POSITION PAPER – Inland Waters

April 2010

Subsidiary Body on Scientific, Technical and Technological Advice
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SUMMARY

Conservation International, The Nature Conservancy and WWF urge Parties to strengthen work on the protection and sustainable use of inland waters ecosystems, in particular by:

- Focusing on the need to target the two key main threats to freshwater – over-abstraction and fragmentation, especially through the adoption and implementation of adequate environmental flows and related policies and measures;
- Integrating freshwater biodiversity considerations into decision making of other sectors and the implementation of related programmes of work;
- Addressing the under-representation of inland waters in the global network of protected areas; and
- Cooperating over the effective and sustainable management, protection and use of transboundary inland waters.

1. INTRODUCTION

Freshwater plays a critical role in sustainable development and is essential for achieving most of the Millennium Development Goals. Healthy inland water ecosystems provide reliable, clean water for multiple uses; offer a natural defence against natural disasters, such as droughts and floods; sustain fisheries and agricultural development that are indispensable for ensuring global food security; sustain myriad life forms of great value; and are home to charismatic species, such as river dolphins, of significant cultural and economic value, including for tourism. Other ecosystems and all human beings depend on those services and functions for their very survival, livelihoods and welfare.

However, inland water ecosystems are vulnerable to a number of direct and indirect threats and drivers of change, such as overexploitation, fragmentation, and pollution, associated with various, often wasteful, water uses, poorly planned infrastructure development, agricultural runoff, and industrial and wastewater discharges.

In order for inland water ecosystems to continue providing those services and functions, all relevant actors, at all appropriate levels, must manage, utilize and protect such ecosystems and related natural resources in a sustainable manner. This is especially true in the context of a changing climate, which is likely to bring about drastic changes in the hydrological cycle.

2. THE INLAND WATERS PROGRAMME OF WORK

2.1 ENVIRONMENTAL FLOWS

Environmental flows refer to the quantity, quality and timing of water flows required to sustain freshwater and estuarine ecosystems and the human livelihoods and well-being that depend on them. Environmental flows considerations should be taken into account in the SBSBTTA recommendations targeting the realignment of water allocation policies. Change to the quantity, timing and quality of water flows through rivers, lakes, wetlands and aquifers is now one of the principal drivers of inland water ecosystem decline on our planet. These changes are being driven by the construction of dams for energy, water storage and flood control, and by the abstraction of water from surface and underground systems for use in industry, agriculture and homes. Hundreds of millions of people in communities across the world are suffering devastating impacts on their livelihoods as a result of changes to water flows from poorly planned water management. The rate of change is extraordinarily high, and the next 5-10 years will be the decade of decision. Already rapidly increasing populations, economic growth rates above 5% across the developing world, and the imperatives of poverty alleviation are leading to enormous increases in the demand for water for agriculture and industry, and for the energy that can be generated from hydroelectric power. As countries pursue development goals, and with climate change looming on the horizon, they will seek options to meet their increasing energy, flood control and water storage needs. With this, the worldwide trend for the construction of numerous more dams and increases in water abstraction will continue.

Fortunately, there are emerging strategies, already being implemented in some places, which evaluate the role of inland waters in sustaining biodiversity and ecosystem functions in the context of infrastructure development and river fragmentation. These strategies include the assessment and maintenance (or restoration) of environmental flows, i.e., the water (and its timing, quantity and quality) that must remain in the river to sustain those services. Environmental flows policies, based on thresholds of flow alteration, aim to secure and restore inland water ecosystems across political entities, such as states, provinces and countries. In this context, it becomes possible to identify and

evaluate current and future hydropower needs, 'no-go' areas and alternative sites, and the capacities of dams, with a view to managing river flows so as to enable multiple water uses in a sustainable manner.

2.2 TRANSBOUNDARY INLAND WATERS

The SBSTTA recommendations should highlight the importance of stronger coordination between the implementation of the CBD and existing international water treaties at various levels. Transboundary cooperation between states sharing freshwater resources can play a crucial role in the conservation and management of inland waters biodiversity and related ecosystems. There are numerous opportunities for strengthening the focus of ongoing transboundary water cooperation initiatives on biodiversity issues, on the maintenance of environmental flows, and on the role of shared freshwater ecosystems in contributing to poverty alleviation, climate change mitigation and adaptation, and disaster risk reduction.

