

PROJECT SUMMARY

Project Identifiers	
1. Project name: World Water Vision - Water and Nature	2. GEF Implementing Agency: World Bank
3. Country or countries in which the project is being implemented: Global: GEF Recipient Countries	4. Country eligibility: Paragraph 9 (b) of GEF Instrument.
5. GEF Focal Area: International and transboundary waters with relevance to biodiversity	6. Operational Programme/short-term measure: OP #10, Global Support Component
8. GEF national operational focal point and date of country endorsement: Not applicable	
Project Objectives and Activities	
<p>9. Project rationale and objectives:</p> <p><i>Rationale:</i> Water quality, availability and aquatic biodiversity are seriously threatened around the world by competing uses, inadequate waste management, excessive consumption, contamination of aquifers, lack of proper water distribution, and excessive farming on marginal lands, among many other factors. Steps must be taken to alter the way in which we manage global freshwater resources (both single country and transboundary).</p> <p><i>Purpose:</i> The Vision project is designed to find solutions over the long term to the factors that contribute to the problems of water misuse. The objectives of the Vision process are to:</p> <ul style="list-style-type: none"> • Raise awareness of issues among general population and decision-makers so as to foster political will and leadership. • Develop a vision of water management in year 2025 that is shared by water sector specialists and civil society. • Provide input to the Global Water Partnership (GWP) investment strategy. 	<p>Indicators:</p> <ul style="list-style-type: none"> (a) Scope and scale of improved cross-sector integrated water resource management (b) Increased public involvement in co-management of water resources (c) Legislative, economic and social policies and programs aimed at environmentally sustainable water resource management (d) Demonstrated declines in loss of freshwater biodiversity and sustained production of living aquatic resources
<p>10. Project outcomes:</p> <p>(a) Regional and sector visions for water use that are mutually compatible, accepted by</p>	<p>Indicators:</p> <p>(a) Effective community-based, national, multi-lateral sustainable water use planning</p>

<p>governments and civil society and fully integrated into the World Water Vision</p> <ul style="list-style-type: none"> (b) Heightened public awareness of the demands of freshwater ecosystems for water and the valuable environmental goods and services afforded by aquatic ecosystems (c) Government and public commitment to sustainable integrated water resource management (d) Guidance to assist GWP in effective and efficient deployment of financial and human resources 	<p>processes that incorporate aquatic biodiversity and transboundary considerations</p> <ul style="list-style-type: none"> (b) Effective national and international policies and programs addressing water use problems and their environmental consequences (c) Demonstrable protection of wetlands and aquatic biodiversity
<p>11. Project activities to achieve outcomes (include cost in US\$ or local currency of each activity):</p> <ul style="list-style-type: none"> (a) Central Functions: Commission and Vision Unit (\$3947K) (b) Central Support Framework for Action (FFA) (\$900K) (c) Sector Vision Consultations (\$2350K) (d) Regional Mapping/Visioning/FFA (\$5020K) (e) Network Consultations (\$1000K) (f) Communication (\$350K) (g) Management Support WWC (\$278K) <p>TOTAL: \$13,845K</p> <p>[NOTE: GEF requested funds (\$700K) constitute 5% of the total budget; these funds will be spent in support of Regional Mapping/Vision Consultations and the Sectoral Vision Consultations for Water and Nature exclusively. These activities also receive support from many other sources as outlined below.]</p>	<p>Indicators (Those funded by GEF Contribution):</p> <ul style="list-style-type: none"> (a) Participation of technical specialists from recipient countries at up to 10 Regional Vision workshops and the three Water and Nature workshops. (b) Published discussion papers on all aspects of Social, Economic and Environmental Security related to Freshwater Ecosystem Management, including cross-sectoral and transboundary considerations, including examples in GEF recipient countries. (c) Creation and Operation of WWW site to solicit concerns of interested bodies and individuals in regard to the Vision for Water and Nature, including mechanisms for integration from local to national level, cross-sectoral mechanisms and transboundary issues. (d) Interim draft Vision for Water and Nature and Second Round Consultations on this, including the solicitation of concerns and views from recipient countries. (e) Final Vision for Water and Nature. (f) Prominent positioning of the concerns of freshwater ecosystems in the final global Vision for Water, Life and the Environment and advice to the Global Water Partnership.

12. Estimated budget (in US \$ or local currency)		
GEF:	\$700K	
Co-Financing:	\$13,145K	NEDA, WB, Montréal Int., UNESCO, WWC, SIDA, CIDA, CGIAR, Egypt, Dutch Partnership TF, etc.
Total:	\$13,845K	
13. Information on project proposer: World Water Council (WWC)		
<p>In June 1996, the World Water Council was established with its main objective being policy impact to improve fresh water management. During the First World Water Forum, the Council was mandated to "launch a three-year initiative of study, consultation and analysis that will lead to a global Vision for Water, Life and the Environment". WWV is co-sponsored by the family of UN organisations and the World Bank. IUCN is undertaking the "Water and Nature" component of the Vision process.</p>		
14. Information on executing agency (if different from project proposer): IUCN - The World Conservation Union		
<p>IUCN has been asked by WWC to undertake the "Water and Nature" component. IUCN brings together States, government agencies and a diverse range of non-governmental organisations in a unique world partnership. It comprises over 900 institutional members, spread across 180 countries. The mission of the IUCN is to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.</p>		
15. Date of initial submission of project concept: Jan. 28, 1999		
16. Project identification number: -----		
17. Implementing agency contact person: C. Crepin, Regional Co-ordinator, Global Environmental Unit, WB, Tel. (202) 473-9727, Fax (202) 522-3256		
18. Project linkage to Implementing Agency program(s): The World Bank has provided a great deal of technical support to the Global Water Partnership and the WWC. The Vision process provides a participatory opportunity to overcome sector by sector exploitation of water resources and gain consensus for cross-sectoral approaches for incorporating aquatic biodiversity and transboundary issues into water resource management. This approach is a key element of the World Bank's Water Resources Management Policy, adopted by the Board in 1994. The Bank's Global Water Unit supports the Vision exercise.		

PROJECT DESCRIPTION

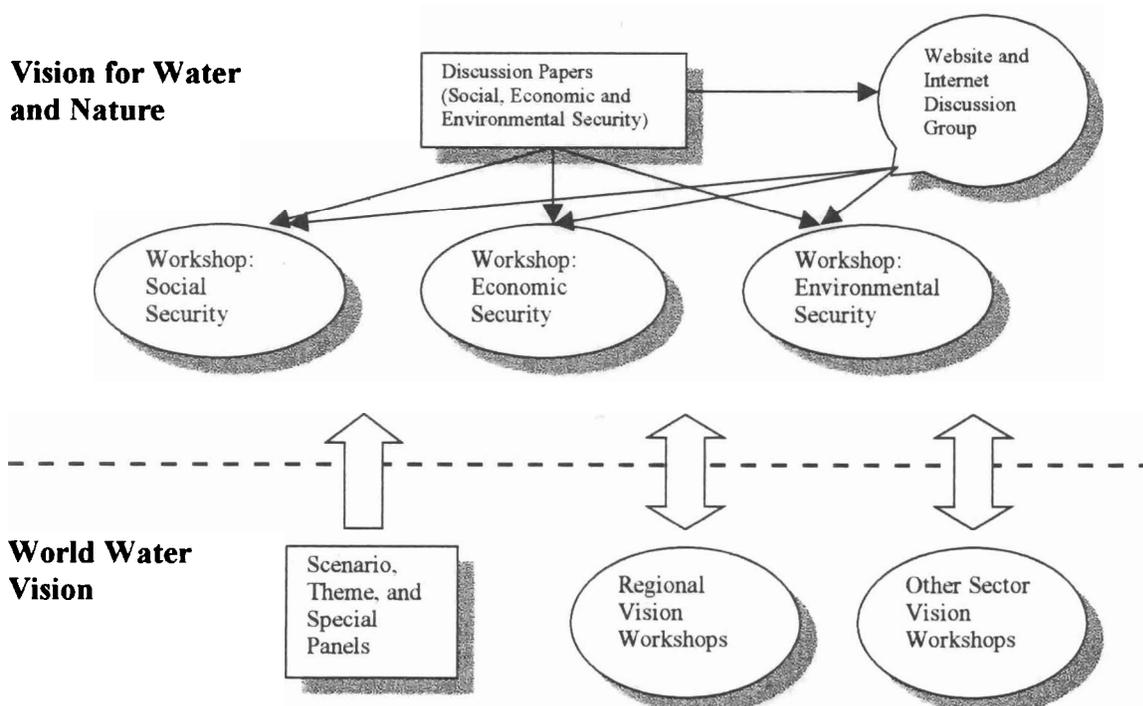
1. PROJECT RATIONALE AND OBJECTIVES

1.1 The World Water Vision (WWV)

This proposal to the GEF is for support to the creation of a **Vision for Water and Nature (Environment and Ecosystems)** as an integral part of the **Vision of Water, Life and the Environment** for the 21st Century, known more simply as the **World Water Vision or WWV**. The **World Bank (Implementing Agency for the project)**, is a founding member of the **World Water Council**. The **WWC (Proposing Agency)**, the global water policy think-tank established in 1996, will lead the effort to define the WWV. In turn, the WWC has selected **IUCN - The World Conservation Union** as the **Executing Agency** to lead development of the Sector Vision of Water and Nature. The diagram below demonstrates the relationship of these two integrated activities. For further detail on the parent activity, the WWV, please turn to Appendix A. With the exception on notation on the overall budget and essential comment on linkages with other elements of the WWV, the remainder of this Project Description will address the Vision of Water and Nature, since it is that element in which GEF is being asked to participate.

Figure 1.

Internal Linkages Among Water and Nature Project Activities and Between Water and Nature and Other WWV Elements



1.2 Project Rationale - Vision of Water and Nature

The GEF is being asked to sponsor one element of this overall Vision process: the development of a **Sector Vision of Water and Nature**, covering the demands of water to support **Ecosystems and the Environment**, and the "ecosystem goods and services" they provide to mankind. GEF support will also supplement other funding intended to permit the universal incorporation or consideration of Water and Nature into the discussions concerning other Sectors (**Water for People, Water for Food**, Energy, Tourism etc.), the many **Regional Visions** that will be developed, and a number of special focus groups (e.g. on Sovereignty, Inter-basin transfers, and other Transboundary issues).

