

Comments from WWF on
“Water for all: The Water Policy of the Asia Development Bank”
18 November 2005

Introduction

The following document is a set of comments on the “Water for all: The Water Policy of the Asia Development Bank” from WWF. These are provided as a submission to the current external review process that ADB has commissioned on the implementation of this policy over the past five years. Rather than commenting on implementation, we have provided some examples from WWF’s experiences in freshwater, conservation and management, due to capacity-related constraints. These excerpts are in the form of comments and lessons from reports, all of which are available (sources and links are footnoted). We hope that our advice and recommendations will strengthen the future development of ADB’s water policy.

The following is divided into two sections: firstly, a section on the freshwater context and secondly, a section on policy components that roughly corresponds with the framework within the Water Policy document.

Section I. The context

1) Threat to Freshwater biodiversity

Whilst the links between water and poverty and decline in water availability per capita are described well in the context section of the ADB Water Policy, we felt that the threat to freshwater biodiversity was not fully explored. As such, we have provided quotations from a couple of papers, including WWF’s *Living Planet* report¹.

A) The Living Planet Index

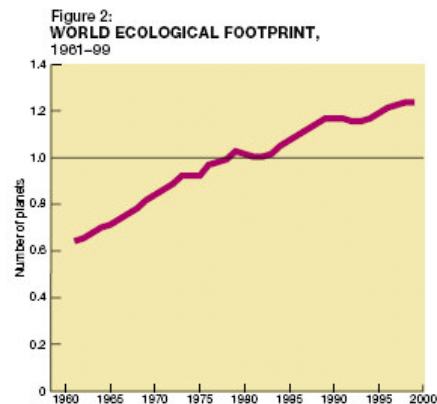
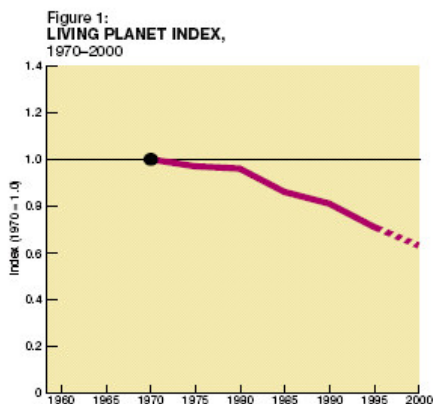
Global Issue

The Living Planet Index ² is an indicator of the state of the world’s natural ecosystems. It is calculated as the average of three separate indices which relate to the abundance of forest, freshwater, and marine species. The index shows an overall decline of about 37 per cent between 1970 and 2000 (Figure 1).

Figure 2 shows the world’s ecological footprint, which is a measure of humanity’s use of renewable natural resources. It grew by 80 percent between 1961 and 1999, to a level 20 per cent above the Earth’s biological capacity. It is expressed as number of planets, where one planet equals the total biologically productive capacity of the Earth in any one year. Natural resource consumption can exceed the planet’s productive capacity by depleting the Earth’s natural capital, but this cannot be sustained indefinitely.

¹ The *Living Planet Report 2004*: http://www.panda.org/news_facts/publications/general/livingplanet/index.cfm

² The *Living Planet Report 2002*: http://www.panda.org/downloads/general/LPR_2002.pdf



Water

Globally the diversion of water for human consumption is growing at a rapid rate (Fig. 3) such that a growing number of the world's rivers no longer regularly reach the sea. It has been estimated that 54% of accessible runoff is now appropriated by humans³ (WWAP 2003:10). In response to the 1.1 billion people who cannot reach or afford safe drinking water, and 2.4 billion people who lack access to basic sanitation (WWAP 2003:10), the 2002 World Summit for Sustainable Development (WSSD) adopted targets to halve the number of people without access to these water services by 2015. These are to be operationalised through the development of integrated water resource management and water efficiency plans by 2005⁴ (UN 2002:20-21 (clauses 25 & 26)). Even then it has been estimated that by 2050 at least one in four people are likely to be living in countries affected by chronic or recurring shortages of water (WWAP 2003:10).

The changes to stream flow and diversion of water is disastrous for biological diversity. WWF's Living Planet Index indicates that freshwater biodiversity has declined at a much greater rate than in either the forest or marine biomes, declining by 50% from 1970-2000 (Fig. 4). This is also a catastrophe for people as millions of the world's rural poor depend on the fisheries and other natural resources that have declined or are at risk of decline with changes in stream flow.

There are already more than 45,000 large dams around the world with another 1,500 planned or under construction, including in some of the most biologically diverse rivers like the Yangtze, Mekong, Amazon and Orinoco Rivers. Already more than 60% of the world's major rivers are fragmented by dams (WWAP 2003).

³ WWAP (World Water Assessment Programme). 2003. *Water for People Water for Life. The United Nations World Water Development Report*. United Nations Educational, Scientific & Cultural Organisation and Berghahan Books, Barcelona. <http://www.unesco.org/water/wwap/wwdr/index.shtml>

⁴ United Nations, 2002. *Report of the World Summit on Sustainable Development*. http://www.un.org/jsummit/html/documents/summit_docs.html

Figure 3

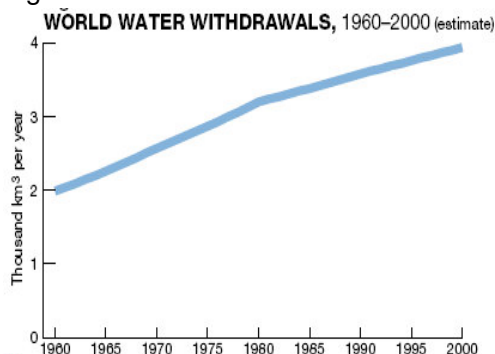
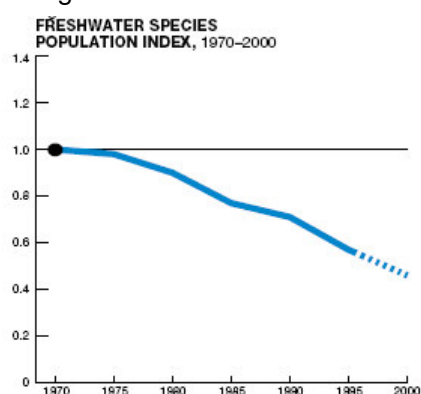


Figure 4



The 2002 World Summit also adopted a target to achieve by 2010 "a significant reduction in the current rate of loss of biological diversity" (UN 2002:33 (clause 44)). How then can the world implement these conflicting Millennium Development Goals⁵ (UNGA 2000⁶, WWAP 2003:9) and World Summit targets (UN 2002) to supply more water services, energy and agricultural produce to people while maintaining freshwater biodiversity world wide?

B) Millennium Ecosystem Assessment and freshwater

Though not a WWF report, points from it have been included as it provides a range of useful data including some on freshwater biodiversity loss.

The **Millennium Ecosystem Assessment Synthesis Report**⁷ (May, 2005) paints a grim picture for the world's freshwater ecosystems globally, stating that:

- "The amount of water impounded behind dams quadrupled since 1960, and three to six times as much water is held in reservoirs as in natural rivers. Water withdrawals from rivers and lakes have doubled since 1960 and most water use (70%) is for agriculture." [pg 18];
- "Freshwater ecosystems tend to have the highest proportion of species threatened with extinction." [pg 19];
- "... most ecosystem changes were the direct or indirect result of ...growing demands for food, water, timber, fibre, and fuel (fuelwoods and hydropower." [pg 19];
- "The use of two ecosystem services - capture fisheries and freshwater - is now well beyond levels that can be sustained even at current demands, much less future ones." [pg 20];
- "From 5% to possibly 25% of global freshwater use exceeds long-term accessible supplies and is now met either through engineered water transfers or overdraft of groundwater supplies (*low to medium certainty*). Some 15-35% of irrigation withdrawals exceed supply rates and are therefore unsustainable (*low to medium certainty*)." [pg 20];
- "The frequency and impact of floods and fires has increased significantly in the past 50 years, due in part to ecosystem changes. Examples are ... the increase in downstream

⁵ <http://www.un.org/millenniumgoals/>

⁶ UNGA (United Nations General Assembly). (2000). United Nations Millennium Declaration. Resolution adopted by the General Assembly 55/2. UN, New York.