Proposed amendments to Doc. UNEP/CBD/SBSTTA/14/3: *In-Depth Review of the Programme of Work on the Biological Diversity of Inland Water Ecosystems*

SUGGESTED KEY RECOMMENDATIONS

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Implementation of the programme of work

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7. *Urges* Parties and other Governments, where necessary, to re-align their water allocation policies based upon sustainable supply and not demand**, as well as on the need to assess and secure adequate environmental flows, in terms of quantity, quality and timing, to sustain healthy inland water ecosystems and their services and functions upon which other biomes and all human beings depend;**

7bis. *Urges* Parties to develop and implement Strategic Environmental Assessments, national and regional action plans and legal and policy frameworks, and to ensure enforcement of existing and future legal measures, in order to halt unsustainable utilization of inland water ecosystems, especially to address destructive and unsustainable fishing practices, as well as inland waters over-extraction and fragmentation;

***Encourages* Parties to valuate inland water biodiversity and ecosystem services and to integrate this information into national accounting systems, in order to improve sectoral integration; and to explore ways and means to further develop the "payment for ecosystem services" approach;**

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Climate change

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10. *Notes* that water provides strong linkages between the interests of the multi-lateral environment agreements and in particular CBD, UNCCD, UNFCCC and the Ramsar Convention, **as well as relevant global, regional and basin-specific treaties governing transboundary waters;** and *invites* Parties and other Governments to build upon these linkages to further strengthen coherence between these agreements at national level **and in the context of transboundary water cooperation**; and *requests* the Executive Secretary to use these linkages to strengthen collaboration within the Joint Liaison Group and the Biodiversity Liaison Group;

10bis. *Stresses* that reducing wetlands degradation and destruction can provide multiple benefits for biodiversity and for reducing greenhouse gas emissions; and *encourages* relevant bodies of the UNFCCC to consider wetlands destruction and degradation in the context of climate change mitigation, notably by introducing the accounting of degradation and restoration of peatlands as mandatory under LULUCF regulations and by developing and applying a mechanism for the

accounting and promotion of carbon storage and sequestration in wetlands, particularly in peatlands;

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Scientific, technical and technological matters

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16bis. ***Notes*** **that agriculture accounts for 70% of all water taken from inland water ecosystems, and this pressure will continue to increase with climate change; and requests the Executive Secretary, in partnership with FAO and in consultation with other relevant international organizations, to investigate ways and means to reduce water consumption for irrigation in agriculture,** while ensuring food security;

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Encourages **Parties to adopt internationally consistent, comprehensive, and accepted methods for assessing the conservation status and change of freshwater biodiversity, such as the IUCN *Red List of Threatened Species*, allowing consistent comparison and analysis between regions and continents, for identification of priority sites for conservation action and management;**

Biodiversity, water and the hydrological cycle

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Urges **Parties to enhance efforts to address the drivers of inland water biodiversity degradation and loss by fully integrating freshwater biodiversity considerations into decision making of other sectors and the implementation of related programmes of work, e.g. energy production, transport, agriculture, fisheries, tourism, regional development, climate change mitigation and adaptation, invasive species, mountains, dry and sub-humid lands, and biofuels**;

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II. STATUS OF AND TRENDS IN BIODIVERSITY IN DRIVERS OF BIODIVERSITY CHANGE

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D. Indirect drivers of biodiversity loss

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34. ***Achieving water security is now the key natural resource challenge to sustainable development***. **With the global water crisis often described as a crisis of governance, improving the way water is governed, at various levels, would largely contribute to solving it.** Rapid development is transforming the patterns of water use in emerging economies. Increasing populations and affluence mean escalating water demand and impacts. These, and other, indirect drivers **are often aggravated by poor governance systems and tools**, lead**ing** to direct influences on resources, and with them impacts upon biodiversity and ecosystem services. While international commentators reflect on the potential for water wars between countries, conflicts over water within countries, including violence and deaths from these, are already intensifying at a worrying rate. **At the same time, the need for stronger cooperation between states in the world's 263 international watercourses and more than 200 transboundary aquifers is vital for ensuring the sustainability of inland water ecosystems, and for achieving the goals and targets of the programme of work. In particular, countries should consider establishing and strengthening international legal regimes and adequately funded river basin commissions, with a view to promoting dialogue and cooperation within the framework of integrated river basin management.**