Quality and availability of water are seriously affected everywhere by inadequate waste management, excessive consumption, contamination of aquifers, lack of proper water distributing, and excessive farming on marginal lands. Freshwater ecosystems, the biodiversity they preserve and the environmental services they afford are all seriously threatened by these water use conflicts. Trends in population, urbanisation, tourism, and standard of living are also having a major impact. Uses of water for human consumption, agriculture and food production, and other human needs generally take priority, the demands of water for sustaining ecosystems left until last or forgotten altogether. Unchecked, this problem will only continue to grow worse, since water consumption is doubling every 20 years. The World desperately needs a vision to guide future planning for use and equitable distribution and sustainable use of this vulnerable and vital commodity and resource.

There has been a tendency over the years for those involved in water management issues to neglect or insufficiently recognise the valid demands of ecosystems in planning the distribution and use of limited water resources. It also tends to be forgotten that nature is not only a valid user of water but also a provider of goods and services derived from water. Obvious examples are the fish produced in rivers, lakes and estuaries for both commercial and recreational use. Marshes, bogs and other wetlands also provide habitat for waterfowl, mammals and other organisms and, when properly managed, provide for the protection of global biodiversity.

There are also less obvious services provided by aquatic ecosystems, including the function of wetlands and forested watersheds in storing run-off from major rainstorms and spring thaws, preventing flooding in downstream areas. The major floods that occurred in China in 1998 are a prime example of the devastation that can occur when this passive function of nature is undermined (for instance when watersheds are clear-cut, reducing their ability to act as a buffer to water movement). When properly protected and regulated, wetlands also function as nature's own water treatment system, receiving human wastes and bio-degrading them before passing purified water on to downstream users. These concerns will need to be adequately addressed in the World Water Vision process.

Two other issues are related to the threat to ecosystems. The first is that water use has become highly sectoralised on a project by project basis. Aquatic biodiversity and downstream coastal/marine demands for ecosystem sustainability are often forgotten. Improved water

resources management for the next century will need to include cross-sectoral, integrating mechanisms on a hydrologic unit basis to incorporate countries' commitments under the Convention on Biological Diversity into sectoral economic development planning for each hydrologic unit.

In addition, water resources do not respect political boundaries. Improved transboundary water resources management (both within large countries and among countries) is necessary if sustainable development is to occur. Otherwise, water may be exploited in one jurisdiction with little left for biodiversity and downstream uses in other jurisdictions.

1.3 Project Objectives and Principles

The Vision for Water and Nature will achieve a significant measure of success if two principles become clearly accepted by Water Sector policy makers and practitioners and civil society (the public at large).

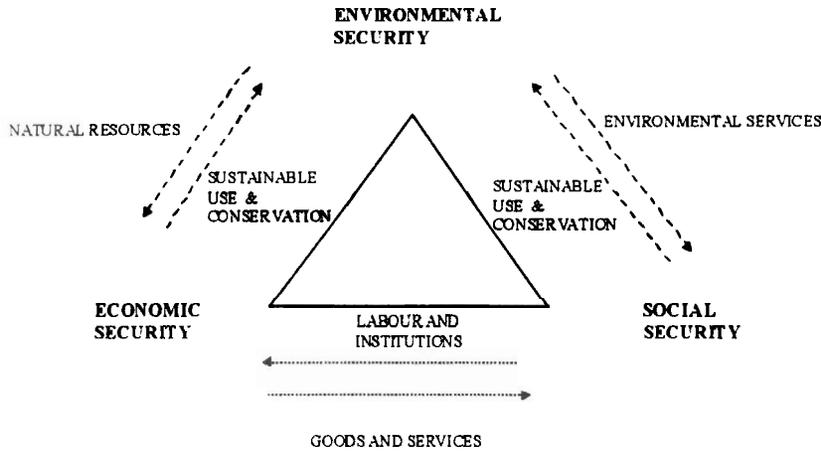
- **The demands of water for nature are real and quantifiable, though immensely variable, depending on local, regional and even global hydrologic regimes; they therefore must be addressed in context with other water uses, within a well planned framework of river basin scale integrated water resources management;**
- **Ensuring that the water needs of aquatic ecosystems are met simultaneously provides sustainability of many ecosystem goods and services valued and required by mankind, resulting in increased social, economic and environmental security.**

The Water and Nature Vision project will pursue and be founded upon this latter principle: that well established systems of basin level integrated water resources management can lead to increased environmental, social and economic stability and security. This is not a new concept but rather borrows upon growing body of theory in relation to environment and security. In fact, the *Comprehensive Assessment of the Freshwater Resources of the World*, carried out on behalf of the World Bank and concerned UN agencies in 1997 by the Stockholm Environment Institute (SEI), followed essentially the same principle in its analyses.

The relationships between Social, Environmental and Economic Security and Freshwater Ecosystem Management are depicted in the Figure 2 below, modified from a similar figure in the SEI report. In describing this complex relationship the report states that we must consider: *"how the systems are interacting through different global linkages such as cultural influences, environmental impacts, global governance and trade, showing that the socio-ecological system is complex with connections within and between the different subsystems."*

The discussion papers and workshops that will form the core of the project to develop the Vision of Water and Nature will attempt to do just this.

Figure 2.



WATER AND THE SOCIO-ECONOMIC AND ENVIRONMENTAL SYSTEM

2. CURRENT STATUS

The World Water Vision is now well along the way to reality, with organisational assignments for leading all necessary Sector and Regional Vision processes and associated workplans having been developed. Scenario and Theme Panel reports, which will provide guidance to the Visioning exercise have been brought to near final draft form.

Because of its in-house expertise in freshwater environmental matters and its broad network of relevant expertise globally, **IUCN - The World Conservation Union** has been asked to undertake the development of the Vision for Water and Nature by the World Water Council. IUCN has chosen to use as a central theme of the Water and Nature Vision the contribution of freshwater ecosystem management to safeguarding security in the 21st century because this is such a compelling, urgent and topical issue. This focus will underscore the importance of defining the real demands of water to support freshwater ecosystems, in their own right, to protect and preserve biodiversity, but also in order to sustain the vital ecosystem services alluded to above.

3. EXPECTED PROJECT OUTCOME

3.1 The World Water Vision In Total

Please turn to Appendix A for an account of the expected products and outcome of the overall Vision of Water and Nature.

3.2 The Vision of Water and Nature Specifically

As part of the above, the Water and Nature component will produce the following products:

1. ***Three Discussion Papers*** by experts in the field on Freshwater Ecosystem Management and Social, Economic and Environmental Security, respectively.
2. ***Three Workshop Reports*** containing the full results of all contributions and a synopsis of the debate and resulting recommendations for the Vision.
3. ***Draft Vision for Water and Nature*** for submission to the Stockholm Water Conference in August 1999, on its own and as an integral part of the draft World Water Vision.
4. ***Workshop at Stockholm*** held in co-ordination with GEF partners, addressing freshwater ecosystem management and protection, biodiversity and integration from the local to the international levels (including transboundary issues) in the context of the Vision.
5. ***Final Vision for Water and Nature*** for submission to the 2nd World Water Forum in The Hague in March 2000, both as a stand-alone report and as an integral part of the final World Water Vision. This will comprise both a "Vision" of desirable outcomes and a suite of strategies guiding efforts to ensure achievement of the Vision.

As an additional and complementing piece of the global policy development and consultation process, GEF is asked to support participation of aquatic and coastal biodiversity specialists and environmental specialists experienced in cross-sectoral and transboundary water resources management to participate in the three sub-sector Vision workshops. They will all be from GEF recipient countries. In addition, GEF is asked to assist in development of the background Discussion papers.

The papers will contain coverage related to three priorities in the GEF operational strategy that also happen to be included in the World Bank's Water Resources Management Policy Paper. These three considerations have not been fully mainstreamed within sub-sectors competing for use of water resources. GEF's incremental cost financing will give GEF recipient country environmental, transboundary and aquatic biodiversity specialists an opportunity to bring their experience to these consultations and participate in developing the World Water Vision.

The three elements are as follows: (1) for both domestic situations and multi-country considerations, needed processes and perhaps best practices for cross-sectoral water resources management would be incorporated into the Discussion Papers and in papers for the regional workshops; (2) incorporation of transboundary, multi-country considerations into the Discussion Papers, including elements of the GEF Operational Strategy for international waters; and (3) the Discussion documents should address the international agreements in place to protect freshwater ecosystems and their biodiversity, including decisions IV/4 (inland waters) and IV/5 (Programme of work arising from the Jakarta mandate) of the CBD. In order for countries to

meet objectives under the CBD, they should operationalise this comprehensive cross-sectoral approach basin by basin to include aquatic biodiversity in management efforts. This holistic approach was called for in the Dublin Statement, Agenda 21 - Chapter 18, in the Bank's Policy, and the GEF Operational Strategy. A workshop will be held at the Stockholm Water Symposium to discuss these needs of a cross-sectoral and aquatic biodiversity nature as part of this incorporation in actions that will be taken to meet the water resources challenges of the next century.

4.0 ACTIVITIES AND FINANCIAL INPUTS

4.1 World Water Vision in Total

For an examination of the activities and financial inputs in the overall World Water Vision please turn to Appendix A.

4.2 Water and Nature Vision Specifically

The total World Water Vision budget totals \$13.8 million. The GEF submission is intended to provide direct support to the Water and Nature Sector Vision component, and the Regional Vision consultations, the latter for facilitation of full recipient country involvement in ensuring Water and Nature input to the consultations. The \$700K requested from the GEF will specifically fund portions of the costs associated with three workshops on the Vision of Water for Nature, limited participation at other Regional Vision workshops, follow-up consultations after the Stockholm Water Symposium to finalise the Vision, and a portion of the operation of the associated Website. Some minor publication costs (cost-shared with others) are also included. Key activities of the Water and Nature Vision project are described below in greater detail.

