



National Sovereignty and International Watercourses

by
GREEN CROSS INTERNATIONAL
March 2000

National Sovereignty and International Watercourses Panel

An eminent Panel of former Heads of State and Government has been gathered from among the honorary members of the World Commission on Water for the 21st Century to investigate the question of how to share the world's almost 300 transboundary watercourses. The Sovereignty Panel includes the Hon. Mikhail Gorbachev (Chairman), Former President of the USSR, and President of Green Cross International, the Hon. Ingvar Carlsson, Former Prime-Minister of Sweden, the Hon. Sir Ketumile Masire, Former President of Botswana, and the Hon. Fidel V. Ramos, Former President of The Philippines. The objective of the Panel is to examine and propose concrete solutions to the following questions:

- What are the principles that should regulate the use of shared water?
- Can such a set of principles be codified in a meaningful sense?
- Is there a need for intergovernmental mechanisms for dealing with potential environmental conflicts?
- How can we link these mechanisms with national sovereignty, the keystone of international legal agreements?

The Sovereignty Panel Members have been assisted in background research, coordination and the preparation and writing of this Report by Green Cross International, and in particular the following group:

Professor Laurence Boisson de Chazournes, Director of the Department of International Law and International Organisations, Faculty of Law, University of Geneva
Dr. Bertrand Charrier, Executive Director, Green Cross International
Fiona Curtin, Water Project Manager, Green Cross International

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Foreword

The World Commission on Water for the 21st Century (the World Water Commission) was convened by the World Water Council, and co-sponsored by all the major international agencies working on water, to look at all aspects of the water future. It became quickly apparent that a holistic approach, based on Integrated Water Resources Management (IWRM) was necessary. Such an approach would have to be based on participatory institutional mechanisms, and would have to recognize the basic human needs of access to water as well as the need to value water as the precious resource that it is. Finally, whatever was going to be done, had to be done in harmony with nature, as water is a vital part of the ecosystems that we all depend on. In creating the enabling frameworks for community action and private sector involvement, state governments, the sovereign bodies over territory, would have to play a key role as enablers and as regulators.

But what of international waters?

Some 40% of the world's population live in basins shared by two or more countries. In addition, some 280 river basins and numerous underground aquifers are shared by two or more countries. With the mounting recognition that past and current water management practices have not been adequate, and that population pressure is mounting while basic flows of sustainable water resources remain the same, it is evident that collaboration between countries in the management of water resources is essential. Upstream riparians should not deprive downstream riparians of access in terms of quantity or quality. But how can we ensure that sovereign states recognize the need to work with others beyond their territory?

We believe that cooperation is easier to start on the basis of quality issues (pollution control and ecosystem protection) than on the quantity issues (allocation of shared waters) which tend to be seen as zero-sum situations. We believe that proper management of shared water resources can be a basis for international collaboration as much as its absence can be a cause of tension and strife.

Although armed, inter-state conflicts over water would be extremely rare, long, drawn-out acrimonious disputes over water are bound to affect the good relations between countries even if they do not lead to outright war and armed conflict. Furthermore, it must be remembered that these are not the only types of conflicts facing societies in regions of increasing water stress. Internal conflicts between different ethnic groups, regions, users and even small communities can and do arise over water. Both types of dispute are relevant to the emotive question of national sovereignty, which has both inter-state and domestic manifestations.

Rigid interpretations of sovereignty over water contradict the very nature of water itself. Water flows across, and underneath, international boundaries and sustains entire ecosystems, whose boundaries do not conform to the political lines we humans have drawn on maps. And water is a fundamental component of many cultures and religions and often dictates life-style choices. The question of who has the right, or entitlement, to water and for what purpose can be asked both at the level of riparian states and between different groups of people sharing a pump or a stream. For millions of people the daily source of drinking water is also an international watercourse, and these same people and the natural environment which sustains them should be a prime consideration in any debate on the question of who has sovereignty over such waters. This is clearly a matter which involves considerations of social security,

human rights, political and public will, minorities, gender, culture and the environment, and calls for a change in the way we value and treat water.