3. INLAND WATERS AS A CROSS-CUTTING ISSUE

One of the factors potentially explaining the slow progress in the implementation of the Inland Waters Programme of Work may be the fact that water issues have not yet been adequately integrated into other relevant sectors. In this sense, Doc. UNEP/CBD/SBSTTA/14/13 includes a recommendation for "SBSTTA and the Executive Secretary to include consideration of the implications of changes in the water cycle, and freshwater resources, where relevant and feasible, in all relevant future deliberations in all thematic and cross-cutting programmes of work..."

Indeed, water has a crucial role to play in the implementation of a number of other programs of work. In particular, such a role should not be overlooked in discussions at SBSTTA-14 pertaining to biodiversity and climate change, dry and sub-humid lands, mountain ecosystems and biofuels:

3.1 MOUNTAINS

Proposed amendments to Doc. UNEP/CBD/SBSTTA/14/2: ***In-Depth Review of the Implementation of the Programme of Work on Mountain Biological Diversity***

SUGGESTED RECOMMENDATIONS

Status and trends of mountain biological diversity

2. Invites Parties, other Governments, indigenous and local communities and relevant organizations to collect and update information periodically, monitor the changes and disseminate information on:

(a) Mountain biological diversity including on sites of biological, ecological and socio-economic importance, on ecosystem services, **on the status of inland waters within mountain ecosystems, including environmental flows, headwaters and glaciers**, on endangered and endemic species, and on genetic resources including in particular genetic resources for food and agriculture;

…

(c) Direct and indirect drivers of change in mountain biodiversity, including, in particular, climate change, land-use change, tourism and sports activities, **and water infrastructure development**;

Programme element 1: Direct actions for conservation, sustainable use and benefit-sharing

3. Invites Parties, other Governments, indigenous and local communities, and relevant organizations to establish effectively and appropriately managed protected areas in line with the programme of work on protected areas to safeguard the highest priority key biodiversity areas in mountain ecosystems**, including by modifying the boundaries of existing protected areas to adequately protect freshwater ecosystems, and by integrating freshwater considerations into the management plans of existing mountain protected areas;**

4. Invites Parties and other Governments to develop … targets that address the direct drivers of mountain biodiversity loss, for the reduction of pressures on biodiversity from habitat change, overexploitation, pollution, invasive species, **infrastructure development**, and climate change, and for the safeguard and restoration of mountain biodiversity and related ecosystem services, contributing to climate change mitigation and adaptation, as well as the related indicators for assessing progress towards these targets;

5. *Invites* Parties, other Government, indigenous and local communities, and relevant organizations to address climate-change adaptation and mitigation issues… by:

(b) Establishing, in particular, conservation corridors, connectivity, and transboundary mountain protected area systems taking into account the need to integrate protected areas into wider **river basins and** landscapes;

(c) Undertaking measures to reduce deforestation and restore degraded mountain forest **and inland waters** ecosystems in order to enhance the role of mountains as natural carbon and water regulators;

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5bis. *Calls on* Parties to strengthen upstream-downstream linkages for the well-being of people and nature, especially in lowland areas, through the maintenance of environmental flows, migratory routes and sediment transport, for the uninterrupted provision of ecosystem services; and to further develop payments for ecosystems services in the context of mountain biodiversity conservation and sustainable use, including across political borders;

Programme element 2: Means of implementation for conservation, sustainable use and benefit-sharing:

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8. *Encourages* Parties to establish national committees and multi-stakeholder institutional arrangements and mechanisms at national and regional levels to enhance intersectoral **and cross-border** coordination and collaboration for sustainable mountain development as called for in paragraph 15 of General Assembly resolution 62/196 and linking them to the implementation of the programme of work on mountain biological diversity;

9. *Encourages* Parties, wherever possible, to develop and implement **international legal instruments and** regional collaboration strategies and action plans, with assistance of relevant international and regional organizations, as needed, **and within the framework of relevant international water agreements, where appropriate,** considering that regional collaboration is key for successful implementation;

9bis. *Encourages* Parties to incorporate mountain considerations into existing and future international water agreements and into the mandate of international river basin organizations, as a means to address the limited progress in Goal 2.3, pertaining to transboundary cooperation;

10. *Invites* Parties, other Governments and relevant organizations to **safeguard,** develop and showcase upland-lowland linkages, particularly in the easily demonstrated case of water...;

...