4.3 Challenge Papers - The Background Discussion Documents

The vision process will be build on three aspects of security: **social security, environmental security and economic security**; as these relate directly to, and are supported by sound **integrated water resources management**. The basis of each Water and Nature workshop described below will be a theme discussion document (**one each for the three themes - Social, Economic and Environmental Security**) of approximately 30 pages that will all be available prior to the first workshop. These will be authored by leading authorities in each field and will be peer reviewed in advance of the workshops by a spectrum of experts from associated disciplines from around the world. **Terms of Reference for the three Discussion Papers are included in this submission as Appendix B.**

All three of the Discussion Papers share one goal in common - to critically re-examine conventional thinking on water resources management and isolate the causes of failures to address the demands of ecosystems and the environment. The papers then diverge from one

another to examine respectively the consequences of these failures in terms of social, economic and environmental insecurity. Finally, they propose challenges or potential solutions that could help to avoid these failures in future, in order to stimulate discussion on realistic future scenarios at the workshops.

4.4 Water and Nature Interlinked Workshops

The three technically-oriented workshops to be convened in Southern Africa, Central America and Southeast Asia, three regions of the world greatly affected by water use conflicts and attendant impacts on the freshwater (and near coastal) environment. Internal coherence between these workshops will be developed through an exchange of information among the workshops and strong linkages to the other Sector Workshops and Regional Workshops.

Every effort is being made to ensure that the participants (up to 30 per workshop) not only represent strong technical expertise in the fields under discussion but also represent a cross-section of the NGO/Civil Society, governmental and industrial stakeholders in the water sector with due reflection of societal diversity. With regard to geographic representation, not only the traditional concern for North/South perspectives, but also the recognition of global and inter-continental differences, are factored into appropriate participant selection. The focus of discussions is technical, and these are not "regional" workshops, in the same sense as those workshops which will take place to develop Regional Visions. Finally, as alluded to elsewhere in this submission, core involvement from the other two Sector Vision processes (Water for Food, Water for People) is considered important.

As mentioned above, the central theme of the Water and Nature Vision is the contribution of freshwater ecosystem management to *safeguarding security* in the 21st century. The vision will be build on three aspects of security: social security, environmental security and economic security, with a range of technical issues examined under each. These topics will be discussed in three separated workshops. Internal coherence between these workshops will be developed through an exchange of information between the workshops.

In Table 1 an overview is given of the three themes together with the proposed locations and dates for the workshops and the technical co-ordinator who is responsible for the content, outcome and final selection of workshop participants. The issues indicated in the table are only indicative and will be expanded as required.

Table 1 Workshop descriptions

	Freshwater Ecosystem Management & Social Security	Freshwater Ecosystem Management & Environmental Security	Freshwater Ecosystem Management & Economic Security
Date	April 1999	June 1999	June 1999
Location	Harare, Zimbabwe	San Jose, Costa Rica	Bangkok, Thailand
Technical Co-ordination	Cristina Espinosa	Ger Bergkamp	Frank Vorhies
Co-ordination at location	Tabeth Matiza	Rocio Cordoba	Hans Friedrich
Themes / Issues	Global scales - migration, poverty, international co-operation Regional/National scales - conflicts, food, basin organisations, governance Local scales - participation, wise use, demand management	Global scale - Climate change, LUCC, desertification Regional / National scales - basin management, LUCC, biodiversity loss, water quality, waste water Local scales - biodiversity loss, ecosystem functions, pollution	Global scale - global trade, globalisation Regional / National scales - investments patterns, transport, energy, subsidies Local scales - incentives, regulations, subsidies

4.5 Inter-Sector and Regional Liaison

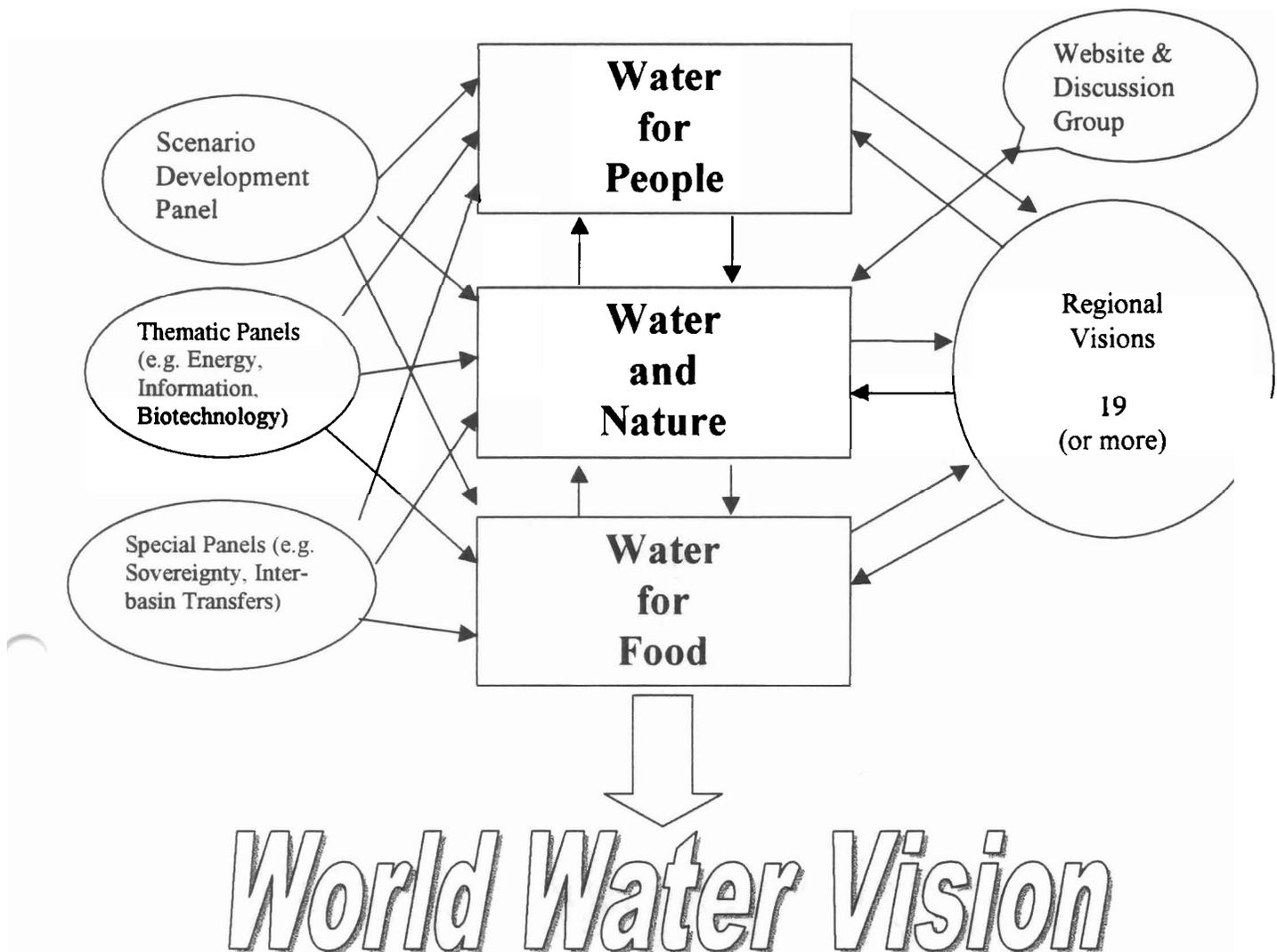
4.5.1 Website and Internet Discussion Group

To provide a broader base for consultations, a website will also be established to disseminate relevant documentation and seek input from all sectors of society. Wide public advertising of the sites availability will form a part of the communications strategy. A broad network of NGOs, INGOs, governmental organisations and IGOs will be specifically engaged in this dialogue.

4.5.2 Direct interchange among World Water Vision Elements

A key strategy for ensure effective communication of the Water and Nature Vision involves careful **liaison with the other Sector and Regional Vision processes**. This includes ensuring the exchange of all discussion papers and workshop reports, providing participants for other Sector and Regional Vision workshops who are thoroughly briefed on the Water and Nature issues, and in turn inviting participants to the Water and Nature Vision workshops who can effectively speak to the Regional and other Sector interests.

Figure 3.
Central Role of Water and Nature Vision in Relation to Other WWV Activities



5.0 SUSTAINABILITY ANALYSIS AND RISK ASSESSMENT

Current water allocation, use and treatment practices are unsustainable. This simple statement is true everywhere in the world, including both developed countries and developing countries. Water itself is a limited, though renewable resource, if properly managed. Aquatic ecosystems and aquatic biodiversity, on the other hand, are increasingly under threat from competing uses of water, and it is hard to envisage any management process that will be capable of completely stemming the decline in both quantity and quality of aquatic ecosystems as long as human population growth and current consumption patterns continue.

While it may not be a universal panacea, the broad application of sound **Integrated Water Resources Management (IWRM)**, underlain by a thorough comprehension of the demands of water for aquatic ecosystems, not just for their own ecological imperatives, but also for the ecological services they provide to mankind, is the only way out of this dilemma. **IWRM not only provides a vehicle for collective decision-making considering the many uses of water, but also provides the optimal means of identifying and rapidly responding to hydrologic variability, seasonally and over longer time frames, and the manner that this variability impacts upon both ecosystems themselves and the essential ecosystem services they afford.** Some form of IWRM must underlie any meaningful attempt to manage trans-boundary watersheds. The Vision of Water for Nature, and the overall World Water Vision of which it is an essential part, will contribute to defining the basis and requirements for IWRM.

The only risk associated with this project occurs if it is unsuccessful in achieving its goals. The world needs a vision to guide the use of this vital and vulnerable resource into the next millennium. Without such a commonly held vision as a starting point, competing uses for water will lead to increased social, economic and environmental insecurity.

6.0 STAKEHOLDER INVOLVEMENT AND SOCIAL ASSESSMENT

The entire basis of the World Water Vision exercise is stakeholder participation and buy-in. Every effort is being made to ensure that all elements of society are fully represented in the consultative processes that will lead to the final vision. Special attention is being paid to ensure that civil society, and not just governments and their regulatory bodies, are at the core of this exercise. Gender, culture and local community level/national/multi-national issues are being fully considered and incorporated into the consultations.