To provide guidance to the World Water Commission on this subject, the Commission has called on a panel of former heads of state and government headed by former President, the Hon. Mikhail Gorbachev, and that includes the Hon. Ingvar Carlsson, Sir Ketumile Masire and the Hon. Fidel Ramos. All the members of this distinguished panel have been honorary and active members of the World Water Commission itself. It has been my personal privilege to be associated with these distinguished leaders, and I am honored to introduce this report.

The Panel has been supported in its work by Green Cross International and this Report on National Sovereignty and International Watercourses has been written by a team from Green Cross. It is, like so much else in this global effort at creating a better vision for water in the 21st century, a work in progress. The wisdom of these leaders is pointing to some interesting ways forward. It is hoped that this will now spark debate and discussion and encourage concerned parties to come together to collaborate and cooperate over shared water resources and to manage them in a socially equitable and environmentally sustainable manner.

Ismail Serageldin
Chairman
World Commission on Water for the 21st Century

Statement and Proposals

The threat of a global crisis caused by the continued widespread over-exploitation and pollution of water requires that a consensus be reached regarding the delicate balance between national sovereignty and the management of the nearly 300 basins which are shared by two or more States. Most of the world's largest and most vital freshwater sources are trans-boundary, and their fragmented administration by centralised government bodies, often in isolation from other basin states and without the participation of large segments of society, if continued, will greatly impair any efforts to achieve sustainable, fair and optimal utilisation and protection of the earth's fragile freshwater resources.

Water shortages and contamination rank among the world's top problems, but unfortunately are not yet one of our top priorities. Decision-makers must become more concerned about the future of the world's international watercourses, which are among our most precious natural resources, and for the people whose very survival depends upon them. This concern should spring from both the growing awareness of the social, environmental and political damage caused by the mismanagement of these watercourses in the past, and the desire to prevent inter-state conflicts over shared water resources from developing as more and more purely national supplies are exhausted. The absence of effective international and regional agreements and institutions for water sharing and basin management will make for a world scenario in which conflicts over water are more likely, and where forums and mechanisms for the resolutions of such conflicts are lacking. An integrated, holistic approach to international watercourses is needed, in which the basin is accepted as the logical unit of operation. To achieve this there is a need for a union of political and public will, and the emergence of genuine international and regional solidarity and dedication to resolving crucial water issues.

Sovereignty over Water

Both water and sovereignty are issues which must be tackled in conjunction with other factors, and from more than one angle. Water is essential to sustain and develop the region, the state, the community, the individual and the environment, and thus the exercise of sovereignty over water must also be considered on all these levels. Sovereignty is a highly emotive term which can be deconstructed into domestic or "internal sovereignty" - the relationship between the Representatives of a State and its population - and "external sovereignty" - the relationship of the State itself towards other states. When considering the question of transboundary watercourses, both internal and external manifestations of sovereignty are relevant. For millions of people the local source of water also happens to be an international waterway. These communities should therefore be assured access to, and given a role in the management of, this water by the authorities in their own State. At the same time, these State authorities have a responsibility to maintain an acceptable level of water quality and quantity for those further downstream, and not to develop in such a way that states further upstream will be hindered in their future water-utilisation plans. In National sovereignty in principle should consist of a complementary union of state and popular sovereignty, the exercise of which considers the needs of all involved, including the environment. In the case of international basins, "all involved" includes people and ecosystems in other states, and, by extension, the exercise of sovereignty over these watercourses should therefore take them equally into account. This calls for a high level of regional understanding and cooperation both between and within states.

It is a misconception that state sovereignty is incompatible with interstate cooperation. One of the most important characteristics of an independent state is the ability to enter into

international relations; the management of international basins is an obvious area where cooperation between states and peoples is essential, and this collaboration reinforces rather than diminishes the sovereignty of each state. When states pool their resources they also pool and enrich their national sovereignty.