⁷ Report downloaded from: <http://www.millenniumassessment.org/en/index.aspx>

flooding that followed land use change in the upper Yangtze River." [pg 21-22];

- "During the 1997/98 El Nino, excessive flooding caused cholera epidemics in Djibouti, Somalia, Kenya, Tanzania & Mozambique. Warming of the African Great Lakes due to climate change may create conditions that increase the risk of cholera transmission in the surrounding countries." [pg 24];
- "Some 1.1 billion people still lack access to improved water supply, and more than 2.6 billion lack access to improved sanitation. Water scarcity affects roughly 1-2 billion people worldwide. Since 1960, the ratio of water use to accessible supply has grown by 20% per decade." [pg 25];
- "The most important direct drivers of change in ecosystems are habitat change (land use change and physical modification of rivers or water withdrawal from rivers), overexploitation, invasive alien species, pollution, and climate change. These direct drivers are synergistic." [pg 27];
- "Under all four MA [Assessment's future] scenarios ... during the next 50 years, demand .. is projected to grow .. for water by between 30 and 85%. Water withdrawals in developing countries are projected to increase significantly under the scenarios, although they are projected to decline in industrial countries (*medium certainty*). ... A deterioration of the services provided by freshwater resources (such as aquatic habitat, fish production, and water supply for households, industry, and agriculture) is found in the scenarios, particularly those that are reactive to environmental problems (*medium certainty*)" [pg 30].
- "Child mortality is strongly influenced by diseases associated with water quality" [pg 31].
- "... important gaps in the distribution of protected areas remain, particularly in marine and freshwater systems" [pg 31].
- "... inappropriate subsidies are common in sectors such as ... water" [pg 36].
- "Freshwater ecosystems have been modified through the creation of dams and through the withdrawal of water for human use. The construction of dams and other structures along rivers has moderately or strongly affected flows in 60% of the large river systems in the world. Water removal for human use has reduced the flow of several major rivers, including the Nile, Yellow, and Colorado Rivers, to the extent that they do not always flow to the sea. As water flows have declined, so have sediment flows, which are the source of nutrients important for the maintenance of estuaries. Worldwide, sediment delivery to estuaries has declined by roughly 30%" [pg 56].
- "The biodiversity of inland waters appears to be in worse condition than that of any other system, driven by declines in the area of wetlands and the quality of water in inland waters. It is *speculated* that 50% of inland water area (excluding large lakes) has been lost globally. Dams and other infrastructure fragment 60% of the large river systems in the world" [pgs 64-65].

See also in the report:

Examples of promising and effective responses for water in box on pg 34.

Water

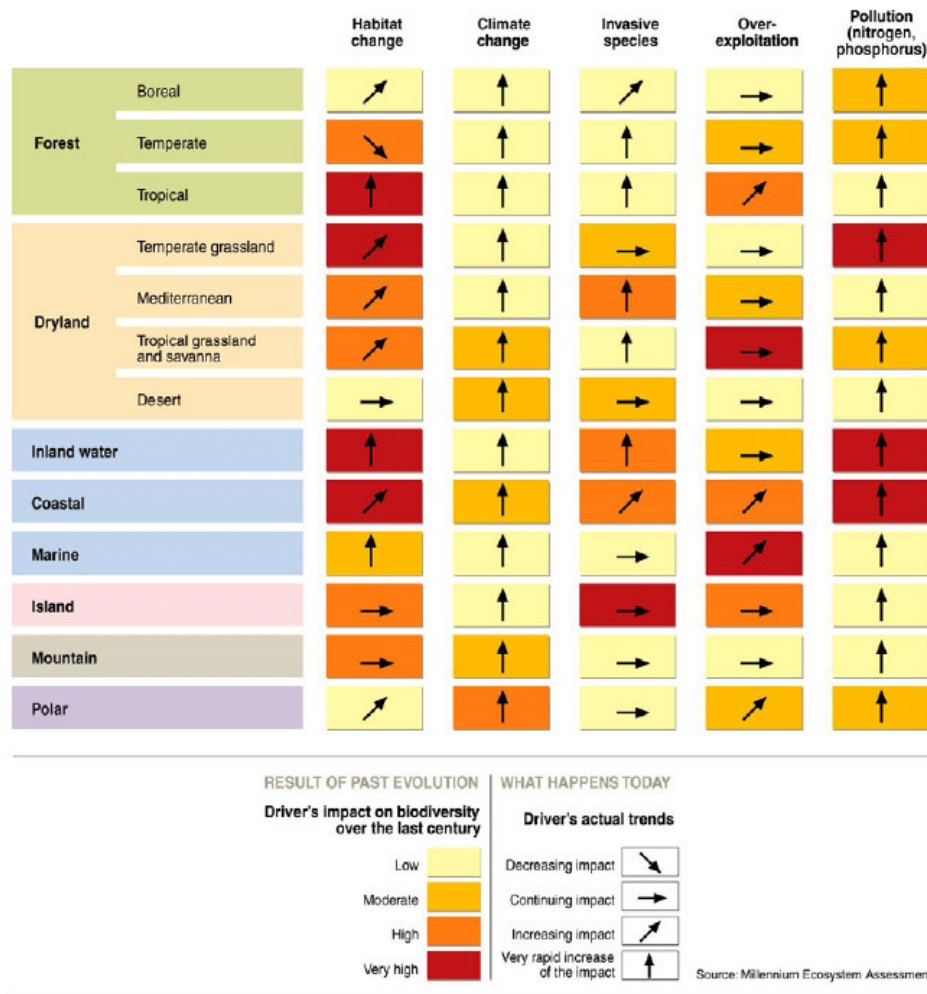
- Payments for ecosystem services provided by watersheds.
- Improved allocation of rights to freshwater resources to align incentives with conservation needs.
- Increased transparency of information regarding water management and improved representation of marginalized stakeholders.
- Development of water markets.
- Increased emphasis on the use of the natural environment and measures other than dams and levees for flood control.⁸
- Investment in science and technology to increase the efficiency of water use in agriculture.

Figure 13 on direct drivers of change in biodiversity and ecosystems on pg 52.

Figure 13. Main Direct Drivers of Change in Biodiversity and Ecosystems. (CWG)

The cell colour indicates impact of each driver on biodiversity in each type of ecosystem over the past 50–100 years. High impact means that over the last century the particular driver has significantly altered biodiversity in that biome; low impact indicates that it has had little influence on biodiversity in the biome. The arrows indicate the trend in the driver. Horizontal arrows indicate a continuation of the current level of impact; diagonal and vertical arrows indicate progressively stronger increasing trends in impact. Thus, for example, if an ecosystem had experienced a very high impact of a particular driver in the past century (such as the impact of invasive species on islands), a horizontal arrow indicates that this very high impact is likely to continue. This Figure is based on expert opinion consistent with and based on the analysis of drivers of change in the various chapters of the assessment report of the MA Condition and Trends Working Group. The Figure presents global impacts and trends that may be different from those in specific regions.

⁸ For ideas, see WWF report: *Living with Floods: Achieving ecologically sustainable flood management in Europe*. <http://www.panda.org/downloads/europe/livingwithfloodswwfpolicybriefingfinal.pdf>



2) Climate change

The ADB Water Policy mentions climate change briefly and this is related to floods and droughts. WWF feel this has not been fully explored in the context of the region. As has already been highlighted, the amount of water available per person is declining across the region and many Asian rivers are already in crisis.

