that are compatible with *in situ* conservation and/or sustainable use requirements (Islands: Activity 3.1.1.4).

Specific to a particular biome thematic programme

Forests

1.4.14 Establish a liaison group with an associated workshop to facilitate development of a joint work-plan with relevant members of the Collaborative Partnership on Forests to bring harvesting of non-timber forest products

(NTFP)s, with a particular focus on bushmeat, to sustainable levels. This group should have a proportionate regional representation, giving special consideration to sub-regions where bushmeat is a major issue and to representation of relevant organizations such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora. The mandate of this group is to:

- i. Consult in a participatory manner with key stakeholders to identify and prioritize major issues relating to the unsustainable harvesting of non-timber forest products, particularly of bushmeat and related products;
- ii. Provide advice on the development of policies, enabling legislation and strategies that promote sustainable use of, and trade in, non-timber forest products, particularly bushmeat and related products;
- iii. Provide advice on appropriate alternative sustainable livelihood technologies and practices for the affected communities;
- iv. Provide advice on appropriate monitoring tools.

1.4.15 Promote projects and activities that encourage the use and supply of alternative sources of energy to prevent forest degradation due to the use of firewood by local communities.

1.4.16 Develop any necessary legislation for the sustainable management and harvesting of non-timber forest resources.

1.4.17 Solicit input from Parties, other countries and relevant organizations on ways and means to encourage and assist importing countries to prevent the entry of unsustainably harvested forest resources, which are not covered by the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and consider this information as a basis for further steps on this issue.

1.4.18 Develop codes of conduct for sustainable forest practices in logging companies and the wood-processing sector to improve biodiversity conservation.

1.4.19 Encourage and support the development and implementation of tracking and chain-of-custody systems for forest products to seek to ensure that these products are legally harvested.

Marine and coastal

1.4.20 Implement the 1995 Code of Conduct for Responsible Fisheries taking note of the relevant FAO international plans of action and technical guidelines.

1.4.21 Eliminate destructive fishing practices, and restore and maintain fisheries stocks to sustainable levels by the year 2015, including through financial assistance to developing countries, in particular small island developing States, for improved enforcement, surveillance and patrolling and recognizing the importance of use of sustainable fishing practices, including traditional fishing practices.

1.4.22 Maintain the productivity and biodiversity of important and vulnerable areas, including areas within and beyond national jurisdiction.

1.4.23 Identify threats to the biological diversity in areas beyond the limits of national jurisdiction, in particular areas with seamounts, hydrothermal vents, and cold-water corals, and certain other underwater features.

1.4.24 Urgently take the necessary short-term, medium-term and long-term measures to eliminate/avoid destructive practices, consistent with international law, on scientific basis, including the application of precaution, for example, consideration, on a case by case basis, of interim prohibition of destructive practices adversely impacting the marine biological diversity associated with marine areas beyond the limits of national jurisdiction, in particular areas with seamounts, hydrothermal vents, and cold-water corals, other vulnerable ecosystems and certain other underwater features.

Islands:

1.4.25 Adopt and apply strategies to sustainably use agro-ecosystems and forests on islands with biodiversity of importance to the ecological integrity of island societies and economies through efficient and sustainable agricultural production, and ensure food security through diversification of agriculture, alternative use of crops, improved husbandry, integrated crop-pest management, irrigation and water management, and the use of appropriate technologies (Activities 4.2.3 and 4.2.4). See also activities 4.2.3.1-6 and 4.2.4.1-6 in the Island Biodiversity Programme of Work.

1.4.26 Sustainable use of marine-based resources — See Activities 4.2.1.1-13 in the Island Biodiversity Programme of Work.

Supporting activities of the Executive Secretary:

Specifically for the marine and coastal biome

1.4.27 Support any work of the United Nations General Assembly in identifying appropriate mechanisms for the future establishment and effective management of marine protected areas beyond national jurisdiction.

1.4.28 Carry out a study on the effects of fish and invertebrate stock enhancement on marine and coastal biological diversity at the species and genetic levels.

Main partners:

Collaborative Partnership on Forests advice needed

Other collaborators: advice needed

1.5 Access and benefit sharing

Goal: To promote access to, and sharing of benefits arising from the utilization of genetic resources related to biological diversity.

Context and linkages

Article(s) of the CBD: 8(j) & 15

Strategic Plan objectives:

Source elements from thematic programmes: Mountains: Goals 1.4 and 1.5; Forests: Goal 5, Objective 1; Inland waters: none; Dry and sub-humid lands: Activities 9 (e); Agricultural: See Programme 15; Coasts and marine: none; Islands: Goal 3, Target 3.1; Goal 10, Targets 10.1 and 10.2

Related cross-cutting programme(s) of work: Access to genetic resources and benefit-sharing, Article 8(j)

Plan of Implementation of the World Summit: none

Operational objectives:

(a) Promote the fair and equitable sharing of benefits resulting from the utilization of genetic resources.

(b) Maintain genetic diversity in particular through the preservation and maintenance of traditional knowledge and practices (see also Sub-Programme 1.6).

Activities of the Parties:***Cross-biome***

1.5.1 Based on the Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization, as adopted by the Conference of the Parties at its sixth meeting:

- a. Establish mechanisms to facilitate the sharing of benefits at local, national, regional and global levels.
- b. Strengthen capacity of indigenous and local communities to negotiate benefit-sharing arrangements.
- c. Promote dissemination of information about benefit-sharing experiences through the clearing-house mechanism and appropriate means at the local level.

1.5.2 Develop methods to assess and conserve genetic resources of high economic value for promoting fair and equitable sharing of benefits, respecting national legislation on access to genetic resources.

1.5.3 Develop, with the full and effective participation of indigenous and local communities, processes and mechanisms to facilitate the return of genetic resources held in *ex situ* collections to their ecosystems of origin, with the view to assisting *in situ* conservation initiatives of indigenous and local communities (Islands: Activity 3.1.1.5).

1.5.4 Develop a mechanism that enables and facilitates the development of regional gene banks/genetic resources centres to serve those islands that lack the resources and infrastructure to establish and maintain gene banks (Islands: Activity 3.1.2.2).

1.5.5. Ensure the placement of gene banks/genetic resources centres in least vulnerable areas and where possible, maintain stocks in duplicate sites (Islands: Activity 3.1.2.2).

Specific to a particular biome programme of work

Agricultural biodiversity

1.5.6 Assess and develop strategies aimed at minimizing the threat of genetic erosion on domesticated biodiversity (crops, animals) and wild relatives, paying particular attention to the centres of origin of the genetic resources.

Marine and coastal

1.5.7 See Sub-Programme 3.3, Activity 3.3.5.

Forests

1.5.8 Develop, harmonize and assess the diversity of forest genetic resources, taking into consideration the identification of key functional/keystone species populations, model species and genetic variability at the deoxyribonucleic acid (DNA) level.

1.5.9 Select, at a national level, the most threatened forest ecosystems based on the genetic diversity of their priority species and populations and develop an appropriate action plan in order to protect the genetic resources of the most threatened forest ecosystems.