Interdependencies in the Water cycle

The effective administration of international watercourses also demands that attention be given to all the aspects and interdependencies within the hydraulic cycle. Aquatic ecosystems cannot be managed in isolation from practices on land, such as deforestation and irrigation, or from social and economic developments, such as increased urbanisation and industrialisation. Appreciation of the relationship between water and other environmental and meteorological changes is also crucial. The quality and quantity of water in a region is both affected by and can cause climate changes, and is crucial to preserving the health and biodiversity of other natural features, particularly forests and wetlands. Thus planning water policies is a very complex matter involving a myriad of components, and projections for the future must consider the possible effects of changes in population, temperature, rainfall, vegetation, land-use, etc. A multi-sectoral, integrated system, complemented by information sharing, transparency and wide participation is therefore best suited to encompass all these elements.

Water in time and space

National sovereignty over internationally shared watercourses is best expressed through cooperation and effective interdependence between states, peoples and different interest groups. To better comprehend how this should be achieved, and by whom, it is necessary to place water within the appropriate spatial and temporal parameters. Water is a finite resource, the same amount of which has been available throughout time. Its existence in a particular form in a particular region should be respected as a permanent feature of the landscape, along with the people and the natural environment; and it is therefore the needs of people and nature which must be given precedence. This is also the only way in which the interests and entitlements of both present and future generations can be preserved. The irreversible lowering of water-tables in many regions, caused by the over-exploitation of groundwater, effectively represents the permanent loss of water for future inhabitants of a region.

Spatially, international basins pay no attention to political boundaries and therefore need to be seen in a broader perspective. Even where a river actually forms the border between two states, this is usually not the best way to view it. The river should instead be seen as a central, unifying feature at the heart of a region, not a dividing line. Governments are temporary, and, as we have witnessed repeatedly, state boundaries are also far from fixed. An incongruity therefore exists in the way in which international watercourses are often perceived, as the effects of policies and infrastructure developments can long outlive the governments and even the states responsible for them. A sustainable water vision requires the adoption of a more long-term, ecosystemic outlook and the making of decisions by representatives of stakeholders from all basin states to better reflect the nature of water itself.

The multifaceted value of Water

The value of water comes in various forms and is heavily influenced by cultural and geographical factors. The sharing of water was one of the first elements in the progress towards communal living, and rivers have always had great cultural and spiritual significance. This is an important reason why sharing them is such a sensitive matter prone to sparking nationalist

sentiments. The historic value of transboundary water systems as part of a people or a region's cultural heritage cannot be ignored when devising means of exploiting or sharing them. The alliance of culture and water is also important in determining how water for personal use is to be valued. In some cases, water is seen as collective property, which should never be paid for or treated as an economic good, in others the "commodification" of water has been advanced.

Different values and priorities can be assigned to water within a single community. One important consideration in this context is gender. Throughout the world the collection and apportionment of water for the household is primarily done by women and girls, in many cases representing a major burden on their time and energy. It is the domestic uses of water, which are the responsibility of women, which represent the most fundamental needs of the society and are the basis of the human right to a minimum requirement of water. It is also the lack of adequate systems for the provision of this essential water, increasingly being taken from international watercourses, which causes the most desperate water and sanitation related problems of disease and extreme poverty.

The shortcomings and possibilities for improvement in water services should therefore not only be inferred from statistics and expert opinion, but also assessed based on the active consultations and participation of women and men at the community level. Wide-spread participation in water management, and recognition of the value of local knowledge and customs, would ensure a system which is more in tune with a people's actual needs and beliefs, and help to prevent the tensions which can arise when different members of a community are not adequately represented in the water policies which effect them.

Water is also essential to the maintenance of food security, and can be traded as "virtual water" in the form of agricultural products. It is necessary to strike a balance between the right of everyone to a reasonable amount of water to ensure a liveable environment, the need for water to be used efficiently, and the use of water for enterprise, particularly energy generation, and agriculture. Such a balance must also be reached in the context of the local culture(s) without losing sight of the inherent non-economic values of water. The pricing of water is therefore a difficult concept to grasp. Transboundary watercourses are the communal property of a region, which everyone in a basin should have access to, but it is also necessary to ensure that water is used efficiently and responsibly. A solution is the appropriate pricing of water services for all users (domestic, agricultural, industrial) of the shared resource, in order to prevent unnecessary waste from exacerbating scarcity problems while maintaining the notion of water's special relationship with people.