GEF will provide the additional needed funding and advice on stakeholders, to ensure that the Sector Vision on Water and Nature is true to the concerns and interests of the environmental community, but also duly cognisant of the current and future demands of other water users, especially in GEF recipient countries. A broad range of groups will need to be drawn into the visioning process representing all areas of interest. The expertise and advice of his same assemblage of contacts will be drawn upon in providing input to the consultations on other Sector and Regional Visions, as required.

In 1998, The World Water Council contracted with the IUCN to lead the development of the “*Environment Building Block*” of the Framework for the Vision exercise. This was submitted and considered in an international workshop in February, 1998, as an early step in the development of the Sector Vision. In the development of the “*Environment Building Block*”, a comprehensive list of contacts was involved in consultations through correspondence and a workshop. This involved a range of major NGOs representing civil society, government agencies, UN agencies and intergovernmental institutions, including:

Wetlands International
Green Cross International
United States of America International Development agency (USAID)
United States of America Environmental Protection Agency (USEPA)
United Nations Environment Program (UNEP)
United Nations Educational, Scientific and Cultural Organisation (UNESCO)
International Water Management Institute (IWMI)
The World Bank
International Association for Hydrological Science (IAHS)
Diversitas
World Resources Institute
Friends of the Earth, and
World-wide Fund for Nature (WWF)

In addition to these, other water resource organisations and concerned interest groups to be consulted will include all those represented by the World Water Council and Global Water Partnership, among others:

International Water Resources Association (IWRA)
Sierra Club
International Commission on Irrigation and Drainage (ICID)
International Water Supply Association (IWSA)
International Association on Water Quality (IAWQ)
Greenpeace
International Association for Hydrologic Research (IAHR)
International Commission on Large Dams (ICOLD)
Water Supply and Sanitation Collaborative Council (WSSCC), and
World Energy Council (WEC)

Finally, IUCN’s own diverse institutional membership, secretariat and commission members (see above) will be actively engaged.

Effective use will also be made of a Website and Discussion group for the Sector vision to solicit further recommendations, comments and concerns. The website will be clearly linked to the website established for the overall WWC Vision. IUCN will employ its network of members, country and regional offices, national committees and commissions to advertise the Discussion group and ensure that it attracts the needed participation. The Discussion group will be

moderated, but not to the extent of limiting the debate that will constitute its greatest advantage to the visioning process.

In addition to the above, the Project Team will utilise every venue, meeting and opportunity to solicit suggestions for others that should be included and to ensure close linkages with those leading the other Sector and Regional Vision consultations.

7.0 INCREMENTAL COST ASSESSMENT

7.1 Goals and Objectives

The "Water and Nature" component is a critical defined Vision activity, yet it is entirely complementary to other Sector and Regional elements, and must be thoroughly integrated into, the overall Vision of Water, Life and the Environment.

In one sentence, the goal of the Vision of Water and Nature is to create a commonly accepted perception of what must be done to conserve freshwater ecosystems for their own sake and for the sake of the valued goods and services that they provide to mankind. Incorporation of such a common Vision into broadly applied systems of integrated water resources management should afford increased stability and contribute substantially toward environmental, social and economic security.

The Goals and Objectives of the World Water Vision, described in Appendix A, and of the integral Vision for Water and Nature, described briefly above and in detail in Section 1.3, address or touch on numerous of the targets of the GEF Operational Program, including OP-1 (Arid and Semi-Arid Zone Ecosystems), OP-2 (Coastal, Marine and Freshwater Ecosystems), OP-3 (Forest Ecosystems), OP-8 Water-body Based Operational Program, OP-9 (Integrated Land and Water Multiple Focal Area Operational Program, and OP-10, Contaminant-Based Operational Program.

Even though the Vision of Water of Nature goes far beyond consideration of contaminants issues in isolation, taking these instead into the context of integrated water resources management, the Global Support Component of the GEF Operational Programs manual, Chapter 10.17, describes perhaps most directly and succinctly why this project should be supported:

"The complexity of International Waters projects raises technical questions about how and what contaminants to monitor, how to analyze complex sets of data, where to get help, how countries can institutionally work together, and how to involve the public in decision-making. Targeted regional or global capacity-building projects may be necessary to help increase awareness on how to jointly address these contaminant problems. Global projects in this component can help individual groups of countries to share experience with others around the globe and lessons can be derived from the experience. New computer simulation models, remote sensing tools, and information systems have been developed - especially for marine and coastal areas - that can help countries sort through complex decisions for dealing with root causes of transboundary

environmental degradation. Targeted technical information sharing, capacity building, and training opportunities may also be appropriate. In addition, certain global projects of a strategic nature that assess contribution of contaminants to the environmental status of International Waters or that develop longer-range approaches may be programmed in this operational program."

The Water and Nature Vision project, through the process of its implementation, will involve all water stakeholders, governmental, institutional and from civil society, and will achieve significant improvements in mutual understanding of the complex issues surrounding protection of transboundary waters and freshwater biodiversity.

The project will have enormous national benefits for recipient countries, as well as regional and global benefits. The Vision will describe the demands of water for aquatic ecosystems and aquatic biodiversity, and the supply of goods and services from these ecosystems, in the overall scheme of integrated water resources management. In the context of the overall World Water Vision, this will be an essential guide to both national and multi-country, transboundary water resources management activities. It will contribute to a future scenario in which aquatic ecosystems are maintained in an environmentally sustainable state under the increasing pressure on water resources in the coming century.

7.2 Baseline Scenario

The World Water Vision as a whole is an enormous undertaking, involving thousands of individuals and dozens of institutions, governments and inter-governmental agencies. Funding for the initiative (over \$13.8M US) comes from numerous sources, including many of the participants themselves. Without GEF participation, the core issues of the Water and Nature component would be present to some degree in the development of the World Water Vision, since these core issues are those of environments and ecosystems and they cannot be ignored.

Thus in the baseline scenario, some efforts would be made to address these environmental imperatives in each and every Regional and Sector visioning process, utilising funds from a variety of sources.

7.3 Incremental Scenario

The Baseline Scenario described above fails to state what could not be included or would not be as well considered without GEF support. First of all, insufficient funding would be available to ensure comprehensive and thorough inclusion of environmental representatives from GEF recipient countries, well briefed on the Water and Nature issues, at each of the Regional and Sector visioning workshops. This could very well result in an inadvertent bias toward issues of greater concern to the "North" in the final vision.

Secondly, several issues of core concern to the GEF, such as the ability of nations to respond effectively to the responsibilities emanating from the Convention on Biological Diversity, and the imperative of addressing Transboundary Issues when considering water resources

management, would undoubtedly not play as prevalent and integral a role in the Discussion papers and Workshops and thus might be lost or under-played in the Vision that would ultimately emerge.

The costs for these elements are almost entirely incremental to those budgeted by other sources for the larger World Water Vision exercise.

Table 2 and 3 give a breakout of baseline and incremental costs by component, respectively, in the overall Vision for Water Life and the Environment, and in the sub-sector Vision of "Water and Nature", for which GEF sponsorship is requested.

Table 2

Incremental Cost Analysis (US\$ 000)

Components	Baseline	Alternative	Increment
Central Functions: Commission & Vision Unit	3947.0	3937.0	0.0
Central Support: Framework for Action (FFA)	900.0	900.0	0.0
Sector Vision Consultations	1660.0	2350.0	690.0
Regional Mapping/Vision/FFA Consultations	4770.0	5020.0	250.0
Network Consultations	1000.0	1000.0	0.0
Communication	350.0	350.0	0.0
Management Support WWC	278.0	278.0	0.0
Monitoring and Evaluation	0.0	10.0	10.0
TOTAL	12,905.0	13,845.0	950.0

Table 3

Vision for "Water and Nature" Costs (US\$ 000)

Components	GEF	Other Sources	Total
Personnel	0.0	150.0	150.0
Background Discussion Papers	50.0	10.0	60.0
Workshops: Water and Nature (3)	380.0	0.0	380.0
Workshops: Regional	250.0	0.0	250.0
Publications	10.0	40.0	50.0
Administrative Costs	0.0	50.0	50.0
Monitoring and Evaluation	10.0	0.0	10.0
TOTAL	700.0	250.0	950.0

8.0 PROJECT IMPLEMENTATION PLAN

Subject areas and technical issues to be addressed will be wide ranging (e.g. water quality, quantity, biodiversity, transboundary waters, effects of climate change) and will contribute to considerations in other sub-sector areas.

During the summer of 1998, at the request of the WWC Vision unit, IUCN prepared an outline workplan, "Water for Nature", addressing the demands of ecosystems and the environment. This draft drew its origins from the Environment Building Block of the Framework for the Vision, preparation of which had also been led by the IUCN, and on which a wide network of water interests was extensively consulted and involved.

A Project Manager and full-time Project Officer will be assigned from the IUCN Canada Office and will be responsible for day to day co-ordination including, inter alia, logistics, meeting arrangements, contacts, operation of listserver, report drafting and production and liaison with the other Sub-Sector co-ordinators and the Vision Secretariat. Location adjacent to the WWC Western Hemispheric Bureau in Montréal will expedite liaison. Overall direction for the project will be afforded by the Director of the IUCN – Canada Office, who is a Governor of the World Water Council, and specialist technical support will be provided by a team of technical specialists in water resource management, environmental economics and social policy from IUCN headquarters in Gland Switzerland. The project team will also include officers from the regional offices in the areas where the workshops will take place.