1.5.10 Improve understanding of patterns of genetic diversity and its conservation *in situ*, in relation to forest management, landscape-scale forest change and climate variations.

1.5.11 Develop national legislative, administrative policy measures on access and benefit-sharing on forest genetic resources, taking into account the provisions under Articles 8(j), 10(c), 15, 16 and 19 of the CBD and in conformity with future decisions of the Conference of the Parties, as appropriate.

1.5.12 Monitor developments in new biotechnologies and ensure their applications are compatible with the objectives of the CBD with respect to forest biological diversity, and develop and enforce regulations for controlling the use of genetically modified organisms (GMOs) when appropriate.

1.5.13 Develop a holistic framework for the conservation and management of forest genetic resources at national, sub-regional and global levels.

1.5.14 Implement activities to ensure adequate and representative *in situ* conservation of the genetic diversity of endangered, overexploited and narrow endemic forest species and complement the *in situ* conservation with adequate *ex situ* conservation of the genetic diversity of endangered, overexploited and narrow endemic species and species of economic potential.

Islands

1.5.15 Establish administrative, legislative and/or regulatory measures and systems in line with the CBD to ensure access to genetic resources, in particular those endemic to islands, and ensure that benefits arising from their utilization are fairly and equitably shared (Activity 10.2.1).

Supporting activities of the Executive Secretary

1.5.16 Compile, with the assistance of SBSTTA and the Expert Panel, and disseminate, studies on sharing of benefits arising from the utilization of genetic resources.

Main partners: Advice needed.

Other collaborators: Relevant international, regional and national organizations and interested Parties.

1.6 Participation by local and indigenous communities and application of traditional knowledge

Goal: To respect, understand and support the traditions and sustainable practices of the indigenous and local communities in ways which accommodate their needs, participation, knowledge and practices for conservation and sustainable use of biodiversity.

Context and linkages:

Article(s) of the CBD: 8(j), 10 (c) and (d)

Strategic Plan objectives: 4.1, 4.4

Source elements from thematic programmes: Mountains: Goals 1.5 and 2.2; Forests: none; Inland waters: Goal 2.5; Dry and sub-humid lands: none; Agricultural: Programme element 3; Coasts and marine: none; Islands: Goal 1, Target 1.1; Goal 9, Targets 9.1 and 9.2

Related cross-cutting programme of work: Article 8(j), Access to genetic resources and benefit-sharing

Plan of Implementation of the World Summit: paragraphs 7(c), 24, 40 (b), (d) and 66 (a)

Operational objectives:

(a) Taking into account Article 8(j) of the CBD and related decisions from the Conference of the Parties and programmes of work, respect, preserve and maintain indigenous knowledge, practices, processes and technologies to ensure conservation, sustainable use of biodiversity and sharing of benefits.

(b) Encourage participation by relevant stakeholders, including representatives of indigenous and local communities, in the policy-making and in the planning, implementation and monitoring of the implementation of this cross-biome programme of work, and related thematic and cross-cutting programmes.

(c) Strengthen the capacities of stakeholder, communities and civil society organizations to manage biodiversity so as to increase the benefits they derive from its conservation and sustainable use, and to promote increased awareness and responsible action.

Activities of the Parties:

Cross-biome

1.6.1 Implement provisions contained in Article 8(j) on traditional knowledge and related provisions and guidance of the CBD, taking into consideration the needs of developing countries.

1.6.2 Promote networking, collaborative action and participation of indigenous and local communities in decision-making processes, paying particular attention to the empowerment of women, in order to maintain biodiversity and its sustainable use.

1.6.3 Implement capacity-building measures to facilitate the participation of indigenous and local communities and the application of traditional knowledge favourable to the conservation of biodiversity, with their prior informed consent, in accordance with national laws, in the management, conservation and sustainable use of biological diversity.

1.6.4 Encourage decentralization and enhance access to information for the full participation and involvement of indigenous and local communities in decisions that affect them in relation to biodiversity conservation and sustainable use across all biomes.

1.6.5 Promote the implementation of activities aimed at the improvement of livelihoods, poverty reduction and the maintenance of cultural identity, in order to achieve sustainable use of biological diversity.

1.6.6 — See activity 3.1.5(a), Sub-Programme 3.1 — Status and trends.

1.6.7 Identify and establish, as appropriate, comprehensive, representative, and effectively managed national and regional systems of protected areas taking into account issues of resilience, ecological and physical connectivity to conserve viable populations of threatened, endemic, and ecologically or culturally important species. This should be done with the full respect for the rights of indigenous and local communities and relevant stakeholders and their full and effective participation, consistent with national law and applicable international obligations. (Islands: Activity 1.2.1)

1.6.8 Facilitate participatory workshops on conservation legislation for all relevant stakeholders to develop long-term local support and commitment to compliance (Islands: Activity 1.1.1.4).

Supporting activities of the Executive Secretary:

1.6.9 Promote the implementation of the cross-biome programme of work and decisions of the Conference of the Parties on Article 8 (j) and related provisions.

Main partners: FAO and other relevant organizations [it is acknowledged that this is an incomplete list].

Other collaborators: Advice needed.

Programme element 2. Institutional and socio-economic enabling environment

2.1 Institutions, plans, policies, programmes and laws

Goal: To enhance the institutional enabling environment through promoting the integration of conservation and sustainable use of biological diversity into relevant sectoral and cross-sectoral plans, programmes, policies and legislation

Context and linkages

Article(s) of the CBD: 6(a) & (b), 14.1 (b)

Strategic Plan objective(s): 1.5, 3.1, 3.3, 3.4

Source elements from thematic programmes: Mountains: Goal 2.1; Forests: Goal 1, Objectives 2, 3 & 4; Inland waters: Goal 2.1; Dry and sub-humid lands: Activity 7(m), Activity 8 (a, b, c, e); Agricultural: Programme element 4; Coasts and marine: Operational objectives 6.2; Islands: Goal 1, Targets 1.1 and 1.2; Goal 5, Target 5.1; Goal 8, Target 8.1; Goal 10, Target 10.1; Goal 11, Targets 11.1 and 11.3

Related cross-cutting programme(s) of work: All

Plan of Implementation of the World Summit: paragraphs 32 (e) and 40 (b).

Operational objectives:

(a) All relevant sectoral plans, programmes, policies and legislation are compatible with and, where appropriate, supportive of, plans, policies, programmes and laws for the conservation and sustainable use of the biological diversity.

(b) Strategic environmental assessments are operating to ensure national institutional arrangements (plans, programmes, policies and legislations) are supporting the implementation of the CBD (see also Sub-Programme 2.3).

(c) National implementation of relevant global and regional multilateral environmental agreements related to the conservation and sustainable use of biodiversity ecosystems is taking place in an integrated, efficient and effective way.

(d) Capacity-building is taking place aimed at seeing implementation of the CBD mainstreamed across the government and business sectors and within civil society.

Activities of the Parties:

Cross-biome

2.1.1 Undertake reviews and introduce reforms to policies, legal and administrative frameworks as necessary, in order to integrate the conservation and sustainable use of biodiversity across all biomes into the mainstream of Government, business, and societal decision-making.