Rights to Water

Water is essential to achieving the "right to a standard of living adequate for the health and well-being of himself and his family" (Universal Declaration of Human Rights, Article 25), and therefore it must be made available to everybody regardless of financial status. In recognition of the absolute need for water for survival, governments should regard the quantity of clean water necessary to ensure a decent standard of living for all people as sacred. An adequate supply of water must also be reserved for the preservation and natural regeneration of the environment. No water should be allocated for other purposes before these essential functions are fulfilled.

Pertaining to international watercourses, no state should utilise the resources of a shared watercourse in such a way that fellow basin states are subsequently unable to achieve the

above mentioned basic levels of water and environmental security. This is the most fundamental respect in which the sovereignty of states over transboundary watercourses is interdependent with the needs of their neighbours. The exercise of international solidarity in respecting this limitation of national sovereignty, even by states with the dominant riparian or power-wielding position, is essential to achieving water security for the people of a shared basin.

Public participation in water administration and allocation is so crucial that it can also be regarded as an emerging human right. People must be informed and empowered in water issues and management decisions as a key component in the process towards more transparent, just and stable societies.

Cooperation over Water

Basin-wide cooperation is the optimal solution to the problem of managing international basins and, as a means of moving towards this goal, any progress towards states and peoples working together to achieve more effective water policy should be encouraged. Although there is yet to be put in place a truly integrated, functioning basin-wide cooperative scheme for the management of an international watercourse, there are examples of regional regimes which are trying to develop in this direction, and have achieved some success.

There is a multitude of possible approaches to regional cooperation. One is the idea of "cooperation as allocation", where states recognise the need to cooperate on some levels to maintain order, usually for water sharing purposes. Such agreements are often based solely on water allocation aspects, lacking a truly holistic vision of the basin and are inflexible to changes in, for example, population, economic development and environmental priorities. However, there are examples of systems moving from the already significant achievement of peaceful coexistence towards more integrated cooperation. Another type of cooperation can be identified as "cooperation as salvation", indicating the necessity of some states to cooperate over water in order to avoid absolute disaster, either in the form of violent conflict or environmental destruction. The hope is that the cooperative efforts made to mitigate the catastrophe may lead to more long-term, progressive regional projects. A third variation is "cooperation as opportunity", highlighting the ways in which cooperation over shared watercourses not only provides concrete mutual benefits for states involved, but can also encourage cooperative action on other regional matters. Integral to any efforts towards better water management is the need for "cooperation among stakeholders"; people-to-people cooperation to open-up channels of communication and trust between different interest groups, and considering the needs of both empowered and traditionally unempowered people.

Cooperation in any form must exist on the ground as well as on paper if the real benefits of better and more equitable water policy are to be felt. Even where basin schemes remain fragmented, whether because not all basin states and stakeholders are actively involved, or because not all issues are considered, all movement towards collaboration must be taken as a step in the right direction towards the realisation of the ultimate aim of cooperative efforts - a fully integrated and active basin-wide system. Such movements often begin at the level of information sharing between groups of experts, and should be encouraged to spread to other groups of stakeholders and decision-makers.

It is important that incentives to cooperation be identified and provided. These can be in the form of financial aid, but also through the provision of a forum for discussion, increased information sharing and the fortification of state infrastructure. One incentive to cooperate

with neighbouring riparians which should be emphasised is the notion of uniting to preserve the cultural heritage of a region, which in many cases will have originally developed around the river itself.

Framework for the integrated management of international watercourses

The management of international water has implications at the global, regional and local levels, and therefore needs a framework that reflects this. The universally agreed legal instrument, i.e. the UN Convention on the Law of Non-Navigational Uses of International Watercourses, although not yet in force, is useful in providing guidelines, principles and a certain degree of stability to the process of creating workable regional agreements. It is obviously not enough. The universal instrument needs to be complemented, and given more direction, by basin-level agreements between states which lay down both regulations and shared priorities and goals in, and connecting, all the relevant areas. These in turn should be fortified by the establishment of institutions for the necessary implementation, financing, monitoring and information gathering for the region. Action and awareness building at the local level by different groups of stakeholders is crucial.