In terms of climate change, there is also overwhelming evidence that glaciers in the Himalayas are fast disappearing⁹, yet many rivers and people are hugely dependent on a steady glacial melt especially in the critical dry periods prior the monsoon season in South Asia. For example, 40% of the Ganges and up to 80% of the Indus water supply comes from glacial melt.

Therefore, with respect to climate change work is needed on the following areas:

- a. **Agriculture** - impacts on agriculture need to be defined, and ways to establish best management practices need to be explored.
- b. **Energy needs** – in light of the growing demand for energy, and for hydro-power in particular, as well as the rising costs of fossil fuels, the question of whether adequate water resources will be available (and at what cost) needs to be addressed

⁹ See WWF report: *Going, going, gone, Climate change and Global Glacier Decline*.
http://www.panda.org/downloads/climate_change/glacierspaper.pdf

- c. **Adaptation** - Adaptation technologies for supplying water to people, which have a clear link to best management practices and efficiency of water use, are needed. In India, this would link to the feasibility of "Interlinking" of rivers scheme.
- d. **Environmental flows** - establishing and maintaining environmental flows

3) Freshwater to sea

Within the ADB Water Policy, the links between the freshwater and marine environments are hardly made. However, negative changes to freshwater quantity and quality are having huge impacts on the marine environment including mangroves, coasts and coral reefs throughout the region.

Nutrients, sediments and toxins that originate within a catchment as a result of urbanisation, agricultural activities, vegetation clearing and industry, eventually end up in the marine environment affecting the water quality and estuarine / coastal ecosystems. Dams and water extraction for irrigation and water supplies alter the hydrology of estuaries and may lead to increasing sedimentation, closed entrances, altered freshwater flows and changes in tidal flushing. These changes can have profound impacts on estuarine and coastal ecosystems.

Within the Asia Pacific there are many examples: Just one is saltwater intrusion as a result of decreased freshwater flows on the Indus, with resulting negative impacts on water supply, and the mangroves which were the breeding grounds for many fish species on which many fishermen depended for their livelihoods.

Some suggested areas of work

- a. **Integrated River Basin Management (IRBM)** - more integrated management efforts need to be made that fit clearly within the IRBM framework and link to Integrated Estuary management.
- b. **Environmental flows** - establishing and maintaining environmental flows

4) Hydropower

Whilst the ADB Water Policy talks in broad terms saying that "32. ADB will adopt a cautious approach to large water resource projects particularly those involving dams and storage given the record of environmental and social hazards associated with such projects.....", (page 24, paragraph 32) there is no explicit mention of the use of the World Commission on Dams (WCD)¹⁰ recommendations in assessments. WWF supports these recommendations, *i.e. Hydropower in a Changing World*¹¹. A recent report by WWF¹² revealed that five years after the launch of the WCD, there are still dams that fail to meet the WCD recommendations and cause unnecessary environmental, social and economic impacts.

Moreover, while ADB "increasingly supports projects that promote efficient water management, improve irrigation and drainage, and provide effective flood management interventions" (page 11), ADB's power sector development plans largely neglect smaller scale renewables such as wind power, biomass or solar generation as major options. Hydropower is only one of a number of options to meet regional electricity demand. Smaller scale options are particularly suitable for providing access to electricity for dispersed rural communities, especially where there is no well-developed national grid, such as the case in Cambodia and Lao PDR.

¹⁰ World Commission on Dams, 2000. *The Report of the World Commission on Dams*. <http://www.dams.org/report>

¹¹ http://www.panda.org/downloads/climate_change/hydropowerfacts.pdf

¹² WWF (2005) 'To dam or not to dam', www.panda.org/dams

ADB's Water Policy should guide and encourage exploration of options. All options need to be evaluated more comprehensively, taking into account environmental and social impacts; and priority must be given to energy efficiency. 'Least-cost development energy plans' (p. 19) need to implicitly address environmental and social costs. The focus in energy planning needs to be on sustainability (i.e. balancing economic, social and environmental costs) rather than least (economic) cost.

WWF **recommends** that:

1. Demand Side Management (DSM) should be vigorously pursued
2. Policy, market, and institutional reforms should be implemented to remove barriers and provide incentives for increasing development of alternative forms of sustainable energy generation.
3. Taking into account the above two points, realistic energy demand forecasting should be established.
4. To the extent that additional hydropower development is still necessary, WWF is promoting an approach that will enable an evaluation of cumulative impacts and the relative sustainability of hydropower projects from the perspective of the entire Mekong River Basin. This approach, entitled *Options for Hydropower Development*, will help identify options for hydropower development that can most efficiently meet the electricity needs of the region with the least social and environmental impact. It is an important step towards the implementation of the WCD recommendations in the region.
5. Transmission lines for all proposed dams should be mapped and overlaid with maps of forest cover – transmission routes may need to be adapted to avoid excessive impacts in sensitive areas
6. More research is needed on migratory fish species; environmental flows; predicting the cumulative impact of dams on flow regimes; and the response of the ecology and fisheries productivity of particularly vulnerable water bodies (e.g. Tonle Sap) to these possible changes

WWF's **top 10 guiding principles** for sustainable hydropower are:

1. Proposals for new hydropower plants must conform to the strategic priorities and policy principles of the World Commission on Dams.
2. Governments and international agencies must prioritise investment to service the two billion people globally that are without access to electricity. More investment in small-scale, decentralised renewable energy solutions is needed.
3. Clean Development Mechanism (CDM) and Joint Implementation (JI) hydropower projects should meet Gold Standard¹³ criteria.
4. Some of the remaining unregulated rivers in areas of high conservation value should be designated by governments as "no-go" areas for hydropower schemes.

¹³ WWF's Gold Standards for greenhouse gas reductions under the Kyoto Protocol's CDM and JI: http://www.panda.org/news_facts/newsroom/press_releases/news.cfm?uNewsID=4187

5. Sitting decisions for new hydropower plants need to consider impacts in the whole river basin and opt for sites of minimum environmental impact.
6. Efficient hydropower sites that minimise the area flooded per unit of energy produced should be given preference.
7. The capacity of existing hydropower plants should be upgraded wherever possible, so as to minimise the need for new capacity.
8. Comprehensive environmental mitigation measures (such as environmental flow regimes, habitat restoration and protection and fish ladders) need to be included in all planned and existing hydropower plants.
9. Small hydropower plants can play an important role as a renewable energy source, especially for supplying rural areas in developing countries. However, they must include strict environmental mitigation measures and the cumulative impacts of a large number of small hydro plants must be considered.
10. Project developers must include all stakeholders in decision-making and ensure fair and sensitive resettlement procedures in accordance with WCD principles.

5) Transport Infrastructure development

Improvement of transport infrastructure and expansion of the existing transport network (e.g. road, air, waterways) is a core element of the economic development strategy for the Greater Mekong Subregion as facilitated by ADB that serves as a key poverty reduction strategy in the region. In building a land bridge that developed with less developed areas, and in implementing concurrently "soft" measures such as simplification of customs procedures, resulting increase in movement of people, goods and services both within the region and extra-regionally will have serious implications for environmental sustainability, natural resource management and livelihoods.

It is essential that transport infrastructure is planned on a landscape (*i.e.* basin) scale to account for natural processes that may undermine the integrity of new or improved structures, nature and people. For instance, a road that is constructed across a floodplain without due consideration of annual flooding cycles or particular environmental flows may essentially act as a dam during rainy seasons, with devastating consequences.

ADB's sectoral policies should clearly recognise and articulate the importance of the environment as a cross-cutting issue, and of coherence among all sectoral policies and (flagship) programs to ensure that environmental sustainability is not threatened by infrastructure development. As such, ADB's revised Water Policy could further elaborate upon linkages to other sectoral policies, particularly transport infrastructure considering that it provides the "backbone" for associated developments and investments.