2.1.2 Evaluate and reform, as required, legislation to include clear definition of illegal harvesting activities, establish effective deterrents and build capacity for effective law enforcement.

2.1.3 Apply (as urged by CBD Decision VI/7) the guidelines for incorporating biodiversity related issues into environmental impact assessment legislation and/or processes and in strategic environmental assessment (see also Sub-Programme 2.3).

2.1.4 Promote responsible resource management through an enabling policy environment, including, for example:

(a) Strengthening of appropriate national and local institutional structures for resource management, supporting indigenous and local techniques of resource use that enable conservation and sustainable use in the long-term, and/or combining appropriate existing institutions and techniques with innovative approaches to enable synergies;

(b) Decentralization of management to the lowest level, as appropriate, keeping in mind the need for common resource management and with due regard for, *inter alia*, the involvement of indigenous and local communities in planning and managing projects;

(c) Creating or strengthening appropriate institutions for land tenure and conflict resolution.

(d) Proactive planning and adaptive measures to reduce the vulnerability to both natural and human-induced hazards adversely impacting on biological diversity, cultural landscapes and local communities.

(e) In consultation with all relevant stakeholders, resolving land tenure and resource rights and responsibility, including for indigenous and local communities, in order to promote the conservation and sustainable use of biodiversity.

2.1.5 Develop performance indicators and report on the integration of conservation and sustainable use of biological diversity into institutional programmes, including sectoral policies, legal and economic frameworks.

2.1.6 Review institutional arrangements (policies, strategies, focal points and national reporting approaches) for national implementation of relevant global and regional multilateral environmental agreements and introduce reforms to streamline and, where appropriate, integrate implementation.

2.1.7 — See Activity 1.5.12 — Sub-Programme 1.5 (Access and Benefit-Sharing).

2.1.8 Develop and strengthen partnerships at all levels and across sectors to finance the implementation of national biodiversity strategies and action plans (Islands: Activity 11.1.1).

2.1.9 Where national biodiversity strategies and action plans (NBSAPs) do not exist or are not inclusive of protected areas, prepare and implement management and conservation plans for protected areas and micro-reserves, including community-based management plans (Islands: Activity 1.2.1.1).

2.1.10 Provide the Executive Secretary with case-studies and information on lessons learned from policy, legal and institutional review and reform processes relating to biodiversity and ecosystems, including measures taken to harmonize national implementation of the relevant multilateral environment agreements.

2.1.11 Ratify or accede to, and implement, the UN Convention on the Law of the Non-Navigational Uses of International Watercourses (CBD Decision VIII, item 22).

Specific to a particular biome thematic programme

Islands

2.1.11 Mainstream the management of the risks of natural disasters and extreme events to island biodiversity and communities into the national planning process (Islands: Activity 8.1.3).

2.1.12 Promote and implement “whole island” or “ridge-to-reef” planning and legislation/regulations to anticipate and prevent cumulative impacts from incremental development (Activity 5.1.1.8).

2.1.13 See Activities 11.3.1.1-7 in the Island Biodiversity Programme of Work.

Supporting activities of the Executive Secretary:

2.1.14 Identify and make available to Parties, guidance, case-studies and lessons learned, including those relating to the practical application of strategic environmental assessment, to assist in reviewing and fine-tuning institutional frameworks (plans, programmes, policies and legislations) for the conservation and sustainable use of biological diversity.

2.1.15 Continue to support and participate in the WCMC-led project on harmonizing information management between the five biodiversity related conventions (CBD, Ramsar Convention, CITES, CMS and the World Heritage Convention).

2.1.16 Strengthen collaboration and synergies between the work programmes of the CBD and other global conventions and agreements on climate change, desertification, transboundary pollution, invasive alien species, wetlands, migratory and endangered species, including through joint programmes of work.

2.1.17 Together with other relevant multilateral environmental agreements and interested Parties, seek the resources to establish working models (demonstration sites) show-casing the collaborative implementation of activities to achieve the complementary objectives of several multilateral environmental agreements.

Main partners: International Association for Impact Assessment (IAIA), Ramsar Secretariat and STRP, UNFCCC, UNCCD, CITES, CMS, World Heritage, UNESCO MAB, WCMC [it is acknowledged that this is not a complete list].

Other collaborators: International Water Management Institute (IWMI), other relevant international, regional and national organizations, interested Parties and other stakeholders [it is acknowledged that this is not a complete list].

2.2 Incentives, economic instruments and issues

Goal: To provide the appropriate incentives and valuation measures to support the conservation and sustainable use of biological diversity across all biomes, and to remove, or reform appropriately, any perverse incentives or socio-economic distortions and failures opposing such conservation and sustainable use.

Context and linkages:

Article(s) of the CBD: 11

Strategic Plan Objectives:

Source elements from thematic programmes: Mountains: none; Forests: Goal 2, Objective 1; Inland waters: Goal 2.3; Dry and sub-humid lands: Activities 7 & 9; Agricultural: none; Coasts and marine: none; Islands: Goal 4, Target 4.1; Goal 11, Target 11.1

Related cross-cutting programme(s) of work: Economics, trade and incentives measures

Plan of Implementation of the World Summit: Articles 26(b) and 40(k)

Operational objectives:

(a) Apply the proposals for the design and implementation of incentive measures (as endorsed by CBD Decision VI/15 and contained in Annex I of that decision).

(b) Encourage valuation of the full range of goods and services provided by biological diversity across all biomes in development proposals and with respect to applying incentive measures, as well as identify and remove or modify perverse incentives.

(c) Across all biomes, mitigate the economic failures and distortions that lead to decisions that result in loss of biological diversity.

(d) Establish alternative sustainable income generation programmes.

Activities of the Parties:

Cross-biome

2.2.1 Apply across all biomes the proposals for the design and implementation of incentive measures, including identification and removal or mitigation of perverse incentives, as endorsed by CBD Decision VI/15 and taking into account land-tenure systems. In particular:

(a) Review the range and effectiveness of national incentives, subsidies, regulations, and other relevant financial mechanisms, which can affect biodiversity, whether adversely or beneficially;

(b) Redirect, as appropriate, financial support measures that run counter to the objectives of the CBD regarding the conservation and sustainable use of biological diversity;

(c) Implement targeted incentive and regulatory measures that have positive impacts on biological diversity;

(d) Develop the policy research capacity needed to inform the decision-making process in a multidisciplinary and sectorally integrated manner; and

(e) Encourage the identification of the interdependence between conservation and sustainable use of biological diversity and sustainable development;

See also 'Options for the application of tools for valuation of biodiversity and biodiversity resources and functions,' as annexed to CBD Decision VIII/25.

2.2.2 In accordance with CBD Decision VI/15, submit to the Executive Secretary case-studies, lessons learned and other information on positive or perverse incentives, land-use practices and tenure relating to biodiversity conservation and sustainable use. Include within this submission national experiences and guidance in relation to property and water rights, markets and pricing policies.

2.2.3 Develop mechanisms to ensure that monetary and non-monetary costs and benefits of biodiversity management are equitably shared between stakeholders at all levels.