Programme element 3: Supporting actions for conservation, sustainable use and benefit-sharing

Invites Parties, other Governments and relevant organizations to develop and implement national, regional and global communication programmes highlighting the economic, ecological and social benefits of the conservation and sustainable use of mountain biological diversity for human well-being and for the provision of ecosystem services to mountain dwellers and also to lowland communities **and ecosystems**;

3.2 BIODIVERSITY AND CLIMATE CHANGE

There is great scope for strengthening the work on Biodiversity and Climate Change with the more explicit incorporation of freshwater considerations. The relationship between water, energy and climate is at the heart of the climate change challenge. It is through water that people and nature will experience the impacts of climate change most profoundly, through changes to the quality, quantity and timing of water flows. In some places, this will mean too much all at once, with more frequent and intense floods; in others, it will mean too little water, with increased scarcity, often in places that already struggle with drought and desertification. On the one hand, the maintenance of water flows will be essential in the context of climate change adaptation. At the same time, huge quantities of water are required in the operation of alternative energy sources and other mitigation strategies, such as biofuels, carbon capture and storage, and hydropower. This calls for strong integration of actions under the respective programmes of work, leading to increased consideration of water's role in sustaining biodiversity (across various biomes) and underpinning climate change adaptation and mitigation.

Ecosystem-based adaptation (EBA) includes a range of actions for managing, conserving and restoring ecosystems. Such actions aim to reduce the vulnerability and increase the resilience of

ecosystems and communities in the face of climate change. EBA is a cost-effective and accessible means of adaptation to climate change and variability, which can help address multiple threats and local priorities, and is often more accessible to the rural poor than technology or infrastructure solutions. For example, floodplain conservation – including protection of existing floodplains or reconnection of currently disconnected floodplains – can act as green infrastructure that stores and conveys floodwaters, thereby reducing flood risks for nearby areas.

Moreover, integrated, comprehensive solutions at the basin and even regional scales, large enough to maintain functioning freshwater systems are needed. Many of the lessons learned through years of implementing integrated water resources management can and should aid in climate change adaptation efforts. Many climate change adaptation actions currently being undertaken are site-specific. Recent evaluations, however, suggest that a broader perspective is also needed. This includes the development of strategic environmental assessments and basin-wide planning, in order to protect and restore the connectivity and processes that create, maintain and interlink inland water, coastal/marine and terrestrial habitats. Such wider planning enables the development of multiple and alternative scenarios and outcomes to dam and reservoir planning, whether to secure freshwater resources, avert damage from storm events or support hydropower.

Proposed amendments to Doc. UNEP/CBD/SBSTTA/14/6*: In-Depth Review of the Work on Biodiversity and Climate Change*

SUGGESTED RECOMMENDATIONS

4. *Further invites* Parties, other Governments and relevant organizations to:

Impacts of climate change on biodiversity

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(d) Give special consideration to the impacts of climate change on inland waters ecosystems, since it is through water that people and nature will experience the impacts of climate change most profoundly, through changes to the quality, quantity and timing of water flows;

Reducing the impacts of climate change on biodiversity

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(e) Implement activities to increase the adaptive capacity of species and ecosystems in the face of accelerating climate change, including, *inter alia*: (i) reducing non-climatic stresses, such as pollution, over-exploitation, habitat loss and fragmentation and invasive alien species; (ii) wider adoption of conservation and sustainable use practices including through the strengthening of protected area networks**, with particular attention to currently underserved ecosystems that are highly vulnerable to climate change, such as inland water and marine ecosystems;** and (iii) facilitating adaptive management through strengthening monitoring and evaluation systems;

(_) Specifically incorporate water and associated floodplain management considerations into climate change adaptation strategies, within the framework of integrated river basin management;

(_) Ensure that climate-change mitigation strategies minimize impacts on freshwater ecosystems and give due regard to the integrated management of land and water;

...