WWF recommends that:

1. New standards for road design (especially in mountainous watershed areas, and floodplain areas) must be developed and promoted, including improving the drainage systems, providing additional culverts, and providing greater through-flow capacity and headroom at bridges and culverts.
2. Strategic Environmental Assessments (SEA) and Cumulative Impact Assessments (CIA) must be conducted for the planned transport sector investments in the GMS economic corridors, and appropriate alternatives or mitigating measures must be implemented.

3. In some areas, it may be more appropriate to consider complete realignment of the road to avoid particularly hazardous locations, or particularly important protected wetland/riverine/coastal habitats or sites, even though traffic times are lengthened.

Another aspect of transport infrastructure within the region is the development of navigation infrastructure. Development that threatens vital ecosystems is unsustainable. This also holds true for inland navigation that is an increasing threat to invaluable freshwater areas world-wide, within the region the Yangtze is a good example of river where navigation has increased dramatically with corresponding negative impacts on the environment, for other examples see Annex 1. But inland navigation is undergoing considerable technological change and renewal that considerably increases the chances for ecologically compatible river navigation. For case study on navigation see the Danube paper¹⁴

¹⁴ **Inland navigation in the new EU – Looking Ahead: Corridor VII or the Blue Danube?**
<http://www.panda.org/downloads/europe/wwfgreenweekdanubenavigationpaperfinal.pdf>

Section II. Policy

In terms of the broad policy framework outlined within the ADB Water Policy, we would generally agree ADB's focus on the seven policy areas (water reform, integrated management, water services, water conservation, regional cooperation, information exchange and governance).

However, we have included some lessons which could strengthen some of the policy areas in future strategy development and implementation.

I) Promote a focus on water sector reform

Whilst full recognising the need for water sector reform, and the mechanisms that ADB is advocating [water assessments etc], WWF have also explored some of the links between poverty and freshwater, both at the field and policies levels and feel that we have some lessons from which draw additional information.

1) Local level - poverty and freshwater

The availability and functioning of freshwater ecosystems have a significant impact on the livelihoods, health and security of the poor. Freshwater services include food, drinking water, building materials, nutrient recycling and flood control. Furthermore, the harmful effects of ecosystem service degradation are often being borne disproportionately by the poor, and are in many cases the principal drivers of poverty and social conflict. It is therefore essential to recognize and integrate the links between **freshwater resources management** and livelihoods into freshwater conservation work.

Several essential lessons can be derived from the four cases presented in WWF's report, *Freshwater and Poverty reduction: Serving People, Saving Nature*¹⁵:

- (i) Sustainable freshwater resource management and livelihoods improvements must not be approached as two separate activities, but as part of a holistic and integrated approach.
- (ii) The ownership of conservation activities must reside with the communities.
- (iii) A key factor of success is a set of enabling conditions already in place when the projects starts, such as strong motivation of local communities; government support and favourable public policies; the availability of local partners; and a set of institutional arrangements at community level already in place.
- (iv) Sustainable freshwater resource management requires a broad set of activities that address different levels – from policy work at the macro level to institutions and capacity building at the community level, to adaptive management at the project level.

This report shows that sustainable management of freshwater habitats provides essential services to the livelihoods of the poor and should be a priority for any government pursuing the Millennium Development Goals.

¹⁵ Schuyt, K., 2005. *Freshwater and Poverty reduction: Serving People, Saving Nature*. WWF International.

2) National level - poverty and freshwater

The central role of the Poverty Reduction Strategy Papers (PRSP) in development assistance is now well established. To varying degrees, the PRSP process serves to integrate and establish priorities for national development strategies facilitate coordination among donor agencies and provide opportunities for engaging important sectors of society in the national development dialogue.

Not so clearly established is the role that the environment plays in poverty reduction and the development process writ large in many developing countries. While some voices in the World Bank, UNDP, the European Commission and other agencies, not to mention groups from civil society, have encouraged governments to increase the attention given to environmental issues, great unevenness remains regarding the importance given to natural resource management in poverty alleviation processes. This relative lack of attention continues despite the fact that livelihoods of the rural poor, representing 70 per cent of the world's poor, depend intimately on access to environmental goods and services.

Below abstracts and recommendations from four papers are presented which cover some of these issues.

(a) Poverty reduction, sustainable water and river management and multilateral development banks. Rhetoric but little action? J Pittock¹⁶

Abstract

In 2000 and 2002 the world's governments set targets for improving water management and providing water and sanitation services to the poor. These targets are a threat and an opportunity for the sustainable management of rivers. WWF assessed the performance of donor and developing nation governments to better manage water¹⁷. We examined the Poverty Reduction Strategy Papers of ten countries and the EU-ACP Country Strategy Papers of five countries in detail. We made a rapid assessment of 30 developing and 22 donor countries activities for water management, poverty reduction and the environment. The assessment shows that the key, initial planning and resource commitments needed to achieve water related targets are not being met. The governments and multilateral development banks have not linked the water targets to the key strategies that prioritise and fund action. Despite the political rhetoric, developing nations have not prioritized water services as a priority to reduce poverty in their strategies investing instead in infrastructure projects. To avoid continuing poverty and greater degradation of the world's rivers, both developed and developing governments and multi-lateral development banks must overcome these obstacles.

(b) Another analysis of PRSP's conducted by WWF. "POVERTY ENVIRONMENT: Developing and Testing a PRSP Evaluation Methodology"¹⁸

Given the broad impacts of PRSPs, the WWF Macroeconomics for Sustainable Development Program Office (MPO) sought to assess to what extent P-E realities and challenges have been incorporated into plans and policies described in country PRSPs. The MPO developed and tested a comprehensive methodology to evaluate the extent and quality of coverage of P-E issues in PRSPs and related documents, including WB and IMF Joint Staff Assessments of PRSPs and PRSP progress reports.

¹⁶ Presented at International River Symposium paper, session 3C.1, "The role of banks in river 3rd September 2004
<http://www.panda.org/downloads/freshwater/intriversymposiumpaperjpittock.pdf>

¹⁷ ODI / WWF report on "Water and Poverty Reduction: ODI Water Policy Programme" March 2004
http://www.odi.org.uk/wpp/publications_pdfs/Peter_WWF_report_March_draft.pdf

¹⁸ POVERTY ENVIRONMENT: Developing and Testing a PRSP Evaluation Methodology
<http://questions.panda.org/downloads/policy/prspfinal.pdf>

The MPO's analysis comprised a quantitative and qualitative review of four countries' PRSPs (Cameroon, Nicaragua, Sri Lanka, and Vietnam), risk assessment of potential costs to the poor or the environment of PRSP implementation, and development of four country case studies.

The major findings include:

- (i) All the PRSPs contained some reference to P-E issues, but the extent and quality varied greatly, as did the links made between the environment and other sectors.
- (ii) Conceptual links between poverty and the environment were acknowledged, but not in adequate depth.
- (iii) All the PRSPs contained policies and plans targeting the environment or the P-E interface, but detail, coherence, and consistency differed considerably.
- (iv) The PRSPs contain some examples of best practices, including innovative environmental management measures, but monitoring and evaluation frameworks are limited.
- (v) None of the PRSPs assessed the risks to the P-E context of proposed economic growth policies.
- (vi) Preliminary information on budgets in the PRSPs suggests that governments have not committed to making significant investments in the environment arena.

Based on the analysis, the MPO recommends:

- (i) Improved coverage of P-E issues and relationships in PRSPs and provision of more details on proposed measures.
- (ii) Application of an effective set of indicators for monitoring outcomes.
- (iii) More accurate reflection and discussion in PRSPs of the risks and trade-offs of macroeconomic policies and their financing in designing interventions that address the P-E dynamic.
- (iv) Building country-level capacity in diagnosing and addressing P-E links and challenges.
- (v) Expanding participation in development of PRSPs.