2.2.4 Undertake comprehensive valuations of the goods and services of biodiversity and ecosystems across all biomes, including their intrinsic, aesthetic, cultural, socio-economic and other values, in all relevant decision-making across the appropriate sectors. Test and disseminate these methods with the assistance of the Executive

Secretary.

2.2.5 Develop methodologies for assigning value to the ecological services provided by land management systems in order to develop economic-incentive mechanisms for compensating poor and vulnerable communities.

2.2.6 Incorporate biological diversity and other ecosystem values into national accounting systems and seek to estimate such figures for subsistence economies.

2.2.7 Develop alternative sustainable income generation programmes and facilitate self-sufficiency programmes of indigenous and local communities.

2.2.8 Remove subsidies that encourage unsustainable use of biodiversity and where livelihoods are resource-based, support the development of sustainable economic activities (Islands: Activity 4.1.1).

2.2.9 Assess and establish conservation trust funds (including national biodiversity trust funds), debt-for-nature swaps, user fees, payments for ecosystem services, and other instruments, including national funding of biodiversity conservation and sustainable use (Islands: Activity 11.1.3.1).

Supporting activities of the Executive Secretary:

2.2.10 Compile and disseminate studies on valuation of ecosystem goods and services; and identify ways and means to further integrate the use of economic valuation into national plans, programmes and policies as a core component of policy reform.

2.2.11 In collaboration with key partners such as OECD, International Association for Impact Assessment (IAIA), IUCN, WWF, the Ramsar STRP and Secretariat and relevant stakeholders, the Executive Secretary should compile information on relevant guidance, resource kits and other information on incentive measures, including that relating to the development of incentives options through property and water rights, markets, pricing policies and land use and tenure. More specifically, he may wish to:

(a) Compile and disseminate case-studies and best practices on the use of incentive measures for the management of ecosystem goods and services across all biomes;

(b) Further explore the respective advantages and disadvantages of tax/charge approaches as well as their interaction, including the identification of institutional requirements, possible shortcomings and limitations;

(c) Identify ways and means to further integrate the use of incentive measures into landscape/seascape and river basin-scale plans, programmes and policies, including opportunities for the removal or mitigation of perverse incentives;

(d) Further monitor recent discussions on incentive measures with a view to identifying other measures of specific use for the sustainable management of ecosystems.

Main partners: Secretariat and STRP of the Ramsar Convention on Wetlands, IUCN, WWF, IWMI [it is acknowledged that this is an incomplete list].

Other collaborators: Relevant international, regional and national organizations and interested Parties [it is acknowledged that this is an incomplete list].

2.3 Impact assessment

Goal: To ensure projects and actions with the potential to impact negatively on biological diversity are subjected to suitably rigorous impact assessments, including consideration of their potential impact on sacred sites and on lands and waters traditionally occupied or used by indigenous and local communities.

Context and linkages:

Article(s) of the CBD: 14 (a), (b) and (e)

Strategic Plan objectives: none

Source elements from thematic programmes: Mountains: none; Forests: none; Inland waters: Goal 3.3; Dry and sub-humid lands: none; Agricultural: none; Coasts and marine: none; Islands: Goal 5, Target 5.1

Related cross-cutting programme(s) of work: Article 8(j), Impact assessment

Plan of Implementation of the World Summit: none

Operational objectives:

(a) Undertake environmental impact assessments, in accordance with national legislation and where appropriate,

for all projects with the potential to impact on biological diversity, ensuring that these take into account the "inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse" (see also Sub-Programme 2.1).

(b) Conduct cultural, environmental, and socio-economic impact assessments, in accordance with national legislation and where appropriate, regarding developments proposed to take place on, or which are likely to impact on, sacred sites and on lands and waters traditionally occupied or used by indigenous and local communities, in accordance with section VII/16 of the Akwé: Kon Voluntary Guidelines for the Conduct of Cultural, Environmental and Social Impact Assessment Regarding Developments Proposed to Take place on, or which Are Likely to Impact on, Sacred Sites and on Lands and Waters Traditionally Occupied or Used by Indigenous and Local Communities.

Activities of the Parties:

Cross-biome

2.3.1 Adopt, adapt to national circumstances as necessary and apply the Voluntary guidelines on Biodiversity-Inclusive Environmental Impact Assessment (CBD Decision VIII/28).

2.3.2 Apply, where appropriate, the Akwé: Kon Voluntary Guidelines for the Conduct of Cultural, Environmental, and Social Impact Assessment Regarding Developments Proposed to Take Place on, or which are Likely to Impact on, Sacred Sites and on Lands and Waters Traditionally Occupied or used by Indigenous and Local Communities

2.3.3 See relevant activities under Sub-Programme 2.6 — Transboundary and regional cooperation.

2.3.4 Develop and apply environmental and socio-economic impact assessment methods prior to land-use conversion such as for agriculture, human settlements, mining, logging, infrastructure development, and tourism and military activities (Islands: Activity 5.1.2).

Specific to a particular biome thematic programme

Inland waters

2.3.5 Incorporate, where appropriate, environmental flow assessments into impact assessment processes for any projects with the potential to have negative effects, and also undertake baseline ecosystem assessments in the planning phase to ensure that the necessary basic data will be available to support the environmental impact assessment process and the development of effective mitigation measures if necessary.

Supporting activities of the Executive Secretary:

2.3.6 Collaborate with the International Association for Impact Assessment (IAIA) and other relevant organizations to contribute to the implementation of CBD Decision VI/7 A on further development and refinement of the guidelines, particularly to incorporate all stages of the environmental impact assessment processes taking into account the ecosystem approach.

2.3.7 Compile and make available information on impact assessment and other methodologies that address biological diversity issues across all biomes and in an adaptive management framework.

Main partners: IAIA, Ramsar Convention Secretariat and STRP, IUCN, Conservation International [it is acknowledged that this is an incomplete list].

Other collaborators: Other relevant international, regional and national organizations, interested Parties and stakeholders [it is acknowledged that this is an incomplete list].

2.4 Communication, education and public awareness

Goal: To increase public understanding and awareness of the importance of biodiversity conservation and sustainable use.

Context and linkages:

Article(s) of the CBD: 13 (a, b).

Strategic Plan Objectives: 4.1.

Source elements from thematic programmes: Mountains: Goal 3.5; Forests: Goal 3, Objective 1; Inland waters: Goal 2.4; Dry and sub-humid lands: Activities 6 & 7; Agricultural: none; Coasts and marine: none; Islands: Goal 6, Target 6.2; Goal 11, Target 11.3.

Related cross-cutting programme of work: Communication, education and public awareness, Article 8(j), Biological diversity and tourism.

Operational objectives:

- (a) Public support and understanding of the value of biological diversity and its goods and services increases.
- (b) Comprehensive and well-targeted national programmes for communication, education and public awareness for the conservation and sustainable use of biological diversity are put in place and operate effectively.
- (c) Key national landscape*/seascape scale and local-level decision-makers and stakeholders are identified and appropriate communication mechanisms are established between them.