Within this framework there is a definite need for greater coordination between states, between water-users, and between institutions. International and regional bodies have an important role to play in the establishment and maintenance of international basin cooperation, from providing expertise and facilities to financing projects. Fragmentation is as undesirable at this level as it is within the basin. The UN and its Specialised Agencies, Regional Banks and other organisations also need to cooperate and coordinate their efforts to maximise effectiveness. A common goal and over-arching theme, with a clearer allocation of tasks and responsibilities between different actors, would be greatly beneficial. The fuller integration of the environment, and transboundary water in all its aspects, into the international legal framework would help to remove some of the loopholes which exist in the present regulatory system.

Water for Peace

Water is connected to security on many levels, from that of the nation and its position in relation to others, to the human security achieved through reliable access to clean water, food, sanitation and therefore a tolerable standard of living. A vital ingredient in basin management is the availability of forums for the airing and resolution of disputes. The increasing recognition of the interdependence of people between and within states in itself constitutes a step towards conflict prevention. Tensions over water frequently arise at the internal level; whether originating between groups of people inside a state who are marginalised or discriminated against, or as a result of wide-spread dissatisfaction with the quality of water services, such tensions can result in the loss of confidence in the Government in question and contribute towards instability. There are also many cases where the distinction between internal and international disputes is blurred, such as where a people lack statehood or are not integrated in the state-system, as is the case of many minority and indigenous groups. The decentralisation of authority defends against such conflicts, which can spill over into other states. Inter-state disputes are usually the result of unilateral action with adverse effects on fellow riparian countries; any level of cooperation limits the likelihood of such action and its disruptive consequences.

Environmental degradation and resource depletion is likely to become an increasingly common cause of tension as populations grow, and hardships are heightened by desertification, famine, pollution and, of course, water problems. These problems can arise as a result of scarcity, contamination, floods, or, perhaps most often, poor management and inequitable distribution. The integration of the protection of the environment, including the aquatic and terrestrial features of a basin, provides the best chance of preserving the delicate balance between the needs of Humankind and the needs of Nature and therefore maintaining social security in many sensitive regions. Where this is not sufficient to avoid conflicts, there should also be an agreement among the basin states regarding dispute settlement procedures, including arbitration. If water related issues can be dealt with in a rational, cooperative way, this not only removes one potential cause of conflict, but also provides incentives and good practices for the resolution of other matters.

Peace for Water

Water can be a cause of conflict, and also a target in conflict. Means should be found to better protect international watercourses in times of war as they have the ability to transmit the effects and possibly spread the hostilities farther afield.. The recognition of the great and very concrete significance for the whole of humanity attached to the environment in the 1996 Advisory Opinion of the International Court of Justice on the Legality of the Threat or Use of Nuclear Weapons was an important step. This should be taken still further with more explicit attention given to the protection of water in international legal instruments dealing with warfare.

Historically, water has been a source of cooperation far more often than a source of conflict, particularly armed conflict. The tendency of shared watercourses to lead to cooperation even between traditional adversaries should be used to help resolve other issues between states. Water is so vital and emotive that states go to any length to avoid conflict over it; where disputes do arise however, the fundamental and sensitive nature of water causes them to be particularly contentious. The option of cooperation is therefore attractive to any state wishing to benefit from good neighbourly relations. It is important that this desire for cooperation does not lead to water needs being sacrificed for "high politics" issues, even peace itself. Poor water policy, whether at the international, regional or national level, provides a weak foundation for the sustainable development and long-lasting security of a society, and agreements which leave some states unsatisfied in their water needs and entitlements are not conducive to peace. It should be remembered that water, like religion and ideology, has the power to move thousands of people.

When agreements between basin states are not forthcoming, and situations degenerate from water problems into potential security problems, the role of neutral conflict prevention and mediation initiatives should be considered. The appropriate mechanisms for such international mediation need to be formally established and recognised.