3) Global / regional level - poverty and freshwater

The 10 year economic development and integration plan for the Greater Mekong Subregion¹⁹ is being realised through 11 "flagship programs", including for flood control and water resources management. Of note is the absence of a program to address water and wastewater treatment in particular. As poor people are particularly vulnerable in unhealthy and unsafe environments, they likely will suffer the most from *e.g.* exposure to polluted water bodies and sources of drinking water. ADB's Water Policy should highlight and provide opportunities to address this gap.

On the global level, WWF's position on the Millennium Development Goals – as reiterated in advance of the recent 2005 World Summit – underlines the cross-cutting nature of MDG Goal 7: Environmental Sustainability particularly in relation to MDG Goal 1 on poverty reduction:

MDGs: Achieving True Sustainable Development²⁰

Creating Better Conditions for Poverty Reduction and Environmental Sustainability

To bring about true sustainable development the current shortcomings of urban focused, growth oriented development strategies that mine the rural environments of the world must be reversed. Country governments, international agencies and others involved in the achievement of the MDGs should:

- Invest more in combined poverty reduction and environmental sustainability initiatives

¹⁹ 2001 Strategic Framework for the Greater Mekong Subregion

²⁰ http://www.panda.org/about_wwf/what_we_do/policy/mdg/summit_2005/true_sust_dev.cfm

- Ensure that all sectoral initiatives, particularly agriculture and other natural resource based development initiatives fully address the environmental sustainability challenges and opportunities
- Ensure that environmental sustainability and conservation initiatives fully address the poverty reduction challenges and opportunities

Livelihoods, Conservation and Rural Development

In order to improve the livelihoods of the majority of the world's poor and foster rural conservation, rural development must be given central stage in national development strategies, but it needs to go beyond the current push for more production and increased market access. It needs to include also:

- Establishing institutions that are accessible and responsive to small farmers' and peasants' needs
- Supporting the building of social capital through empowerment, capacity building and economic support
- Creating coherence among local, regional and national frameworks so that local level pro-poor, pro-environment initiatives find supportive regional and national level policies and institutions
- Increasing, improving and securing access by the rural poor to the natural resource base, hence clarifying rights and responsibilities for natural resource management
- Integrating sustainable environmental management into rural development and making it profitable to rural producers;
- Acknowledging and improving the role of rural communities as stewards of rural environments and compensating these activities through payment for environmental services schemes

WWF's Challenge to the Development Community

WWF and others in the conservation movement have learned that to be sustainable, conservation programs in developing countries need to be pro-poor, empower rural communities and open new opportunities to increase their incomes and assets.

We challenge the development community to make a similar acknowledgement, namely that achieving long-lasting poverty alleviation is intimately tied to investing in environmental sustainability.

II) Foster the integrated management of water resources

WWF fully supports ADB's focus on the integrated management of water resources. WWF believes that Integrated River Basin Management (IRBM) is the most promising vehicle for employing the tools necessary to meet and overcome the global water crisis. The organisation is committed to facilitating IRBM processes in major river basins around the world, with an emphasis on biologically diverse and transboundary basins, where the challenges to integrated management are often greatest. WWF's freshwater ecoregion sourcebook outlines a method for prioritising actions needed to conserve biodiversity within each river basin.

IRBM rests on the principle that naturally functioning river basin ecosystems, including accompanying wetland and groundwater systems, are the source of freshwater. Therefore, management of river basins must include maintaining ecosystem functioning as a paramount goal. This 'ecosystem approach' is a central tenet of the Convention on Biological Diversity. River basins are dynamic over space and time, and any single management intervention has implications for the system as a whole.

(a) **Integrated river basin management – lessons learnt from field experience**²¹

Lesson 1: Long-term investment is needed.

- Be ready for the long haul – building an IRBM approach requires long-term financial and 'technical' investment.
- Be prepared to invest time in building trust and understanding among stakeholders.
- A long-term management framework, such as a river basin commission, is needed to give the stability necessary for IRBM to succeed.
- Avoid generating expectations of quick results among partners and stakeholders who may become anxious and/or disillusioned if progress is slower than expected.

Lesson 2: River basin management requires an integrated, holistic and strategic approach, based on a clear vision and agreement on the values – natural, social, and economic – to be conserved and the sustainable livelihoods needed by the people of the basin.

- Seek ways to address the threats to ecological sustainability and promote the long-term economic and social benefits of environmental protection.
- Recognize that issues such as gender equity, human health, economic and socio-cultural development are important incentives for local communities to engage in conservation, and also contribute to the sustainability of river basin management initiatives.

Lesson 3: Biodiversity conservation may have to take a back seat.

- Conserving biodiversity is unlikely to be a primary issue for many stakeholders. Those with biodiversity conservation goals may need to promote solutions that provide demonstrable socio-economic benefits first, with ecological benefits as a by-product.

Lesson 4: It is important to work at different levels simultaneously.

- Typically, this involves multiple approaches, ranging from policy work to public awareness, and field projects to lobbying of decision-makers.
- 'Model' projects can be decisive in demonstrating that the principles of IRBM can be translated into tangible on-the-ground actions.

Lesson 5: Effective partnership building is an essential ingredient of IRBM and enables far more to be accomplished than by working alone.

- Successful partnership building requires a readiness to work with 'non-traditional' partners, to involve local expertise, and to support efforts to build local capacity.
- An 'honest broker' and/or bridge builder may be needed to identify workable solutions.
- Be willing to facilitate dialogue between government officials, scientists and local stakeholders where there are usually language/terminology barriers.

Lesson 6: Be ready to seize unexpected opportunities.

- Opportunities can arise unexpectedly due to changing political circumstances or through river management problems.

Lesson 7: Sustained efforts are needed to raise public awareness and gain the support of local communities.

- It is critical to establish a recognizable identity for the river basin and to develop key messages about the ecosystem and flagship species that resonate at all relevant levels.
- Strategic use of the media and the involvement of senior community figures may help to build public understanding, acceptance and implementation of IRBM.

Lesson 8: River basin conservation must build on a strong informational and science base.

- Forge partnerships with the scientific community and invest in building the necessary informational base while planning and implementing interventions.

Lesson 9: River basin management must be established as a political priority.

- The development and implementation of government policies that entrench IRBM and build capacity for its implementation are vital.
- Aim for IRBM to be integrated into government development plans.
- Effective management of transboundary basins requires international cooperation and can be fostered through international treaties and basin-wide organizations.

Lesson 10: Formal protected area designations may be vital for long-term underpinning of river basin management.

²¹ Lessons Learnt from IRBM

http://www.panda.org/about_wwf/what_we_do/freshwater/our_solutions/rivers/irbm/lessons.cfm
<http://www.panda.org/downloads/freshwater/managingriversintroeng.pdf>

- Legislative protection or formal recognition for key freshwater ecosystems can help to underpin the use of other tools and approaches.

Lesson 11: The conservation community can catalyse and demonstrate, but effective and sustained implementation of river-basin scale solutions depends on governments, the corporate sector, civil society, communities and individuals accepting and committing to the principles of IRBM.

- The long-term viability of IRBM initiatives depends on building the capacity of civil society organizations, promoting cross-sectoral dialogue and policies, and leveraging resources.

(b) WWF Briefing paper on IRBM presented during a joint press conference held by WWF, Sida (Swedish International Development Agency) and IUCN in advance of the 2nd GMS Summit of leaders in Kunming, PRC in July 05 - See Annex 2

(c) The European Union Water Framework Directive (WFD) has become a vital tool for water management in the EU. The WFD promotes the integrated management of water resources to support environmentally sound development and reduce problems associated with excessive water abstraction, pollution, floods and droughts. The WFD provides the framework for water policy decision-making within the river basin (catchment) context. It will require the integration of industrial, agricultural, rural development, nature conservation and forestry programmes etc. at the river basin scale and, in many cases, transboundary collaboration between European countries.