Activities of the Parties:

Cross-biome

2.4.1 Implement, within an integrated landscape*/seascape management framework, the Global Initiative on Communication, Education and Public Awareness (CEPA), contained in CBD Decision VI/19, as well as the Short-List of priority activities for CEPA, as contained in CBD Decision VIII/6 (Annex II).

2.4.2 Further to Activity 2.4.1, increase the dissemination of knowledge on upland-lowland interactions and on components of interdependence, and the importance of ecological corridors, hydrological connectedness etc.

2.4.3 Consistent with the Programme of Work on Article 8(j) and related provisions, undertake suitable initiatives to enhance awareness of the knowledge held by indigenous and local communities and the appropriate procedures, such as prior informed consent, for accessing such knowledge, in accordance with national legislation on access to traditional knowledge.

2.4.4 Further promote the education of women and their role in the conservation and dissemination of traditional knowledge.

2.4.5 Review, and as necessary reform, formal educational curricula to ensure they are operating to inform and educate about the conservation and sustainable use of biological diversity.

2.4.6 Encourage the implementation of sustainable tourism activities aimed at increasing biodiversity-related awareness, respect and knowledge, including knowledge of the local, natural and cultural landscapes.

2.4.7 Enhance awareness among policy-makers and planners on the importance and contribution of ecosystems in poverty eradication programmes;

2.4.8 Promote consumer awareness about sustainably produced biodiversity products.

2.4.9 In undertaking the above activities, identify case-studies and best practices and provide them to the Executive Secretary to be made available to other Parties.

2.4.10 Provide mechanisms for disseminating research findings to all relevant stakeholders, in a form which will be most useful to them. Make this same information available to the Executive Secretary for sharing with other Parties (see also Sub-Programme 3.2).

2.4.11 — See Activity 3.1.10, Sub-Programme 3.1 — Status and trends.

Specific to a particular biome thematic programme

Inland waters

2.4.12 Ensure effective working linkages between CBD and Ramsar Convention focal points (Government and non-Government) for purposes of wetlands communication, education and public awareness, including the amalgamation, at a national level, of communication, education and public awareness (CEPA) programmes under both conventions.

Islands

2.4.13 See Activities 6.1.1.1-7, 6.1.2.1-4, 6.1.3.1-10, 6.2.1.1-8, and 6.2.2.1-4 in the Island Biodiversity Programme of Work.

2.4.14 See Activities 11.3.3.1-9 in the Island Biodiversity Programme of Work.

Supporting activities of the Executive Secretary:

2.4.15 In collaboration with key partners and collaborators, review the Global Initiative on Communication,

Education and Public Awareness, as well as develop and make available guidance for Parties on how best to promote its application for supporting this cross-biome programme of work.

2.4.16 Pursuant to Activity 2.4.9, make available to Parties case-studies, advice on best practice approaches, and other sources of information and expertise in the field of communication, education and public awareness.

Main partners: UNEP, UNESCO, Ramsar Secretariat and CEPA Working Group, IUCN, Wetlands International [it is acknowledged that this is an incomplete list].

Other collaborators: Ramsar national focal points for communication, education and public awareness, other multilateral environmental agreements, relevant international, regional and national organizations and donor agencies [it is acknowledged that this is an incomplete list].

Footnotes: * = for many Parties river basins may provide a useful scale to achieve integrated, 'mountains to the sea' planning and management.

2.5 Innovative and appropriate technologies

Goal: To encourage the development, validation, application and transfer of appropriate technologies, including indigenous technologies in accordance with Article 8(j) of the CBD and related provisions.

Context and linkages:

Article(s) of the CBD: 5, 8(m), 14 (c, d), 16, 17, 18, 19.

Strategic Plan objective(s): 2.3.

Source elements from thematic programmes: Mountains: Goal 3.6; Forests: Goal 4; Inland waters: Goal 2.2; Dry and sub-humid lands: Activity 7; Agricultural: none; Coasts and marine: Operational Objective 3.4 Action (c); Islands: Goal 1, Target 1.1; Goal 11, Target 11.2.

Related cross-cutting programme of work: Article 8(j), Technology Transfer and Cooperation.

Plan of Implementation of the World Summit: Paragraphs 9(e), 10(a), 25(a, c, d), 26(e, f), 28, 41(a), 54 (l).

Operational objectives:

(a) Promote the development, validation, documentation and transfer of appropriate technologies and approaches to the conservation and sustainable use of biological diversity across all biomes.

(b) Apply, as appropriate, the technologies and approaches identified and made available in response to the above objective and, in relation to indigenous technologies, ensure this is done in accordance with Article 8(j) of the CBD and related provisions.

Activities of the Parties:

Cross-biome

2.5.1 Implement the programme of work on technology transfer and cooperation, as established by CBD Decision VII.29.

2.5.2 Encourage the development of preventative strategies (e.g., cleaner production; continual environmental improvement; corporate environmental reporting; product stewardship; and environmentally sound technologies to avoid degradation and promote maintenance, and, where applicable, restoration of biological diversity and ecosystems).

2.5.3 Develop and implement appropriate techniques and guidelines through reviewing and monitoring restoration projects globally (Islands: Activity 1.1.2.1).

2.5.4 Make available to the Executive Secretary information on appropriate technologies and effective approaches for the conservation and sustainable use of biodiversity for transfer to other Parties.

Specific to a particular biome thematic programme

Inland waters

2.5.5 In relation to inland water ecosystem specifically: a) encourage the use (i) of low-cost (appropriate) technology, (ii) of non-structural and innovative approaches and (iii), where appropriate and through prior informed consent, in accordance with national laws, of traditional or indigenous practices for assessing inland water biodiversity meeting watershed management goals (e.g., using wetlands to improve water quality; using forests and wetlands to recharge groundwater, to maintain the hydrological cycle, and to protect water supplies; using natural floodplains to prevent flood damage; and b) use, whenever possible, indigenous species for aquaculture.

Islands

2.5.6 Identify and develop or transfer knowledge, science and technology appropriate to islands for the conservation and sustainable use of island biodiversity (Islands: Activity 11.2.1).

2.5.7 Develop island-based technology to support conservation and sustainable use of biodiversity (Islands: Activity 11.2.2).

2.5.8 See Activities 11.2.1.1-6, 11.2.2.1-3 in the Island Biodiversity Programme of Work.

Supporting activities of the Executive Secretary:

2.5.9 Through the CBD Clearing-House Mechanism, make available to Parties information on appropriate technologies and approaches to the conservation and sustainable use of the biological diversity.

2.5.10 Through partnerships with relevant organizations, seek to provide Parties with access to the latest technologies and innovative management approaches developed by the private sector and others, especially in relation to landscape/seascape and river basin level planning and management approaches.

Main partners: Advice needed.

Other collaborators: Relevant international, regional, and national organizations, interested Parties and stakeholders.

2.6 Transboundary and regional collaboration

Goal: To establish regional and transboundary collaborative arrangements and agreements for the conservation and sustainable use of shared biological diversity, biomes and ecosystems.

Context and linkages:

Article(s) of the CBD: none.

Strategic Plan objective(s): 1.6.