Figure 3. Project Schedule

	1998					1999											
	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Programme development	■	■	■	■	■												
Production of background materials						■	■	■	■								
Preparation Workshop 1						■	■	■	■								
Workshop 1									■								
Preparation Workshop 2							■	■	■	■							
Workshop 2											■						
Preparation Workshop 3							■	■	■	■							
Workshop 3											■						
Participation in Regional Wksp.								■	■	■	■	■					
Drafting of interim report												■	■				
Stockholm Water Symposium													■	■	■		
Final consultations and report															■	■	■
Delivery of report and vision																	■

9.0 PUBLIC INVOLVEMENT PLAN

The development of the Sector Vision on Water and Nature (Ecosystems and Environment) will be a widely consultative process. The principal tool will be the convening of three inter-linked, geographically distributed workshops of experts from a wide range of disciplines and representing a broad selection of stakeholders. The challenge will be to ensure both a high level of technical quality and that a wide range of interests are properly represented. To extend opportunities to have a large number and wide range of voices heard, extensive use will also be made of electronic communications, involving the operation of a website and linked listserver. In addition, print copies of major background papers as well as the final Sub-Sector Vision and supporting reports will be published. A final round of more focused consultations will take place after the presentation of the initial report at the 1999 Stockholm Water Symposium. These consultations will be undertaken to refine the Sub-Sector Vision and ensure its readiness for incorporation into the overall World Water Vision for delivery at the 2nd World Water Forum and Ministerial Conference in The Hague, in March, 2000.

Stakeholder Identification

IUCN has a broad and diverse membership base and its unique ability to draw into consultative processes stakeholders from all segments of society - government, NGO, the private sector and civil society in general. The identification of representative participants for the visioning exercise will be facilitated by teamwork between the technical expertise in IUCN HQ and IUCN Canada (the management team) and the IUCN network of offices in all regions of the world, with input from the IUCN membership organisations and other organisations with a particular interest in the sector. Many major NGOs, INGOs and IGOs were involved from the outset in contributing to the development of the Framework for the Water and Nature element of the Vision.

Information Dissemination and Consultation

A website dedicated to the Water and Nature vision exercise has been established and will be operated for the duration of the exercise out of the IUCN Canada Office. In addition, a Project Officer is being employed to manage all correspondence and communications including this website and to ensure that every opportunity is afforded to interested parties to take part in the development of the Vision. This will involve both broad advertising of the site and targeted communications with key NGOs, INGOs, IGOs and individuals.

Selection of sites

For the selection of sites, several dimensions related to the vision development have been taken into account, as well as the development of the work on freshwater management and security in IUCN. Regarding the vision work, it is seen as important to have the workshops organised in the different zones: Americas, Europe/Africa, Asia/Oceania. This will greatly facilitate providing inputs to the vision from a wide range of participants with various cultural backgrounds.

The following locations have been chosen:

Workshop 1 - Social security: Zimbabwe

This workshop will profit from the work that is carried out in IUCN's Regional Office for Southern Africa (ROSA) and considerable expertise is available in the region on this topic. IUCN ROSA currently hosts the GWP-Southern Africa Regional Technical Advisory Committee which will allow the Water and Nature vision development to tie in well with the GWP work and the convening of regional consultations as part of the Vision. Going to this region is also important in relation to the development of the Framework For Action attached to the Vision that the GWP is developing in collaboration with IUCN. Also this region hosts the IUCN global environmental security initiative with which the Vision should develop strong links.

Workshop 2 – Environmental security: Costa Rica

Currently much attention is focused on Central America in relation to the effects of Hurricane Mitch. In reality, this is just one of numerous climatological and hydrological catastrophes that afflict this region annually. However, linking the work on environmental security and ecosystem management to the assessments that will be carried out in the region for channelling the huge investments required would provide an important degree of currency to the workshop. This can also be very relevant from a communications perspective. Also the Convention on Wetlands (Ramsar, 1971) Conference of the Parties (COP) will take place in San José in May, 1999. Linking the workshop to that event is also useful and could afford synergy.

Workshop 3 - Economic security: Thailand

Locating a workshop in SE-Asia will encourage greater involvement from both Asia and Oceania. While much attention is currently given to freshwater management in the South East Asia, more emphasis is needed on environmental issues and the economic relevance of these. Timing is also appropriate for discussions on issues related to water, environment and economic security. Furthermore, IUCN has an office and programming effort in the region (e.g. a large project on water management in the Mekong Basin and another in Bangladesh). Also, the region will be one of the focal regions for IUCN's freshwater initiative and a new IUCN regional co-ordinator for wetlands and water is likely to be appointed during 1999.

Social and Participation Issues

See Sections 2.1, 2.3 and 6.0, as well as "Stakeholder Identification" in this Section (above).

The workshops will be conducted in English and documents developed in that language. If financial resources allow, interpretation in one dominant regional language may be provided.

10. MONITORING AND EVALUATION PLAN

The World Water Council, which has overall responsibility for the creation of the World Water Vision, will oversee the Sector Vision of Water for Nature. In particular, the Board of Governors

— of the WWC (which includes World Bank representation) will audit progress and offer advice during the process.

10 March 1999

Appendix A

The World Water Vision

BACKGROUND

In June 1996, the **World Water Council** was established as the International Water Policy Think Tank, its main objective being policy impact to improve fresh water management. During the First World Water Forum, the Council was mandated to *"launch a three-year initiative of study, consultation and analysis that will lead to a global Vision for Water, Life and the Environment"*.

OBJECTIVES

The overall objective of the World Water Vision project is to develop a widely shared vision on the actions required to achieve a common set of water-related goals and commitment to carry out these actions. The Vision will be truly global, including both developed and developing regions, but with special attention given to the needs of developing countries and of the poor. Three overall objectives are to:

Raise awareness of issues among general population and decision-makers so as to foster political will and leadership to tackle the issues of water seriously and systematically.

Develop a vision of water management in year 2025 that is shared by water sector specialists as well as international, national and regional decision makers in government, the private sector and civil society.

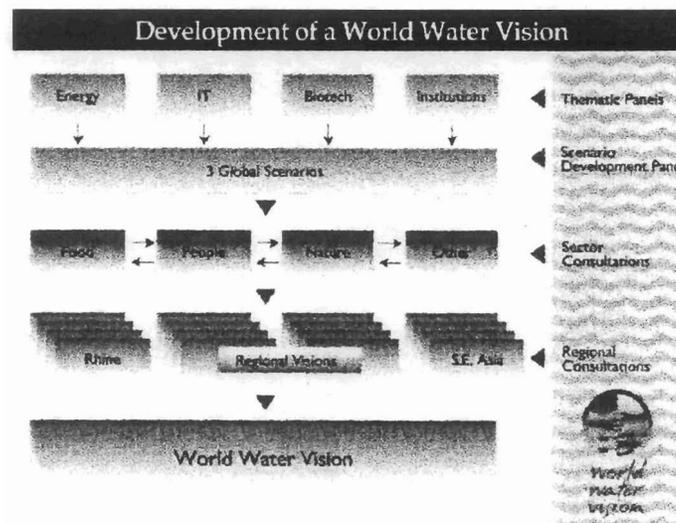
Provide input to an implementation strategy, that could be elaborated by the Global Water Partnership, to formulate action steps to go from vision to action, including suggestions for investment priorities (for funding agencies).

OUTPUTS

The major outputs that the Vision process will produce are listed below

1. ***Vision Messages*** (January 1999): a document describing three global Reference Scenarios (Water Crisis, Conventional Water World, Sustainable Water World) and providing guidelines to the different groups that will be conducting consultations as part of the Vision process.
2. ***Vision Structure*** (March 1999): a document that provides a suggested structure of the report to be produced by the World Water Commission. Both the structure and possible messages will be discussed at the meeting of the World Commission for Water in the 21st Century in March 1998.

3. **Vision Website** (starts March 1999, continuously updated): a website maintained partly by the Vision Unit to allow access to the evolving Vision for the various consultations. The Vision Unit will process the feedback derived from these consultations. Access to sections of the website will be given to groups participating in the consultations to allow communication to a wider audience as well as communication among the project participants.
4. **Draft World Water Vision** report (August 1999): the first complete draft of the Vision based on the various drafts received during the period May-July 1999.
5. The **World Water Vision** (March 2000): the revised and amended version of the Vision, following consultation in the period August-November, published under responsibility of the World Commission. The Vision Unit will also use other forms of documents, translations and other media to reach a wider audience with the message of the Vision report.
6. **Sector Visions** (March 2000): monographs for each of the sector visions that contain the final, detailed versions of the sector visions, published under responsibility of the groups conducting the sector visions.
7. **Regional Visions** (March 2000): monographs for each of the regional visions that contain the final, detailed versions of the regional visions, published under responsibility of the groups conducting the regional visions.
8. **World Water Vision Analysis** report (June 2000): a larger, technical volume focused on a professional audience that contains the central level analyses and data that support the World Water Vision.
9. **Communication** outputs. Throughout the Vision exercise the Water Vision Unit and the 2nd World Water Forum team will produce a series of products, ranging from press-releases, posters and advertisements to targeted media campaigns to increase awareness of and participation in the Vision process.



ACTIVITIES AND BUDGET

The overall World Water Vision development process has been divided into the following components for financial management purposes (US\$):

(a) Central Functions: (\$3947K)

1. Vision Unit

This will include staff support donated by NEDA and UNESCO, administrative services, space and communications, office equipment and furniture, consumables, general travel for project management, and consultant costs for central analyses.

2. World Commission for Water in the 21st Century

The budget covers the costs of Commission meetings, preparation and support, and the work of the Thematic Panels (preliminary brainstorming session and individual meetings on Energy, Information and Telecommunications Technology, Biotechnology, Institutions, and the Scenario Development Panel).

(b) Central Support: Framework for Action (FFA) (\$900)

This budget item supports the development of a Framework for Action to provide an immediate response to the requirements revealed during the course of the Vision process.

(c) Sector Vision Consultations (\$2350K)

This budget item covers the costs of developing sector visions on Water Supply and Sanitation (Water for People), Water for Food, and Water and Nature, as well as related Gender Issues and consideration of Flooding and River Regulation. This contains the GEF Discussion Paper and sub-sector workshop component and also the critical inter-Sector liaison element to ensure communication of the Water and Nature Vision messages

(d) Regional Mapping/Visioning/FFA Consultations (\$5020K)

At this time, regional vision consultations have been determined to be needed for the following locations: Aral Sea, Rhine Basin, Danube Basin, Mediterranean Basin, Middle East, Southern Africa, West Africa, South-east Asia, South Asia, Ganges-Bhramaputra-Meghna basin, Mekong Basin, South America, Central America, Caribbean, North America, Americas Co-ordination, Arab countries, Nile Basin, China. As the need warrants and resources and support are identified, other regions may be subject to review. This contains finances from GEF to support recipient country participation of biodiversity and international waters specialists. Where possible, these specialists will have also attended the Water and Nature workshops or will be thoroughly briefed on the issues addressed in order to be able to communicate these messages and have them incorporated into Regional Visions.