Ecosystem-based adaptation

(g) Implement, where appropriate, ecosystem-based adaptation measures which use biodiversity and ecosystem services in an overall adaptation strategy including through the sustainable management, conservation and restoration of ecosystems to provide services that help people adapt to the adverse effects of climate change, including disaster risk reduction and sustainable land **and water** management strategies...;

...

Implications of reducing emissions from deforestation and forest degradation (REDD) and other land-use management activities on biodiversity and climate change mitigation

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(l) When implementing afforestation activities for climate-change mitigation consider biodiversity through, for example: (i) converting only degraded land or ecosystems largely composed of exotic species; (ii) including native tree species when selecting species for planting; (iii) taking into account the invasiveness of non-native species; (iv) strategically locating afforestation activities within the landscape to enhance connectivity **and maintain key ecosystem services; (v) and taking into account the linkages between forest and inland water ecosystems, in particular the role of vegetation in protecting springs and riparian areas, as well as aquifer recharge zones;**

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Climate change and the biodiversity of dry and sub-humid lands

6. Invites Parties and other Governments and relevant organizations to develop down-scaled climate change models that combine temperature and precipitation information with multi-stressor biological models in order to better predict the impacts of drought on biodiversity, **taking into account the uncertainty inherent in these models, especially in the case of long-term changes to the hydrological cycle, and the need for iterative vulnerability assessments and monitoring to enable adaptive management;**

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VI. WAYS AND MEANS TO APPLY THE ECOSYSTEM APPROACH TO THE MANAGEMENT OF BIODIVERSITY AND CLIMATE CHANGE

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41. Another approach to applying the ecosystem approach to the management of biodiversity and climate change is through ecosystem-based adaptation... As such, ecosystem-based adaptation can be a useful and widely applicable approach to adaptation because it:

(a) Can be applied at regional, **transboundary**, national and local levels, at both project and programmatic levels, and benefits can be realized over short and long time-scales;

...

43. Within the framework of ecosystem-based adaptation, close coordination and collaboration between countries sharing biological diversity components, especially in the case of transboundary inland waters and marine ecosystems, will be essential to enable effective adaptation to climate change. In this context, international legal regimes have a key role to play to foster transboundary water cooperation and set the conditions for countries to plan and implement climate change adaptation in a transboundary context, taking into account the entire river basin.

3.3 DRY AND SUB-HUMID LANDS

Proposed amendments to Doc. UNEP/CBD/SBSTTA/14/13: ***Biodiversity of Dry and Sub-humid Lands: Follow-Up to Requests of the Conference of the Parties in Decision IX/17***

SUGGESTED RECOMMENDATIONS

Further invites Parties and other Governments to:

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(d) Better integrate the management of land and water resources, including with respect to the recharge of aquifers, and through addressing inland waters over-abstraction and fragmentation, in order to prevent extreme drought conditions; and to adopt water allocation policies that take into account the need to safeguard environmental flows, as well as to implement economic instruments that promote water use efficiency and conservation; and

(e) Promote the conservation of dry and sub-humid lands in the context of international water agreements and through the work of international and domestic river basin organizations;

3.4 BIOFUELS

Proposed amendments to Doc. UNEP/CBD/SBSTTA/14/12: ***Conceptual Framework for ways and means to minimize the negative and maximize the positive impact of biofuels production and use on biodiversity***

SUGGESTED RECOMMENDATIONS

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4. *Invites* Parties, other Governments, and relevant international and other organizations to address the direct and indirect, positive and negative, impacts that the production and use of biomass for energy, in particular large-scale and/or industrial production and use, might have on inland water biodiversity and on the indigenous and local communities that depend thereon, taking into account the components of Decision IX/2 (biofuels and biodiversity) that may be relevant for inland waters conservation and sustainable use, and reflecting varying conditions of countries and regions; and to incorporate, into biofuels production systems, water management practices that protect inland waters of high conservation value, respect water rights, and secure the flow regimes needed to maintain freshwater ecosystems and the services they provide;

4. INLAND WATERS AND PROTECTED AREAS

Aside from providing essential services for biodiversity protection, climate change responses and sustainable development, protected areas can also make a meaningful contribution to inland water conservation. Of the world's 100 largest cities, more than 40 percent rely on runoff producing areas that are fully or partially protected as sources for drinking water. In Venezuela, water supply from national parks provides total benefits at the value of US$112.5 million, over 30 years, for public irrigation systems on agricultural lands. The benefit to private irrigation schemes is estimated at US$202.5 million over the same period. In Peru, 60% of the hydroelectricity produced in the country comes from rivers in six protected areas, with a total approximate value of US$320 million.