Source elements from thematic programmes: Mountains: Goal 2.3; Forests: none; Inland waters: Activity 3.3.3; Dry and sub-humid lands: Activities 7(l, m), 8(d); Agricultural: none; Coasts and marine: Operational Objectives 6.2; Islands: Goal 6, Target 6.1; Goal 11, Target 11.3.

Related cross-cutting programme of work: none.

Plan of Implementation of the World Summit: none.

Operational objectives: Promote integrated, transboundary cooperation and strategies for conservation and sustainable use activities on shared biological diversity, biomes and ecosystems through mutually agreed-upon arrangements by the countries concerned.

Activities of the Parties:

Cross-biome

3.6.1 Pursue cooperative planning and management arrangements between Parties, covering appropriate and agreed priorities, such as in relation to the following thematic issues: landscape, soil, wetland, watershed, rangelands, mining, protected areas and wildlife management, agriculture, pastoralism, forestry, transportation, energy and tourism.

3.6.2 — See Activities 1.1.2 and 1.1.9 in relation to Protected Areas.

3.6.3 — See Activity 3.2.3, Sub-Programme 3.2 — Research efforts.

3.6.4 — See Activity 3.1.2, Sub-Programme 3.1 — Status and trends.

3.6.5 — See Activity X, Sub-Programme 1.2.1 — Invasive alien species.

3.6.6 Collaborate to identify and address pathways for movement of invasive alien species at the island, national, regional and global levels (Islands: Activity 6.1.2).

Specific to a particular biome thematic programme

Inland waters

3.6.7 Promote and strengthen regional and transboundary cooperation for research, adaptive management, fair and appropriate allocation of shared water resources to ecosystems, and exchange of expertise to improve the conservation and management of biodiversity.

3.6.8 For transboundary inland water ecosystems, undertake, where feasible and appropriate and by agreement between the Parties concerned, collaborative impact and environmental flow assessments when applying the CBD Guidelines for Incorporating Biodiversity-Related Issues into Environmental Impact Assessment Legislation and/or Processes and in Strategic Environmental Assessment.

Supporting activities of the Executive Secretary: Advice needed.

Main partners: Advice needed.

Other collaborators: Advice needed.

Programme element 3. Knowledge, assessment and monitoring

3.1 Status and trends — assessments and monitoring

Goal: To develop an improved understanding of the status and trends of biological diversity across all biomes, including the threats having a negative impact on the conservation and sustainable use of biological diversity.

Context and linkages

Article(s) of the CBD: 7(a, b, c), 12, 17

Strategic Plan objectives:

Source elements from thematic programmes: Mountains: none; Forests: Goal 2, Objective 1; Inland waters: Goal 2.3; Dry and sub-humid lands: Activities 7, 9; Agricultural: none; Coasts and marine: none; Islands: Goal 1, Target 1.1, Goal 2, Target 2.2; Goal 11, Target 11.3.

Related cross-cutting programme of work: Indicators, GTI.

Plan of Implementation of the World Summit: Paragraph 66 (c).

Operational objectives:

(a) An improved understanding of the biodiversity status and trends across all biomes, as well as of its uses, taxonomy, and threats, based on inventories, rapid and other assessments, and monitoring, applied at the regional, national, and local levels.

(b) To achieve a harmonized global to regional, biome by biome, classification system, based on agreed and accepted definitions and addressing key biological diversity elements.

(c) Rapid assessments using suitable indicators, being undertaken for biodiversity, in particular in small island developing States and States where ecosystems suffer from ecological disasters. Urgent provision of support to the development and implementation of national strategies for the prevention and mitigation of ecological disasters.

(d) Monitoring programmes established and maintained to detect changes in the status and trends of biodiversity across all biomes, paying particular attention to those requiring urgent conservation measures and those which offer the greatest potential for sustainable use.

(e) National capacity-building underway for undertaking the above-mentioned assessments.

Activities of the Parties:

Cross-biome

3.1.1 Applying the priorities set down in national biodiversity strategies and action plans, undertake comprehensive national inventories and assessments of biological diversity, which may be regarded as important in accordance with the terms of Annex I of the CBD.

3.1.2 In conjunction with 3.1.1 above, undertake assessments of threatened habitats and species. The transboundary nature of many biomes should be fully taken into account in assessments, and it may be appropriate for relevant regional and international bodies to contribute to such assessments (see also Sub-Programme 2.6).

3.1.3 Identify the most cost-effective approaches and methods to describe the status, trends and threats of all

biomes and indicate their condition in functional as well as species terms.

3.1.4 Promote and develop specific assessments of additional components of biodiversity that provide ecological services. This might include targeted assessments on priority areas (for example, loss of pollinators, pest management and nutrient cycling).

3.1.5 Adopt an integrated approach in the assessment, management and, where possible, remedial actions of linked biomes, notably, inland waters, associated terrestrial and in-shore marine ecosystems. It should be noted that:

(a) Assessments (i) should involve all stakeholders, including indigenous and local communities, (ii) should be cross-sectoral, and (iii) should make full use of indigenous knowledge based on prior informed consent (see also Sub-Programme 1.6);

(b) Suitable organisms should be identified as being particularly important in the assessment of biodiversity. Ideally, such groups (taxa) should meet the following criteria:

- (i) The group should contain a reasonable number of species with varied ecological requirements;
- (ii) The taxonomy of the group should be reasonably well understood;
- (iii) The species should be easy to identify;
- (iv) The group should be easy to sample or observe so that density—absolute or as indices—can be assessed, used objectively, and treated statistically;
- (v) The group should serve as an indicator of overall ecosystem health or an indicator of the development of a key threat to ecosystem health;

(c) In view of the great economic importance of some groups (e.g., inland water fish species and aquatic macro-invertebrates), and of the large gaps in taxonomic knowledge for many species, capacity-building in taxonomy should focus on biodiversity of economic as well as ecological importance.

3.1.6 Apply the Rapid Assessment Guidelines for National Circumstances and adapt these as necessary to suit current and emerging priorities. In accordance with SBSTTA Recommendation II/1, endorsed by CBD Decision III/10, assessments should be simple, inexpensive, rapid and easy to use. Such rapid assessment programmes will never replace thorough inventories.

3.1.7 Introduce appropriate monitoring regimes based on the CBD and other guidance for priority taxa and ecosystems in the first instance, taking into account the implementation of Decisions VI/7 A-C, on identification, monitoring, indicators and assessments, as well as CBD principles for developing and implementing national-level monitoring and indicators.

3.1.8 Support efforts to achieve international consistency and interoperability of taxonomic nomenclature, classification systems, databases and metadata standards, as well as data-sharing policies (see also Sub-Programme 3.3).

3.1.9 Seek the resources, opportunities, and mechanisms to build national capacity for undertaking assessments and inventories.

3.1.10 As part of national communication, education and public awareness activities/programme (see Sub-Programme 2.4), provide mechanisms for disseminating status and trends research findings to all relevant stakeholders, in a form which will be most useful to them. Make this same information available to the Executive Secretary for sharing with other Parties.