(e) Network Consultations (in addition to core funding in (a) above) (\$1000K)

This budget entry covers the costs of printing briefing materials, the March 1999 workshop in Cairo, a workshop at the Stockholm Water Symposium in August 1999, special communications and consultation in regard to women and future generations, related travel

and representation at meetings, and processing general feedback

(f) Communication (in addition to core funding in (a) above) (\$350K)

Here funds are allocated for the preparation of an overall communications strategy, the development of project identity, target groups for consultation, printing costs, website development and maintenance for the Vision as a whole, *Water Planet* contributions, and media campaigns.

(g) Management Support WWC (\$278K)

This is the line object for overall programme management for the activities of the WWC.

EXPECTED IMPACTS

It is expected that the Vision exercise will lead to changes in the way things are done in the water sector

- New approaches generated by the “out-of-the-box” thinking and the broad consultation of the vision process will be in use.
- Collaboration between professionals in the sectors of water use and the environment, and with others from outside of these sectors, will have been enhanced.
- A better understanding of the relationships between water demand and supply, and of technological development and societal change will have been developed.
- Water scarcity, inequality and lack of access, the deteriorating quality of the environment and declining financial resources will be addressed through a “Framework for Action” that includes:
 - *implementation of appropriate sector policies, and*
 - *investment plans to meet agreed priority needs.*

Appendix B

TERMS OF REFERENCE FOR TECHNICAL DISCUSSION PAPERS:

- 1. FRESHWATER ECOSYSTEM MANAGEMENT AND ECONOMIC SECURITY**
- 2. FRESHWATER ECOSYSTEM MANAGEMENT AND ENVIRONMENTAL SECURITY**
- 3. FRESHWATER ECOSYSTEM MANAGEMENT AND SOCIAL SECURITY**

TERMS OF REFERENCE

CONSULTANT – Vision for Water and Nature (VWN) FRESHWATER ECOSYSTEM MANAGEMENT AND ECONOMIC SECURITY

A. General Terms

Under the terms of the present contract, the consultant, Tim Swanson, will carry out the following tasks under the supervision of Mr. Frank Vorhies, Environmental Economist, IUCN-Headquarters (Gland, Switzerland).

1. Set-up in close collaboration with the supervisor a Technical Work Plan for producing a IUCN discussion document on Freshwater Ecosystem Management and Environmental Security and define a detailed time schedule for the implementation of the Technical Work Plan. Both the Technical Work Plan and the time schedule contained in Section B will form an integral part of this Terms of Reference.
2. Review and amend in close collaboration with the supervisor the table of contents contained in Section C of this ToR.
3. Produce synthesised information on the topics identified within the table of contents, based on existing scientific, policy and related documents.
4. Consult with the supervisor and others on the details of content of the discussion document.
5. Produce a draft discussion document of 14000 words (excl. references) that is consistent with existing scientific and policy documents and meets for the supervisor acceptable standards of content, clarity and readability. A draft version will be delivered on March 1, 1999. The draft document will be discussed with the supervisor.
6. Incorporate revisions based on the supervisor's comments into the draft document before production of the final document
7. Produce a final version in collaboration with the supervisor to be delivered on March 12, 1999.
8. Maintain regular liaison with the supervisor to ensure that she/he is fully aware of developments during the course of the project carried out under the responsibility of the consultant.

B. Technical Work Plan and Time Schedule

Date	Activity
15 January 1999	Start of contract
15 – 26 / 1/1999	Development of analysis and first drafts based on outline (Section B)
10 March 1999	

24/2/1999	Delivery of pre-draft document
1/3/1999	Delivery of draft document
1/3 – 7/3/1999	Review of documents by 3 external advisors
8/3 /1999	Meeting with Frank Vorhies at IUCN HQ to discuss reviews (if necessary)
9/3 – 12/3 /1999	Incorporation of comments into draft document
12/3/1999	Delivery of final document and end of contract

C. Table of contents

This Section opens with some background information on the topic of freshwater ecosystem management and economic security and then goes on to describes the scope, objectives and contents of the discussion document on 'Freshwater Ecosystem Management And Environmental Security' that will guide the discussions during the World Water Commission - Water and Nature: Environmental Security Workshop to be held in Southeast Asia in July 1999. The workshop is linked to two other workshops on freshwater ecosystem management and social security and environmental security, respectively.

Background Information

Freshwater ecosystems and economic security are interdependent in two correlated ways. On one hand, the state of freshwater ecosystems, whether in poor or good health, is a critically important element of economic security. On the other hand, economic security or the absence thereof contributes either to the maintenance or decline of freshwater ecosystems. This terms of reference outlines the interactions between freshwater ecosystems and economic security which will be examined in more detail in the subsequent discussion document.

Before continuing, though, it is important to define what is meant by *economic security*. The end of the cold war has catalysed much thinking about *security* and what it means to individuals, societies, states and the planet. Increasingly, the notion of *global security* has developed to include the security of people and the planet along with the traditional focus of security of the state. Thus the security debate has broadened to include the three cornerstones of the sustainable development triangle: the economy, the environment, and society with *economic security* comprising one corner of the global security triangle.

The notion of economic security is relevant at all levels of society from the community through to the global levels. At the community level economic security is dominated by the notion that each person has the opportunity for sustainable employment, that community-relevant enterprises are encouraged and that human and environmental needs are met. These components of economic security are also present at the national and global levels, but the scale of the issue changes. Additionally, issues such as shared natural resources, international capital flows, and international trade are important.

Let us now take each of the opening statements about freshwater ecosystems and economic security in turn. The state of freshwater ecosystems, whether in poor or good health, is a critically important element of economic security. A healthy ecosystem provides a number of goods and services to individuals as well as to society as a whole. These goods and services include private goods such as fish, fuelwood, and tourism facilities as well as public goods such as flood control, soil protection and carbon sequestration. The benefits of these goods and

services flow to individuals, local communities, nations, and the global community thereby providing economic security to all levels of society. When a freshwater ecosystem is degraded and its goods and services damaged the related flow of benefits is interrupted thereby endangering economic security at the local, national and global levels.

A weakening of economic security can in turn lead to further degradation of freshwater ecosystems, which brings us to our second point. Economic security or the absence thereof contributes either to the maintenance or decline of freshwater ecosystems. Individuals and societies with access to sustainable flows of economic resources are better able to allocate resources for the preservation of their environment than people whose primary concern is acquiring an adequate supply of food and water. Thus when an individual or society's economic security is weakened – either through the degradation of the environment or through other causes such as war, economic decline, or corruption – its natural heritage in general, and freshwater ecosystems in particular, come under threat.

Thus to ensure the health of our freshwater ecosystems it is critical to address the issue of economic security. Doing this entails examining the economic and legal structures which provide the incentives for individuals and societies either to conserve and sustainably use freshwater ecosystems or degrade and unsustainably use them. Particularly important incentives for freshwater ecosystems conservation and/or degradation include:

- *property rights structures*: who owns rights to freshwater resources; how are the rights allocated and by whom; are there rights to instream flows
- *distribution structures*: are freshwater resources distributed by market mechanisms; are there pricing structures or quotas; how is it administered and by whom
- *financial structures*: do adequate financial resources flowing from the sale of freshwater ecosystem goods and services return to those who maintain the ecosystem; does the allocation of resources for maintenance reflect the quality of the maintenance
- *international capital flows*: does overseas development assistance contribute to projects which adversely impact on freshwater ecosystems; do export credit agencies reduce risk for projects adversely impacting on freshwater ecosystems through investment guarantees

Ensuring that the economic and legal structures are sending the right signals to individuals and societies is a first step towards ensuring the conservation and sustainable use of freshwater ecosystems as well as enhancing economic security.

Scope of the Background Document

The background document will provide a comprehensive framework for the analysis of the relationship between freshwater ecosystem management and economic security and will form the basis for discussion of the issues identified above.

Objectives of the Background Document

The objective of the document are:

1. To define and elaborate upon economic security and freshwater ecosystem management and the relationship between the two;
2. To identify and review the primary threats to economic security induced by freshwater ecosystem degradation;

10 March 1999

3. To identify and review the impact of weakened economic security on freshwater ecosystem management;
4. To define current and potential strategies and actions for mitigating or adapting to changes in economic security affecting freshwater ecosystem functioning; and
5. To present a number of thought-provoking statements and questions to stimulate discussions.

Contents of the Background Document

The document will consist of a preface, an introduction, a background section, an analysis of the dual relationship between freshwater ecosystems and economic security, a review of economic incentives relating to freshwater ecosystem management and economic security, and a final a set of thought-provoking statements to open the discussion during the workshop. Below a further elaboration on the various sections is provided.

Preface (400 words)

This section will reflect the wider context of the Vision for Water, Life and the Environment, in particular the work on Water and Nature. It will also summarise briefly the work carried out in the other two workshops and the purpose of the document in that context.

Introduction (1300 words)

The introduction will outline the context of the document and provide a rationale. As such this section should demonstrate instances where mismanagement of freshwater ecosystems threatens economic security and that economic insecurity in turn threatens freshwater ecosystems. Furthermore, the introduction should also demonstrate instances where sustainable freshwater ecosystem management has led to improved economic security and where economic security has enhanced the management of freshwater ecosystems. Specific reference should be made to any incentive structures relevant to these brief examples. Furthermore this section should provide the main objectives of the document and outline of its structure and rationale.

Background (2500 words)

This section will open with a definition of freshwater ecosystem management and economic security and the general context in which these definitions have evolved. The section will then identify the linkages between these concepts and the political processes relevant to these issues (e.g. Convention on Biological Diversity on ecosystem management, The Commission on Global Governance on economic security).

This section will continue with a description of concepts such as incentive measures, economic values, and private and public goods. Particular emphasis will be placed on defining the relevance of these concepts for the management of freshwater ecosystems. Examples of these aspects include the possible uses of economic valuation as a management tool – identifying stakeholders through the analysis of the flow of benefits and costs, identifying captured values as potential sources of income, and so on.