There are approximately 120,000 terrestrial protected areas in the world covering about 13% of our land surface. Inland waters are critical for humanity. Yet, inland water ecosystems remain severely under-protected and underrepresented in that global network of protected areas. Protected areas have generally not been designed with the goal of protecting inland water systems. As a result, protection of inland waters is often an incidental and incomplete service of protected areas.

Furthermore, many protected areas are in the middle or lower portions of inland water systems. These areas – and the ecosystems they aim to protect – are often vulnerable to upstream activities external to those protected areas' boundaries and not directly affected by their management plans. This suggests that, in order to be effective, inland waters protected areas should be designed and managed within the framework of integrated river basin management and planning. Integrated river basin management is a form of the ecosystems approach, which countries have committed to implement through the CBD.

Finally, as per Doc. UNEP/CBD/SBSTTA/14/3, "the condition of many of even the premier sites [of inland waters protected areas] is degrading over time. There are also gaps in coverage of protected areas by specific wetland type," even though the total coverage of protected wetlands has increased considerably.

Comments and proposed amendments to Doc. UNEP/CBD/SBSTTA/14/5/Add.1: ***In-Depth Review of the Implementation of the Programme of Work on Protected Areas – Addendum***

I. EXECUTIVE SUMMARY

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Suggested strategies for strengthening implementation, *inter alia*, include ... special focus on addressing marine protected areas, **designating inland waters protected areas, and incorporating freshwater considerations into gap analyses and the management plans of existing protected areas;** valuing costs, benefits and ecosystem services of protected areas...

II. SUGGESTED RECOMMENDATIONS

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B. Issues that need greater attention

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5. Inland waters protected areas

Encourages **Parties to address the under-representation of inland waters in protected areas, including by, inter alia:**[1]

a) Establishing and managing new protected areas and networks to conserve representative, intact, and outstanding freshwater ecosystems, in order to maintain their resilience to climate change and sustain ecosystem services

b) Modifying the boundaries of existing protected areas (e.g., for including headwaters or for including riparian buffers on both sides of a river that previously acted as the boundary), as feasible and necessary, in order to adequately protect freshwater ecosystems and sustain ecosystem services;

(c) Integrating freshwater considerations into the management plans of existing protected areas, including marine, where appropriate;

Encourages **Parties to implement a range of governance types for inland waters protected areas, such as indigenous and community conserved areas and transboundary protected areas, taking into account the need to safeguard environmental flows and secure adequate groundwater recharge.**

Invites **Parties to consider designating priority river tributaries or river stretches as protected areas, in order to inform the sustainable planning of infrastructure development and preserving river systems as much as possible as 'free-flowing'.**

Comments on Doc. UNEP/CBD/SBSTTA/14/5: ***In-Depth Review of the Implementation of the Programme of Work on Protected Areas***

Additional information should be included in Doc. UNEP/CBD/ SBSTTA/14/5 to better inform discussions at the Conference of the Parties:

- Whether Table 1, p.2, reflects data from Ramsar sites as well;
- In discussions under goal 1.2, p.5-6, it would be useful to have information, if available: a) as to whether and to what extent existing protected areas have been integrated into river basins, including through the modification of their boundaries; b) about the level of connectivity between freshwater systems within protected areas and those in the larger river basin;
- It would be useful to know which of the regional networks listed in Para.14, if any, have a strong focus on protecting freshwater ecosystems;
- Regarding Goal 1.4, p.6-7, have any countries reported on integrating freshwater considerations into the management plans of existing protected areas?

[1] See IUCN Resolution 4.065, Freshwater biodiversity conservation, protected areas, and management of transboundary waters, *available at* http://intranet.iucn.org/webfiles/doc/IUCNPolicy/Resolutions/2008_WCC_4/English/RES/res_4_065_freshwater_biodiversity_conservation_protected_areas_and_management_of_transboundary_waters_.pdf.

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