There is a good support for the principles and purpose of the WFD from environmental NGOs, public authorities and the private sector. However, the implementation process and likely impact of its measures remain unclear for many. Awareness raising on the WFD should be given due attention and promoted. Overall, increasing public awareness - building on the existing experience and expertise in water management that exists across Europe - is likely to facilitate a successful implementation of the WFD.

WWF has been closely involved in the development of the WFD and has supported its implementation in many ways²². One example is the "Elements of Good Practice in Integrated River Basin Management: A Practical Resource for implementing the EU Water Framework Directive"²³

The publication presents the principal outputs of the Water Seminar Series, with a focus on integrated river basin management, the central requirement of the WFD. It is not intended to be a comprehensive guide to all aspects of WFD implementation, but rather to provide clear, concise and practical information on good practices for implementing the Directive regarding the issues listed below.

This Practical Resource document is divided into 5 chapters. The 3 introductory chapters provide background information about the Water Seminar Series, the requirements of the WFD, and the WFD Common Implementation Strategy. Chapters 4 & 5 present the main seminar outputs, respectively:

- Horizontal issues or cross-cutting principles that need to be considered at every stage of WFD implementation, in order to ensure effective integrated river basin management
- Lessons learned and examples of good practice for specific WFD requirements

²² Other examples of WWF's work with WFD:

http://www.panda.org/about_wwf/where_we_work/europe/what_we_do/policy_and_events/epo/initiatives/freshwater/wfd-seminars.cfm

²³ Elements of Good Practice in Integrated River Basin Management: A Practical Resource for implementing the EU Water Framework Directive <http://www.panda.org/downloads/europe/WFD-PRD-en.pdf>

It is hoped these will help stimulate and guide practical action towards early and effective WFD implementation. Additional sources of information are provided throughout the text.

III) Improve and expand the delivery of water services

Improved water distribution and sanitation services are obviously needed to help combat poverty, disease, and pollution. However, water shortages in many countries are primarily due to poor management²⁴: water sources have not been conserved and water is not used efficiently. These problems are not limited to developing countries. The Colorado River in North America and Murray River in Australia are amongst the Earth's major rivers that are regularly sucked dry.

WWF is also involved in some innovative partnerships:

(i) **Water and Sanitation for the Urban Poor (WSUP)**²⁵

WSUP's mission is to advance the Millennium Development Goals for water, sanitation, and associated health benefits through multi-sector, stakeholder partnerships delivering sustainable, equitable, and affordable water and sanitation services to the urban poor in developing countries.

WSUP was first established on 1 September 2004 via a MoU and then formally incorporated in the UK on 9 April 2005 as a not-for-profit company limited by guarantee. Its membership is made up of three businesses, three international Non Government Organisations (NGOs), and one academic institution. WSUP is also fortunate to have the United Nations Development Programme (UNDP) as an observer member.

Current WSUP members: NGOs - CARE International UK, WaterAid, WWF; Businesses - Halcrow Group, RWE Thames Water, Unilever; Academic Institutions - IWE, Cranfield University; Observers - United Nations Development Programme (UNDP)

(ii) **HSBC**

WWF has a long term relationship with HSBC, which has included working closely with the bank as they develop their corporate social responsibility programme including ethical investment criteria. As part of that process HSBC adopted Freshwater Infrastructure Guideline²⁶ at the bank's Annual General Meeting (AGM) 27 May 2005. It is based on widely adopted international sustainable development standards adopted by stakeholders including the World Commission on Dams (WCD) as well as other industry participants, development agencies and major environmental non-governmental organisations.

Having been adopted by the UN as a basic human right, freshwater has become a focus for conservation agencies the world over. In 2002, the World Summit on Sustainable Development (WSSD) committed to halve the number of people without access to clean water and sanitation by 2015, an undertaking that will cost up to US\$180billion every year.

By setting out the transactions that HSBC will and will not support, the guideline ensures that the bank's activities are consistent with its focus on sustainable development, and its overall commitment to the environment – a major part of HSBC Group's Corporate Social Responsibility strategy.

²⁴ Fixing the global water crisis needs more than taps and toilets
http://www.panda.org/about_wwf/what_we_do/freshwater/news/news.cfm?uNewsID=2628

²⁵ WSUP <http://www.wsup.com/index.htm>

²⁶ HSBC Freshwater Guidelines
http://a248.e.akamai.net/7/248/3622/dcb5640e22fa57/www.img.ghq.hsbc.com/public/groupsite/assets/about/csr/freshwater_infrastructure_guideline.pdf

The Freshwater Infrastructure Guideline is the second such lending directive published by the world's second largest bank. At last year's AGM, HSBC published a guideline for the forest land and forest products sector²⁷, setting out principles for good management to which prospective clients working in the sector should adhere. The guidelines reinforce HSBC's commitment to the Equator Principles, a set of voluntary guidelines providing a common framework for major banks to address environmental and social issues arising from financing projects.

IV) Foster the conservation of water and increase system efficiencies.

The future will be all about entering into a world of scarce natural resources; a key part of the management of those resources will be conservation and increasing system efficiencies. Set in context of managing water resources within river basins as competition increases, leads to a focus on efficiency, understandably the focus of ADB is on increasing equity in poor and capacity building.

From WWF's perspective, we have encouraged water conservation and improved efficiencies from many angles, previous examples have been given within the IRBM principles we encourage, also the hydro-power recommendations. Additionally some [amongst many] other examples include; 1) Running Pure: The importance of forest protected areas to drinking water²⁸; 2) GATS, Water and the Environment: Implications of the General Agreement on Trade in Services for Water Resources²⁹; 3) The Economic Values of the World's Wetlands³⁰. Agriculture has the major user of water in the world has been a particular focus of WWF's activities. Some examples are given below;

Agriculture

WWF promotes water efficiency through more suited crops, improved water management, removing trade barriers³¹ and ending perverse subsidies³².

Water savings on farms

WWF believes that growing crops more suited to the location and season would give more 'crop per drop'. In the Niger River basin, for example, rice is grown in the dry season, and therefore demands more water. Switching to growing wheat during that season could reduce water use by more than a third on average while still producing a crop of food and commercial value.

Farmers can also reduce losses in storage and conveyance, in evaporation from the soil or water surface, and from run-off and drainage. Measures can also be taken to improve the farm's 'micro-climate', for example, by planting trees for shade or windbreaks, or adding plant wastes to increase the organic content of the soil, to increase water retention and reduce overall water use.

Irrigation systems and river basins

In many countries, individual farmers are dependent for their water supply on whoever controls large-scale irrigation systems. Much can be done to improve efficiency through

²⁷ HSBC Forest Guidelines:

<http://a248.e.akamai.net/7/248/3622/e68469fa4d3f21/www.img.ghq.hsbc.com/public/groupsite/assets/about/csr/forestlandpdf.pdf>

²⁸ <http://www.panda.org/downloads/freshwater/runningpurereport.pdf>

²⁹ <http://www.panda.org/downloads/policy/gatswaterenvironment.pdf>

³⁰ <http://www.panda.org/downloads/freshwater/wetlandsbrochurefinal.pdf>

³¹ http://www.panda.org/about_wwf/what_we_do/freshwater/our_solutions/policies_practices/market_mechanisms.cfm

³²

http://www.panda.org/about_wwf/what_we_do/freshwater/our_solutions/policies_practices/ending_perverse_subsidies.cfm

better system design, regular maintenance and effective drainage, and equitable procedures for allocating water among farmers where there are shortages.

Governments should also ensure that enough water remains in rivers and wetlands to maintain water suppliers, fisheries and wildlife habitats. Altering the natural flow of rivers through dams, for example, may result in decimated fish stocks as the breeding cycles of fish are affected and migration routes are blocked. Freshwater fish are an important source of protein for the many of the world's poor.