Furthermore this section will define the concepts of freshwater ecosystem functions (production/resource providers, providers of tourism opportunities, providers of regulation (water

quality/quantity, wetlands as buffers, filters and capacitors, providers of habitats for species) and how they relate to economic security at the local, national and global levels.

Problem identification and analysis (4500 words)

This section will analyse how and why declining economic security at the (a) local, (b) national/regional and (c) international levels leads to the mismanagement and unsustainable use of freshwater ecosystems (each of these levels should be structured as a sub-heading). In doing so it will identify the various incentive structures which contribute to the problem including:

- *property rights structures*: who owns rights to freshwater resources (local); how are the rights allocated and by whom (local and national/regional); are there rights to flow (local and national/regional)
- *distribution structures*: are freshwater resources distributed in a market mechanism (national/regional); are there pricing structures or quotas (national/regional); how is it administered and by whom (local and national/regional)
- *financial structures*: do financial resources flowing from the sale of freshwater ecosystem goods and services return to those who maintain the ecosystem (local and national/regional); does the allocation of resources for maintenance reflect the quality of the maintenance (local and national/regional)
- *international capital flows*: does overseas development assistance contribute to projects which adversely impact on freshwater ecosystems (national/regional and international); do export credit agencies reduce risk for projects adversely impacting on freshwater ecosystems through investment guarantees (national/regional and international)

Strategy for addressing threats to freshwater ecosystems resulting from existing incentive measures (4500 words)

This section will outline a strategy (or strategies) for identifying the (a) local, (b) national/regional and (c) international structures (each of these levels should be structured as a sub-heading to facilitate the workshop discussions) on freshwater ecosystems. This strategy(s) will outline the process of identifying relevant incentive measures which are driving decisions, determining the impact of those incentives on freshwater ecosystems, reforming the incentives as needed, and monitoring and evaluating the designated changes. The strategy(s) should allow for a collaborative and inclusive process which enables all relevant stakeholders to partake in the decision making process. Additionally, the strategy(s) should be flexible, keeping in mind the variety of political-economic situations around the world.

Final statement (800 words)

This section will present 10 to 15 thought provoking statements or questions that will be used to start the discussions during the workshop. These statements should reflect the analysis provided in the background document as well as stimulate thought about relevant issues which the background document was not able to elaborate on or cover. Thus these statements or questions will spur further development in thinking related to the topic of freshwater ecosystem management and economic security. They are intended to form the preliminary elements of the Vision for Water and Nature.

TERMS OF REFERENCE

CONSULTANT – Vision for Water and Nature (VWN) FRESHWATER ECOSYSTEM MANAGEMENT AND ENVIRONMENTAL SECURITY

A. General Terms

Under the terms of the present contract, the consultant Mr. Mike Acreman will carry out the following tasks under the supervision of Mr. Ger Bergkamp, Water Resources Specialist, IUCN - Headquarters (Gland, Switzerland).

1. Set-up in close collaboration with the supervisor a Technical Work Plan for producing a IUCN discussion document on Freshwater Ecosystem Management and Environmental Security and define a detailed time schedule for the implementation of the Technical Work Plan. Both the Technical Work Plan and the time schedule contained in Section B will form an integral part of this Terms of Reference.
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1/3/1999	Delivery of draft document
1/3 – 7/3/1999	Review of documents by 3 external advisors
8/3 /1999	Meeting between G. Bergkamp at M. Acreman at IUCN HQ to discuss reviews (if necessary)
9/3 – 12/3 /1999	Incorporation of comments into draft document
12/3/1999	Delivery of final document and end of contract

C. Scope, objectives and contents of the discussion document

This section describes the scope, objectives and contents of the discussion document on 'Freshwater Ecosystem Management And Environmental Security' that will guide the discussions during the World Water Commission - Water and Nature: Environmental Security Workshop to be held in San José from 21 – 23 May 1999. The work shop is linked to two other workshops on freshwater ecosystem management and social security and economic security, respectively. The workshop on 'Freshwater Ecosystem Management And Environmental Security' will be technically co-ordinated by G. Bergkamp, Water Resources Specialist (IUCN-HQ).

The document will provide a comprehensive framework for the analysis of the relationship between freshwater ecosystem management and environmental security. This will be based on the understanding of patterns and processes at different hierarchical levels of environmental systems, the temporal and spatial scales these systems encompass, the technical aspects of a large range of management options available and their relation to changes in environmental security. The document will form the basis of a polemic discussion on several key-issues defined below.

The objective of the document are:

1. To define and elaborate upon environmental security and freshwater ecosystem management and related key-concepts;
2. To provide a review of the primary threats to environmental security induced by freshwater ecosystem degradation or affecting freshwater ecosystem functioning;
3. To define current and potential strategies and actions that are used and can be used to mitigate or adapt to changes in environmental security affecting freshwater ecosystem functioning;
4. To come up with a set of thought provoking statements that will be used to start the discussions.

The document will consist of a preface, an introduction, a background section, an analysis of the environmental issues related to environmental security, technical environmental aspects of mitigation strategies, technical aspects of adaptive strategies, and a final a set of thought provoking statements to open the discussion during the workshop. Below a further elaboration on the various sections is provided.

Preface (400 words)

This section will reflect the wider context of the Vision for Water, Life and the Environment, in particular the work on Water and Nature. It will also summarise briefly the work to be carried out in the other two workshops and the purpose of the document in that context.

Introduction (800 words)

The introduction will outline the context of the document and provide a rationale. As such this section should reflect that mismanagement of freshwater ecosystems is threatening the environmental security within many catchments on earth. This mismanagement is expressed in the degradation of natural systems for purposes such as irrigation, sewage disposal, and power generation. Other mismanagement is specifically related to land use and land conversions typically affecting the flooding of lower lying areas.

The introduction should also reflect the potentials of sustainable freshwater ecosystem management for improving environmental security. Specific reference should be made to the mitigation and adaptation strategies that are required to overcome the increasing threats to environmental security.

Furthermore this section should provide the main objectives of the document and outline of its structure and rationale.

Background (2000 words)

A short background of river systems will be given (headwater, middle reaches, floodplain) that is accessible to non-technical readers. This section will further deal with defining the concepts of freshwater ecosystem management and environmental security. The general linkages between these concepts will be described as well as the political attention to these concepts (e.g. CBD on ecosystem management, Jordan (March, 1999) environmental security minister conference).

Related terms and concepts will also be defined including: Environmental security, Environmental hazard, Vulnerability, Environmental risk, Elements at risk, Total environmental risk (as the product of specific risk and elements at risk). In this respect it is important to note that the concept of environmental security is closely related to the concepts of environmental hazard and environmental risk. In many cases the environmental risk can be easily quantified such as in the case of flood damage and groundwater depletion affecting crop production and domestic and industrial water consumption. In other cases the cost of losing environmental security are less obvious as for example in the case of the loss of biodiversity potentially affecting the integrity of freshwater ecosystems. It is often this integrity that supports the performance of functions by the system such as flood prevention, groundwater recharge and water purification.

This section will also describe and define concepts such as freshwater ecosystem integrity, connectivity, dynamics, resilience and resistance. Particular emphasis will be placed on defining the relevance of these concepts for ecosystem management. Examples of these aspects include the relation between integrity and inland water connectivity – lateral, vertical connections / catchment integrity and the performance of ecosystem functions.

Furthermore this section will define the concepts of freshwater ecosystem functions (production/resource providers, providers of tourism opportunities, providers of regulation (water quality/quantity, wetlands as buffers, filters and capacitors), providers of habitats for species relevant for system function maintenance).

Problem identification and analysis (4000 words)

This section will reflect upon the threats to freshwater ecosystem functions affecting environmental security and on the effect of changes in environmental security for the conservation, maintenance and management of freshwater ecosystems functions. This analysis will be carried out at three levels: Local level, National / regional level, International level that will form the basic structure of the section.

The sub-sections covering the various levels will be structured according to an analysis of the current situation and three scenarios (business as usual, no action taken, best possible achievable situation) concerning future surface and groundwater resources. In the analysis of the current situation trends, major causes/drivers and effects will be given. The trends will be illustrated by indicators of global/regional/national freshwater conditions insofar these data are available, such as loss of wetlands, loss of freshwater biodiversity, loss of river connectivity, decrease in lake sizes (Aral, Caspian Sea, most Tibetan lakes), dropping groundwater levels due to overpumping, river water quality, lake water quality, freshwater fish stocks. The indicators could be organized according to the 4 main group of ecosystem functions (production, tourism/information, habitat/biodiversity, regulation).

The three scenarios analysis will focus on future freshwater ecosystem conditions based on best guesses of projected trends of key-indicators used in the analysis. These trends will for example take into account the increasing urbanization of the world population posing both increasing threats (e.g. untreated effluents) and opportunities (e.g. concentration of pollution from urban centres). Focus in all these analysis will be on the relationship between the increased or decreased environmental security and the mode of operation of freshwater ecosystems. Issues to be dealt with at the various levels include (examples in brackets):

Local

Water quality degradation (chemical, sediment, organic pollution) (pollution sources (agriculture, industry, urban areas, acid rain, defining ecosystem requirements)

Water quantity degradation (flooding, droughts, temporal and spatial distribution, environmental shortage, defining ecosystem requirements)

Land use and cover change (function of landscape positions under specific cover for water resource base, land drainage, land degradation, land conversion, riparian zones, headwaters, wetlands and floodplain conversion, extension of urban areas)

- Freshwater biodiversity loss (differentiation into species groups, key-stone species loss and effect on ecosystem functions, damming – loss of migration, loss of habitat diversity)
Loss of ecosystem productivity (fisheries, floodplain productivity)

National / regional

- Dams & hydropower augmentation (loss of connectivity)
Incorporation of environmental aspects in basin management
Coastal zone degradation due to lack of freshwater input

Global

- Effects of climate change on freshwater resources (change in precipitation amount and type, intensification hydrological cycle, peatland degradation, recharge rates)

Strategies to mitigate threats to freshwater ecosystems and environmental safety (4000 words)

This section will define mitigation strategies in technical terms of actual management. Examples will be given of strategies that are currently practised at different scales to mitigate threats to freshwater ecosystems that have implications for environmental security. The strategies will be dealt with according to technical, social (e.g. organisational) and economic (e.g. subsidies) aspects. Some overlap with the other two workshops is acknowledged and should be used to strengthen this section. The emphasis will be however on technical aspects of mitigation strategies.