Specific to a particular biome thematic programme

Inland waters

3.1.11 For inland waters, develop means of identifying and protecting groundwater recharge areas, groundwater aquifers, and surface waters fed by groundwater discharges.

Mountains

3.1.12 For the mountain biome, support the work of the Global Mountain Biodiversity Assessment.

Marine and coastal

3.1.13 Compile and synthesize information a) on the methods for the identification, assessment, and monitoring of genetic resources of the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction; and b) on their status and trends, including identification of threats to such genetic resources and the technical options for their protection. Report on the progress made to SBSTTA.

Islands

3.1.14 Compile detailed inventories of island species, assess their conservation status, including the main threat criteria, and develop the taxonomic expertise necessary to facilitate this (Islands: Activity 2.2.1).

3.1.15 Systematically compile existing and new data on the status and trend of degraded island ecosystems. Establish a baseline measure of the extent of degraded island ecosystems as a means of determining progress towards restoration targets (Activity 1.1.3.2).

Supporting activities of the Executive Secretary:

3.1.16 Make available to Parties guidelines for rapid, simple, inexpensive, and easy-to-use assessments of biological diversity, taking into account the different types of ecosystems and regional considerations, and giving special consideration to the priority needs of small island developing States and of States suffering from ecological disasters.

3.1.17 Through continued collaboration with global and regional assessments including, but not restricted to, the Global International Waters Assessment (GIWA), the World Water Assessment Programme (WWAP), the Millennium Ecosystem Assessment, the FAO Fisheries Assessment, the Global Environmental Outlook (GEO), the Global Biodiversity Information Facility (GBIF), the report on State of the World's Plant and Animal Resources and the IUCN Freshwater Biodiversity Assessment and Red List of Threatened Species, seek to advance the generation of information on status and trends that can assist and support global, transboundary and national priority setting processes for the conservation and sustainable use of biodiversity.

Specific to inland waters

3.1.18 In collaboration with the Ramsar Convention and other partners, make available to Parties guidance for:

- (a) Undertaking national inventories and assessments of inland water and coastal biological diversity;
- (b) The identification of stressed inland water and coastal ecosystems;
- (c) The national elaboration of Annex I of the CBD in relation to biological diversity of inland waters and coastal ecosystems; and
- (d) A list of indicators grouped as driver, state, impact, and response to pressures on biological diversity of inland water and coastal ecosystems (taking into account the implementation of CBD Decision VI/7 B, on monitoring and indicators).

Main partners: IUCN, UNEP, WCMC, WRI, FAO, World Fisheries Trust, Ramsar Secretariat and STRP of the Ramsar Convention on Wetlands, Conservation International, United Nations Forum on Forests and the Collaborative Partnership on Forests, FAO, World Conservation Monitoring Centre of the United Nations Environment Programme.

Other collaborators: UNESCO (SIDS programme), Global International Waters Assessment (GIWA), World Water Assessment Programme (WWAP), the Millennium Ecosystem Assessment, Global Environmental Outlook, Global Biodiversity Information Facility (GBIF), WRI, Conservation International, (Japan) BioNET International, and other relevant international, regional and national organizations and stakeholders.

3.2 Research efforts

Goal: To develop an improved understanding of the biodiversity found in all biomes, how these systems function, their ecosystem goods and services and the values they can provide.

Context and linkages:

Article(s) of the CBD: 7(a, c), 12.

Strategic Plan Objectives: to be added.

Source elements from thematic programmes: Mountains: Goal 3.4; Forests: Goals 1 & 3, Objective 1 for both; Inland waters: Goal 3.1; Dry and sub-humid lands: Activities 4, 5, 7(k); Agricultural: Programme element 2, Activities 2.1 and 2.2; Coasts and marine: Operational objective 3.5; Islands: Goal 1, Target 1.1; Goal 2, Targets 2.1 and 2.2; Goal 4, Target 4.1; Goal 10, Target 10.1.

Related cross-cutting programme of work: Global Taxonomy Initiative, Technology transfer and cooperation.

Plan of Implementation of the World Summit: to be added.

Operational objectives:

- (a) Improve understanding of the roles of biodiversity and ecosystem functioning within and between each biome.
- (b) Improve the understanding of the causes and impacts of losing biological diversity in each biome and at a landscape/seascape scale.
- (c) Facilitate research and monitoring activities that reflect identified global knowledge gaps and priority information needs for management.
- (d) Improve research, technical, and scientific cooperation, and other forms of capacity-building related to biological diversity.

Activities of the Parties:***Cross-biome***

3.2.1 Conduct long-term research on species adaptability to changing environmental conditions under climatic or human-induced global change, in relation to biological diversity.

3.2.2 Conduct key research:

- (a) on the roles and importance of biological diversity and ecosystem functioning, considering ecosystem components, structure, function, processes, and services;
- (b) to improve the understanding of the social, economic, political, and cultural drivers within civil society that are directly impacting on the conservation and sustainable use of biological diversity. A distinction should be made between broad socio-economic causes, such as demographic growth, and more specific causes, such as institutional weaknesses and market or policy failures; and
- (c) on the roles and importance of transitional zones linking upland-lowland ecosystems such as ecotones, hotspots, buffer areas, and corridors;

3.2.3 In line with the Global Taxonomy Initiative (GTI), encourage studies aimed at improving the understanding of biodiversity taxonomy, including efforts to achieve international consistency and interoperability of taxonomic nomenclature, databases and metadata standards, as well as data-sharing policies. See also CBD Decision VIII/3, indicating priority attentions to be directed at mountain and island biodiversity, as well as at the taxonomy related to invasive alien species and protected areas.

3.2.4 Initiate mechanisms and develop collaborative research/scientific programmes of mutual interest among countries with shared biodiversity, biomes and ecosystems, especially those having common problems and comparable socio-cultural conditions (see also Sub-Programme 2.6).

3.2.5 Develop capacity and enhance opportunities for community-based research and monitoring to conserve biodiversity and provide greater benefits to communities.

3.2.6 Develop scientific and technical coordination mechanisms at national level for identification of research priorities and for optimising the efficient utilization of research results (see also Activity 2.4.10).

3.2.7 Report through the CBD Clearing-House Mechanism on successful experiences involving control and mitigation of the underlying causes of biodiversity loss. This would enable the understanding of lessons learned.

3.2.8 See Sub-Programme 2.4 (CEPA), Activity 2.4.10.

3.2.9 Understand delayed response processes of species responding to degradation, loss, and fragmentation of insular habitats (Islands: Activity 2.1.1.12).

Specific to a particular biome thematic programme of work***Mountains***

3.2.10 Develop and support research to assess the role of soil biological diversity and the diversity of protective vegetation cover for the stability and safety of mountain areas and watershed protection, e.g., avoidance of human-induced erosion, landslides, and avalanches.

Forests

3.2.11 Seek to understand critical thresholds of forest biological diversity loss and change, paying particular attention to endemic and threatened species and habitats including forest canopies.

3.2.12 Increase the understanding of the impact of pollution, e.g., acidification and eutrophication, and other pollutants (such as mercury and cyanide) on forest biodiversity; at genetic, species, ecosystem and landscape levels.