Governments must work with farmers and the food industry to develop better management practices in order to increase efficiency and reduce damage to the environment. WWF and the World Bank are exploring financial incentives that encourage farmers and investors to adopt better management practices³³, for example eco-labels promoting environmentally-friendly products and offering a reduction in financial risks.

V) Promote regional cooperation and increase the mutually beneficial use of shared water resources within and between countries

Within the Asia Pacific region many major rivers flow through more than one country. The potential for international conflict over such shared water resources is high. Mechanisms to ensure the equitable sharing of resources among the stakeholders concerned exist for only a relatively small number of these international rivers. Only by taking a holistic, integrated approach to planning and managing all activities within river basins can solutions to the current global freshwater crisis be found.

This will frequently require transboundary co-operation between countries, sometimes across wide geographical, cultural, political and economic divides. It will always require that the long-term social, economic and ecological benefits of healthy freshwater ecosystems are given priority over short-term financial or political gain. The unthinkable alternative is to lose some of the finest jewels of the natural world, including the famous rivers described below. This would indeed be a catastrophe for all life on Earth.

The issues of transboundary co-operation is highlighted in some of the previous lessons, some other examples include at the national level the Yangtze Forum, see Annex 3 which was submitted to the GMS meeting in July 05.

Another example is from "International Organisations urge G8 World Leaders to allocate funds to promote cooperation over transboundary waters for development, security and peace"³⁴

INTEGRATED TRANSBOUNDARY WATER RESOURCES AND BASIN MANAGEMENT:

As a resource that transcends political and administrative boundaries, the world's freshwater resources must be shared amongst individuals, economic sectors, intrastate jurisdictions and sovereign nations, while respecting the need for environmental sustainability. The implementation of IWRM needs political will and a long-term financial commitment.

This should include: (a) the development and adoption of new national water laws which introduce or reinforce IWRM and basin management techniques; (b) the establishment of national and international river basin organisations; (c) the adoption of international conventions, treaties, and/or declarations concerning the management of freshwater; (d) the implementation of coherent systems of monitoring, exchange of appropriate information and the setting up of relevant databases; (e) the elaboration and adoption of national and

³³ Sugar impacts and best management practices http://www.panda.org/downloads/sugarandtheenvironment_fidq.pdf

³⁴ <http://www.panda.org/downloads/freshwater/g8appealintngofinal.pdf>

regional master plans for water; and (f) the creation of sound funding systems based on common causes and solidarity within basins.

TRANSBOUNDARY WATER LAW AND INSTITUTIONS – IMPROVED GOVERNANCE:

The establishment of transboundary basin organisations has been a success in many basins at the international and sub-national levels, such as the Rhine, Lake Geneva, the Great Lakes and St Lawrence, the Senegal, the Mekong or the Murray Darling, but many transboundary basin institutions do not have sufficient authority, capacity or resources. What is worse, the majority of transboundary basins have no inter-state water institutions at all.

The need for the widespread establishment and reinforcement of basin organisations to improve governance and facilitate stakeholder participation is in line with recommendations of the international community to elaborate a common vision for basin management.

GUIDING PRINCIPLES AND RECOMMENDATIONS:

Greater political will and integrated pragmatic actions which respect cultural and geographic diversity are urgently needed to alleviate poverty and sustain ecosystems, with particular emphasis on:

Sharing benefits: Discussions on transboundary cooperation should be based on recognition of interdependence and highlight the myriad of benefits of integrated management at the river, lake and aquifer basin level for all States involved. Redistribution of these shared benefits at the national level needs stakeholder participation processes and integration in poverty reduction strategies.

Environment: The importance of the integrity of ecosystems must be incorporated within inter-state and basin agreements. Healthy and functioning ecosystems are vital to safe and clean water supplies and risk prevention. Moreover, the biodiversity of rivers and lakes is a vital element of food security in many parts of the world. Well-meaning goals for equitable water access and cooperation will remain insignificant if investment in the health of rivers as the source of water for people and nature is ignored. Steps need to be taken to implement environmental flows, where sufficient and non-polluted water is allocated to maintain healthy river systems, estuaries and coastal areas for the benefit of people and the environment.

Participation and Capacity Building: The value and importance of stakeholder involvement in decision-making should be enhanced. Transparency and information sharing should help stakeholders to obtain the capacity to fully participate in the development of basin and aquifer strategies, agreements and institutions. Awareness raising and education, including training of mediators, should be implemented to ensure that all stakeholders learn how to best take up the challenges of sharing water.

Law: International conventions and domestic law should become a more powerful tool in transboundary water conflict prevention and resolution, management, and environmental protection. There is a need for integrated and effective management agreements among all states in each transboundary river, lake or aquifer basin. Additional measures are needed to clarify and strengthen the protection of water systems from armed conflict and terrorist attack.

Facilitation and Mediation: Access to water mediation capacity needs to be established to avoid or resolve conflicts in collaboration with basin organisations, governments and other stakeholders. Financial support: International assistance can promote cooperation in transboundary river and aquifer basins by financing and facilitating communication and the creation or reinforcement of joint institutions between basin states and stakeholders. In many regions of the developing world there is no infrastructure for even the collection and exchange of data with neighbouring countries: international financial commitment is vital

and should be increased. Funding mechanism should be coordinated and adapted to support activities specifically related to transboundary water bodies.

VI) Facilitate information exchange

WWF would fully support ADB in knowledge exchange, and the whole series of techniques that are being used to transfer knowledge – web site, news letters, training course (i.e. NARBO) etc. WWF likewise has a whole series of similar mechanisms, beyond some of the reported links that have already provided, a couple of additional other areas that might be of interest

IRBM training course

(a) WWF College³⁵ – within the WWF network we have set up an on-line training programme for staff. Participants in the WWF College invest in leadership by sharing ideas, contacts and lessons learned in conservation projects and programs around the globe. One of the modules includes a programme on IRBM.

(b) WWF has also worked with UNESCO-IHE in the development of an on-line IRBM course³⁶. The objectives of IRBM course are:

- Understanding interactions between development, water and environment at the river basin scale
- Understanding the importance of holistic approaches in river basin research and management
- Being aware of the latest concepts, international trends and practices of Integrated River Basin
- Management
- Learning a critical attitude towards use and implementation of IRBM concepts in specific river basins

VII) Improve governance

Making water governance effective is an essential step in supporting healthy and productive lives and safeguarding the environment. WWF promotes better water governance arrangements and good practice centred on the principles of integrated river basin management (IRBM) see lesson 3. Capacity to plan, manage and implement programmes of action at all levels is central to achieving the desired outcomes and we support capacity building by providing expertise and knowledge and by facilitating access to information. Research co-operation forms an important part of such activities. WWF would fully support the ADB in its endeavours to support good governance.

³⁵ WWF College. <http://www.wwfcollege.org/e22/Wwf21/guest/000/000/000/005sso?ECT=22>

³⁶ UNESCO-IHE IRBM Course <http://www.unesco-ihe.org/education/downloads/DLC/Online%20IRBM%20course.pdf>

ANNEX 1

A case of river surgery?

Ever since man began trading, rivers have been used for navigation.

Clean method of transport

Transport over water is a relatively clean method of transport, but the development of rivers for navigation often leads to irreversible destruction of river courses and negative impacts on vulnerable groups of people.

The first alterations to rivers to allow shipping date back at least 2000 years when Romans and Egyptians erected small barriers to allow sufficient water depth for their vessels during times of insufficient flow. With more technical know-how, the rate of modification has increased rapidly since the 1900s.

Of 230 major rivers in the world around 60% are considered to be seriously or moderately 'cut-up' by dams, dikes and dredging, with improved river transport often being one of the main objectives.