- Appropriate technologies to protect freshwater ecosystems

Source and sink analysis to develop well targeted mitigation strategies

Reduction in sources of pollution and degradation

- Maintenance and creation of pollution sinks
- Increased allocation of water to ecosystems through demand management

Strategies to adapt to changes in freshwater ecosystems and environmental safety (4000 words)

This section will define the concept of an adaptation strategy as related to freshwater ecosystem management and environmental security. It will provide specific examples for each of the three defined scales. The strategies will be dealt with according to technical, social (e.g. organisational) and economic (e.g. economic instruments) aspects. Some overlap with the other two workshops is acknowledged and should be used to strengthen this section. The emphasis will be however on technical aspects of adaptation strategies.

Topics to be dealt with include:

Improved adaptive management

- Freshwater ecosystem restoration
- Water treatment – (appropriate technology, artificial wetlands)
- Capacity building (individuals, institutions)

Awareness raising

- Development of incentive measures (overlap with workshop on economics)
- Improved monitoring schemes run by institutions and local groups (e.g. EPA monitor your catchment)

Techniques to foster freshwater ecosystem functions as buffers, conductors and capacitors

Final statement (800 words)

This section will present 10 to 15 thought provoking statements that will be used to start the discussions during the workshop. They are intended to form the preliminary elements of the Vision for Water and Nature.

TERMS OF REFERENCE

CONSULTANT – Vision for Water and Nature (VWN) FRESHWATER ECOSYSTEM MANAGEMENT AND SOCIAL SECURITY

A. General Terms

Under the terms of the present contract, the consultant, JohnSoussan, will carry out the following tasks under the supervision of Mrs. C. Espinosa, Global Facilitator of the Social Policy Program, IUCN - Headquarters (Gland, Switzerland).

1. Set-up in close collaboration with the supervisor a Technical Work Plan for producing an IUCN discussion document on Freshwater Ecosystem Management and Environmental Security and define a detailed time schedule for the implementation of the Technical Work Plan. Both the Technical Work Plan and the time schedule contained in Section B will form an integral part of this Terms of Reference.
2. Review and amend in close collaboration with the supervisor the table of contents contained in Section C of this ToR.
3. Produce synthesised information on the topics identified within the table of contents, based on existing scientific, policy and related documents.
4. Consult with the supervisor and others on the details of content of the discussion document.
5. Produce a draft discussion document of 14000 words (excl. references) that is consistent with existing scientific and policy documents and meets for the supervisor acceptable standards of content, clarity and readability. A draft version will be delivered on March 1, 1999. The draft document will be discussed with the supervisor.
6. Incorporate revisions based on the supervisor's comments into the draft document before production of the final document
7. Produce a final version in collaboration with the supervisor to be delivered on March 12, 1999.
8. Maintain regular liaison with the supervisor to ensure that she/he is fully aware of developments during the course of the project carried out under the responsibility of the consultant.

B. Technical Work Plan and Time Schedule

Date	Activity
15 January 1999	Start of contract
15 – 26 / 1/1999	Development of analysis and first drafts based on outline (Section B)
10 March 1999	

24/2/1999	Delivery of pre-draft document
1/3/1999	Delivery of draft document
1/3 – 7/3/1999	Review of documents by 3 external advisors
8/3 /1999	Meeting between C. Espinosa and A. de Sherbinin at IUCN HQ to discuss reviews (if necessary)
9/3 – 12/3 /1999	Incorporation of comments into draft document
12/3/1999	Delivery of final document and end of contract

C. Scope, objectives and contents of the discussion document

Preface (Context of the discussion paper)

The discussion document should provide an analytical framework of the different hierarchical levels of social institutions and interactions affecting equity, conflicts and sustainable freshwater and ecosystem management. This discussion paper will include a comprehensive review of the problem, and facilitate a polemic discussion of the key issues identified as strategic.

An important goal of this discussion paper is to overcome a descriptive inclusion of social and demographic aspects involved in fresh water & ecosystems management. It should present an integrated vision on how global, regional, national and local levels are articulated through markets, policies, development interventions, politics, demographic trends, and socioeconomic rationality which shape human behaviour and perceptions.

To discuss the concept of social security related to fresh water and ecosystem management, the discussion paper should refer first to the historical factors shaping the current use of natural resources. The social shape of: population growth and distribution, in spatial and temporal terms, the consumption patterns and the technologies used to collect, distribute and consume freshwater resources should be analysed, and related to capitalist growth and to prevalent development paradigms. It is important to address that population dynamics, consumption patterns and technology, are not socially neutral. On the contrary, they reflect specific social relations between humans and nature and among humans. Social institutions mediating the interactions of people with water and ecosystems have a social bias due to the differentiation of resource users, in terms of class, culture, gender, ethnicity, age, etc. at the local, regional, national and global level. It is important to identify which technologies and consumption patterns are linked to ecosystems degradation and which have a potential to reverse these trends.

The discussion paper should focus first on the analysis of social processes and institutions affecting freshwater and ecosystems management, and then analyse strategies developed to mitigate and to adapt into less favourable and secure environments. The two possible scenarios, in regard to freshwater and ecosystems management and social security (practices as usual: increasing population and increasing degradation, and the best way out) should be presented, as well as the strategies identified to achieve this (mitigation) and to cope with it (adaptation).

2. Introduction (Context of the problem)

The understanding of the interfaces between people and water should not focus only on the issue of scarcity, but on the social factors shaping distribution and consumption of resources. Analysing the social implications of technology, as well as the economic pressures on land and water use. From this analysis recommendations could be more pragmatic and less rhetorical.

3. Background (Definition of the terms and concepts)

It is important not to restrict the notion of social security to the context of social crisis or security problems, but to present the whole set of social institutions and dynamics affecting freshwater and ecosystems management. The notion of social security in regard to fresh water and ecosystems management is understood as the capacity of individuals and institutions to assure their long-term reproduction, and to prevent and/or to manage conflicts and inequities. When analysing social institutions it is important to discuss the notions of social vulnerability, social risk, resistance, flexibility, resilience and stability, as they affect the capacity of social actors and institutions to neutralise and /or adapt to less favourable physical and socioeconomic environments.

Since social institutions are hierarchically organised, the analysis should include their contexts as well as their components (from the individual, family/household, community, region, nation and global using network analysis). Provide some examples of how these levels are related.

4. ANALYSIS OF THE PROBLEM

4.1. CURRENT STATUS

Paradigms: The underlying paradigm about water and development (exporting the models of modern agriculture and modern villages) and the displacement of indigenous/traditional practices which make a more sustainable use of water.

Examples of non-Western cultures that had been able to support large populations in water restricted environments.

Social Structures affecting management of freshwater & ecosystems:

Social actors and institutions affecting freshwater and ecosystems management, at the global, national and local level. Who are in charge of the management (national public institutions, district public boards, water private boards, basin organisation, local male farmers, communities, etc) Who is paying the cost of environmental degradation?

Globalisation and privatisation of rural commons: its effects on poverty and ecosystems degradation. Social differentiation within communities: class, gender and ethnicity affecting water use, as it relates to social risk and vulnerability.

Rethinking Population Dynamics: Matrix showing the internal run off, estimated population and water consumption by sectors. Analysis of the role of population growth and spatial distribution, urban consumption, fresh water use, in terms of human health and ecosystems management. Consider the irrational use of water consumption and not only the current and projected deficits of freshwater (therefore, put demographic growth in its real context). Dams and forced resettlements: their impact on ecosystem management and access to freshwater.

Power and conflict: power asymmetries, conflicts and their impact on freshwater & ecosystems management. Identifying the different social actors, their different degree of responsibility and the rationality of their behaviour, from the local to the global level.

1: Sharing the waters beyond borders: the case of different countries sharing common freshwater resources. Potential and current conflicts for water resource access.

2: Power groups and interests within countries: sharing water resources between sectors or regions (agriculture/industry/urban consumption).

3: Class and ethnic conflicts between users of a watershed (pastoralists/agriculturalists; small/large farmers, etc)

Legal and political frameworks: Laws and policies related to protect ecosystems and regulating freshwater management (for example: subsidisation or pricing of water?).

Issues that affect the implementation of these law and policies, at the local, national and global level.

4.2. POSSIBLE SCENARIOS

Present the three possible scenarios: a. current status, b. increasing scarcity, conflicts and degradation, and c. the best way out, a more sustainable and equitable use of freshwater and ecosystems management.

Link these three scenarios with the factors previously identified at the global, national and local level, which can lead to these scenarios and which are affected by them.

5. MITIGATION STRATEGIES: present those strategies at the local, national and global level that can take us to the best scenario. These mitigation strategies should derive from each of the problems already identified, such as:

In regard to Paradigms: Taking ecosystem health into account: rethinking human basic needs? Integrating conservation with development agendas to redefine development models in participatory and cultural sensitive way. Relocating the existing freshwater resources in a more efficient and equitable way. Recycling.

In regard to social institutions and social differentiation: Participatory planning at the local level requires also changes at the national and global level.

In regard to population dynamics: To reduce consumption and to stabilise population

In regard to Power and conflicts: use stakeholder analysis and collaborative management to achieve more equitable access to freshwater. In order to manage conflicts and to balance power asymmetries, promote:

International water treaties to regulate access to water resources among different countries: third party can help negotiations, need to include reciprocal uses of other resources, need to include ecosystem needs.

Participatory planning at the local level in order to include different class, gender, age, ethnic interests.

In regard to legal and political frameworks: Changes in the national policies and law favouring more equitable and sustainable access to freshwater.

(This section needs to be more concrete, and to derive from the analysis done at the previous sections)

6. ADAPTATION STRATEGIES: present those strategies that can help humans to adapt to degradation, unequal access to resources and their scarcity.

7. STATEMENT (12 pages proposing the discussion topics)

10 March 1999