Agricultural biodiversity

3.2.13 Carry out a series of case-studies, in a range of environments and production systems, and in each region:
(a) To identify key goods and services provided by agricultural biodiversity, needs for the conservation and sustainable use of components of this biological diversity in agricultural ecosystems, and threats to such diversity;

(b) To identify best management practices; and

(c) To monitor and assess the actual and potential impacts of existing and new agricultural technologies.

This activity would address the functions of agricultural biodiversity and the interaction between the various components, as set out in the appendix hereto with a focus on certain specific and cross-cutting issues, such as:

(i) The role and potential of wild, under-utilized and neglected species and products;

(ii) The role of genetic diversity in providing resilience, reducing vulnerability, and enhancing adaptability of production systems to changing environments and needs;

(iii) The synergies and interactions between different components of agricultural biodiversity;

(iv) The role of pollinators, with particular reference to their economic benefits, and the effects of introduced species on indigenous pollinators and other aspects of biological diversity;

(v) The role of soil and other below-ground biodiversity in supporting agricultural production systems, especially in nutrient cycling;

(vi) Pest and disease control mechanisms, including the role of natural enemies and other organisms at field and landscape levels, host plant resistance, and implications for agro-ecosystem management;

(vii) The wider ecosystem services provided by agricultural biodiversity;

(viii) The role of different temporal and spatial patterns in mosaics of land use, including complexes of different habitats; and

(ix) Possibilities of integrated landscape management as a means for the conservation and sustainable use of biodiversity.

3.2.14 Identify and promote the dissemination of information on cost-effective practices and technologies, and related policy and incentive measures that enhance the positive and mitigate the negative impacts of agriculture on biological diversity, productivity, and capacity to sustain livelihoods, through:

(a) Comprehensive analyses in selected production systems of the costs and benefits of alternative management practice as identified from Activity 2.1, and the valuation of the goods and services provided by agricultural biodiversity;

(b) Comprehensive analyses of the impacts of agricultural production, including their intensification and extensification, on the environment, and identification of ways to mitigate negative and promote positive impacts;

(c) Identification, at international and national levels, in close collaboration with relevant international organizations, of appropriate marketing and trade policies and of legal and economic measures that may support beneficial practices:

(i) Promotion of neglected and under-utilized crops;

(ii) Promotion of local and indigenous knowledge;

(iii) Measures to add value to products of production systems that sustain biodiversity, and to diversify market opportunities;

(iv) Access and benefit-sharing measures and intellectual property issues;

(v) Economically and socially sound measures that act as incentives, in accordance with Article 11 and consistent with Article 22 of the CBD; and

(vi) Training and capacity-building in support of the above.

Islands

3.2.15 Improve understanding of ecological processes on and around islands in conserving biodiversity (Activity 1.1.1.5). This would apply to, *inter alia*, isolation and fragmentation of habitats, such as seamounts, cold water coral reefs, hydrothermal vents, and cold seeps.

3.2.16 Develop practical criteria for classifying degraded island ecosystems and selecting priority ecosystems for restoration, based on their conservation and ecosystem service value and impact on other ecosystems or habitats (Activity 1.1.3.1).

3.2.17 Understand the dynamics of key island populations and ecological communities, and what constitutes an adequate area of key habitat to ensure viable populations (Activity 2.2.1.8).

3.2.18 Assess the current and potential contribution of biodiversity to island peoples in terms of sustaining livelihoods, economic activity and cultural value (Activity 4.1.1.5).

Supporting activities of the Executive Secretary:

3.2.19 Strengthen working partnerships with appropriate organizations and institutions that undertake, or can assist in mobilizing, research efforts leading to an improved understanding of biodiversity and ecosystem functioning and of the practical application of the ecosystem approach.

3.2.20 As part of the agreed programme of work for the GTI, support and assist, in collaboration with suitable partners, the development of the series of regional guides to the taxonomy of key taxa (such as freshwater fish and invertebrates).

Main partners: IUCN, UNEP, WCMC, WRI, FAO, World Fisheries Trust [it is acknowledged that this is an incomplete list].

Collaborators: Global International Waters Assessment (GIWA), World Water Assessment Programme (WWAP), Millennium Ecosystem Assessment, FAO, Global Environmental Outlook, Global Biodiversity Information Facility (GBIF), WRI, Conservation International, (Japan) BioNET International, and other relevant international, regional and national organizations, and stakeholders [it is acknowledged that this is an incomplete list].

3.3 Data management and infrastructure

Goal: To improve, at the international, regional and national levels, the infrastructure and capacity for data and information management for accurate assessment and monitoring of biological diversity.

Context and linkages:

Article(s) of the CBD: 7(d).

Strategic Plan objectives: none.

Source elements from thematic programmes: Mountains: Goal 3.3; Forests: Goal 4; Inland waters: none; Dry and sub-humid lands: Activity 7(j); Agricultural: none; Coasts and marine: Operational objective 2.2; Islands: Goal 2, Target 2.2.

Related cross-cutting programme of work: Technology transfer and cooperation, Global Taxonomy Initiative.

Plan of Implementation of the World Summit: none.

Operational objectives:

(a) Promote improvements to the infrastructure for data and information management at the international, regional and national levels.

(b) Benefiting from the opportunities offered through the CBD Clearing-House Mechanism, enhance technical capacity at the national level to monitor biological diversity, across all biomes, as well as to develop associated databases as required on global, regional (where appropriate), and local levels.

Activities of the Parties:

Cross-biome

3.3.1 Support and seek additional resources to see necessary improvements to the infrastructure for data and information management at the national and, where appropriate, regional levels.

3.3.2 Enhance the technical capacity at a national level to monitor biological diversity across all biomes, benefiting from the opportunities offered by the CBD Clearing-House Mechanism, including the development of associated databases as required at the global scale to facilitate exchange.

3.3.3 Promote open access, as Parties consider appropriate, to existing information on biodiversity and related databases and sharing through the CBD Clearing-House Mechanism and other appropriate means.

3.3.4 Encourage mapping and inventory of biodiversity and of land-use changes, using analogue and digital databases (remote-sensing, geographic information system), for scientific purposes and for supporting decision-making.

3.3.5 — See Activity 3.1.8, Sub-Programme 3.1 — Status and trends.

Specific to a particular biome thematic programme

Marine and coastal

3.3.6 For the marine biome specifically, make available to the Parties information on genetic resources in marine areas beyond national jurisdiction and, as appropriate, on coastal and marine genetic resources under national jurisdiction from publicly available information sources.

Supporting activities of the Executive Secretary:

3.3.7 Enhance the CBD Clearing-House Mechanism's capacity to facilitate the implementation of the above goal.

Main partners: In relation to activity 3.3.5 - International organizations, such as the United Nations Division for Ocean Affairs and the Law of the Sea, the United Nations Environment Programme, and the InterGovernmental Oceanographic Commission of the United Nations Educational, Cultural and Scientific Organization, as appropriate with the support of the Executive Secretary.

Other collaborators: Advice needed.

Appendices: The various specific work-plans attached to the Marine and coastal programme or work have not been included here.