Western Europe's Rhine River is perhaps the best known example of navigation schemes that alter a river forever. It is arguably the busiest shipping route in the world - over 1 million containers travel up and down it each year. To make an 880 kilometre stretch of the river navigable, no less than 450 dams were built on its course and thousands of kilometres of banks were built. Meanders were removed and the Rhine has become 25% shorter as a result.

Altering a river's course and changing and bending its shape affect communities and ecosystems. As seen in the Rhine:

- Ecosystem breakdown. Migratory fish species disappeared as a result of the dams and pollution, and all typical river systems vanished including river forests, sandbanks, marshes. The modifications led to erosion of the riverbed which fell by 7 metres in places and the river lost its ability to handle large amounts of water either from melted snow in the Alps during Spring or after excessive rainfall.
- Flood damage. Heavy floods during the last ten years and billions of dollars of damage have demonstrated that one-sided development of the river for navigation was unwise. The governments of the Rhine countries - the Netherlands, Germany, France and Switzerland - now recognise this and have pledged to pay something back. Hundreds of millions of dollars are now spent annually to manage the river differently by restoring wetlands along the river and widening the river course by breaking dikes.
- Loss of a food staple. Salmon was once poor man's food: in the contract of a Dutch house maid from 1920, it was recorded that three times per week her supper would be 'Rhine Salmon'. Today, wild salmon are rare and it is unlikely that they will ever roam again freely along the course of the Rhine.

Rivers that are relatively untouched today are not immune to destruction by navigation schemes. For example, Venezuela's Orinoco River is now the focus of plans to develop the interior of the country using it to transport commodities to national and world markets. It may be possible to maintain the Orinoco 'unscarred' while meeting shipping needs. Techniques include the use of flat bottom barges. Around the world, rivers could also profit from combined railway-river transportation schemes.

ANNEX 2

Integrated River Basin Management (IRBM)

Integrated river basin management (IRBM) is the process of coordinating conservation, management and development of water, land and related resources across sectors within a given river basin, in order to maximise the economic and social benefits derived from water resources in an equitable manner while preserving and, where necessary, restoring freshwater ecosystems.³⁷

IRBM rests on the principle that naturally functioning river basin ecosystems, including accompanying wetland and groundwater systems, are the source of freshwater. River basins are dynamic over space and time, and any single management intervention has implications for the system as a whole. Therefore, management of river basins must include maintaining ecosystem³⁸ functioning as a paramount goal.

WWF believes that IRBM is the most promising vehicle for employing the tools necessary to meet and overcome the global water crisis³⁹. The organisation is committed to facilitating IRBM processes in major river basins around the world, with an emphasis on biodiverse and transboundary basins, where the challenges to integrated management are often greatest.

The seven key elements to a successful IRBM initiative are:

1. A long-term vision for the river basin, agreed to by all the major stakeholders.
2. Integration of policies, decisions and costs across sectoral interests such as industry, agriculture, urban development, navigation, fisheries management and conservation, including through poverty reduction strategies.
3. Strategic decision-making at the river basin scale, which guides actions at sub-basin or local levels.
4. Effective timing, taking advantage of opportunities as they arise while working within a strategic framework.
5. Active participation by all relevant stakeholders in well-informed and transparent planning and decision-making.
6. Adequate investment by governments, the private sector, and civil society organisations in capacity for river basin planning and participation processes.
7. A solid foundation of knowledge of the river basin, and of the natural and socio-economic forces that influence it.

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³⁷ This definition is derived from the Task Force on IBRM of the China Council for International Cooperation on Environment and Development (CCICED).

³⁸ This 'ecosystem approach' is a central principle of the UN Convention on Biological Diversity (CBD), to which the six countries in the GMS are Party.

³⁹ Further information on WWF and IRBM approaches around the world:

http://www.panda.org/about_wwf/what_we_do/freshwater/our_solutions/rivers/irbm/index.cfm

ANNEX 3

The Yangtze Forum

Background

The Yangtze River – the largest river in China and the third largest in the world – is not only one of the cradles of Chinese civilisation, but also a crucial lifeline to secure the sustainable socio-economic development of China.

The Yangtze River Basin, covering less than one fifth of the nation's area, feeds one third of the Chinese population. Both grain production and gross domestic product of the Basin account for two fifths of China's total amounts.

As one of the most vigorously developing areas in China, the Yangtze River Basin is rapidly changing through economic development. In providing 36.5% of China's freshwater resources, 48 % of exploitable hydropower potential and 52.5% of inland navigation waterway mileage, the Yangtze River Basin is a node for hydropower development. The river basin is a key water supply source for northward river-diversion schemes via three routes: east, middle and west. In linking east with west, the "Golden Waterway" is a treasury house of endangered, rare and precious aquatic species.

Improving the protection, management and development of the Yangtze River is not only immediately relevant to the well-being of over 400 million inhabitants in the river basin, but also to the nation's socio-economic development in general.

Current situation

The Yangtze River Basin ecosystem has been badly damaged due to rapid and unsustainable economic growth, and dramatic increases in population. Moreover, conflicts among sectors *i.e.* infrastructure development, urban development, fisheries, agriculture, forestry, flood control, have given rise to poorly planned and irrational development / utilisation activities, and inadequate investment.

These have caused a series of environmental problems, including a large reduction of lake and wetland areas, serious levels of pollution in some water bodies, reduced runoff retention capacities in the floodplain area, severe soil erosion in the upper and middle basin, exhaustion of fish resources, endangerment of many species, and growing desertification in upstream areas, and fragmentation of the river ecosystem due to dam and embankment constructions.

Options and solutions

The first Yangtze Forum was held in Wuhan from 16-17 April 2005. The Forum was attended by leading officials from all 11 Provinces and Municipalities in the Yangtze River Basin, ministers and vice ministers of relevant central bodies, representatives of 14 countries and several international organizations, including WWF and the Global Water Partnership (GWP). The conference was opened by the Governor of Hubei Province, and the Minister of Water Resources gave the keynote speech.

Conceived by the China Council for International Cooperation on Environment and Development (CCICED) Task Force on Integrated River Basin Management (IRBM) in 2004, the Forum called for a collective approach to tackling environmental and social issues. It was the first time that such a large number of major stakeholders had convened to discuss the development and conservation blueprint for the entire Yangtze Basin, which was clearly beyond individual sectoral and administrative mandates.

The Yangtze Declaration on Protection and Development

Participants agreed on a joint statement of shared priorities and goals: the Yangtze Declaration on Protection and Development. The Declaration promotes "*ensuring health of the Yangtze and promoting harmony between humans and nature*". The basic of "*combined and concurrent protection and development*" should be applied as a guiding principle for management of the river.

Specifically, it calls for a revision and updating of the Master Plan for Comprehensive Utilization of the Yangtze River Basin and for adding the principle of insuring good ecosystem health as a key target. The IRBM approach is fully adopted by the 26 co-sponsors and the participants. It was clear from the Forum that there is considerable political commitment for implementing IRBM in the Yangtze Basin, which will significantly influence the philosophy of river basin management in China and beyond.

Next Steps

Hunan's Provincial Government has already committed to organize the next Yangtze Forum in 2007, for which WWF has recommended the advance preparation of a comprehensive Yangtze Development and Conservation Report by concerned parties. This report would cover a number of critical issues in the Yangtze Basin from a conservation perspective, including sustainable wetlands use, mitigating lake eutrophication, sustainable forest management, climate change/impacts and adaptation strategy, protected area network across the river basin, freshwater dolphin conservation, sustainable fishery, environmental flows, water infrastructure and impacts on ecosystems, ecological compensation, poverty and environment. WWF China has programmes and expertise on these issues in the basin.

Many of the bilateral government aid agencies that were present at the 2005 Yangtze Forum had expressed a high level of interest in future involvement, with funding implications. Equally important, several had noted that the Yangtze Forum and Declaration would be useful for development of their water-related programmes in China.

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