Principles and Proposals

Water Sharing Principles:

- Everybody should have access to their basic entitlement to clean water - which is a human right.
 - Water has many values: cultural, environmental, economic, aesthetic.
 - Water involves ethical as well as technical questions.
 - The cultural diversity of peoples in a basin should be accepted and safeguarded.
 - Stakeholder participation at all levels must be recognised as essential.
 - Information sharing and transparency are a necessary condition of joint water management.
-
- Water is a limited resource.
 - Water must be used efficiently.
 - User-pays; Polluter-pays.
 - Water demand management should be promoted as a potential and sustainable means of increasing water-supply.
 - Irreversible contamination, depletion and destruction of watercourses must be absolutely avoided. This applies particularly to transboundary groundwaters.

Proposals:

At the international level:

- The universal acknowledgement that a basic supply of water of sufficient quality and quantity to be adequate to the needs of health and hygiene is a fundamental human right.
- The ratification of the UN Convention on the Law of the Non-Navigational Uses of International Watercourses.
- The strengthening of the role of international organisations.
- International funding bodies should continue to become more responsible regarding the environmental and social consequences of projects.
- The inclusion of certain, or certain sections of, international watercourses in UNESCO's list of World Heritage Sites.
- The "sanctuarisation" of international watercourses for their protection in times of war.
- The creation of an International Fund for Water, particularly for use during emergencies.
- The increased use of subtle diplomatic dispute settlement mechanisms.
- The establishment of a neutral International Forum and Ombudsman position for the identification, prevention, resolution and mediation of potential and actual international water conflicts.

At the International Basin Level:

- The promotion of a climate of confidence and favourable political will.
- Acceptance on the part of States that national sovereignty is limited by the respect for the sovereignty and rights of others.
- The creation of integrated River Basin Authorities, with the necessary expertise, authority and funding, to oversee the interests of all states, peoples and ecosystems in the basin.
- Regional commitment to and respect for the various needs of all cultures and peoples in the basin.

- The opening up of communications between states, including all stakeholders.
- Active dedication to improving the status of women in water-related negotiations. Increased representation of women in all regional water committees.
- Negotiations to address the best means of achieving regional food security, as opposed to national food self-sufficiency.
- The promotion of economic cooperation to encourage the more efficient use of water, and more interdependence and cooperation between the states in a basin.

At the National Level:

- The adoption of National "Clean Water Acts".
- The review of existing water laws following the principle of the basin as the unit of administration and protection, and the desire for more local-level and public participation.
- The decentralisation of water policy making in order to involve as many concerned people as possible.
- The establishment of high-level Government representation dedicated to water issues.
- Acceptance of Governmental responsibility for the supply of basic human and environmental water needs.
- Forward planning should be based on assessments of present and future water resources and trends, taking projections of climatic and demographic changes into account.
- Regarding international basins, the above suggestions for stronger national water policy should of course apply equally to shared watercourses within a state.

At the Local Level:

- More representative, localised water policy to be pursued as an element in democracy building.
- The balancing of public participation and private sector influence.
- Strengthening of the link between education, awareness, confidence building and water.

The above practical proposals are all in line with the value and focus change which is a prerequisite for the development of better water management policies and practices. These proposals are all inter-related and mutually reinforcing. There should be no debate over whether to promote a "top-down" or "bottom-up" approach, there is a two-way relationship between local, national, regional and international activities.

The most important change which needs to be made is the reversal of the "ours" and "theirs" mentality which plagues water relations between neighbouring people, farmers, industries and states. The focus should shift from discussions of how to allocate shared water, which engenders irreconcilable arguments at the riparian state level, towards investigations of ways in which everyone's lives and opportunities can be enhanced through cooperation. There should be a movement away from thinking about the struggle between national sovereignty and international watercourses in favour of proposals for their peaceful and empowering union.

Mikhail Gorbachev

Sir. Ketumile Masire

Ingvar Gösta Carlsson

Fidel V. Ramos

1. Introduction

Water flows without any regard for divisions between states, peoples, religions or even generations. Rivers have been thoroughfares for the growth of civilisations and have been both shared and fought over throughout human history. Whether above or below ground, water is a singularly precious resource that is known in all cultures as the giver of life. In some regions it has always been scarce, but now the advent of industrialisation, urbanisation, population growth and the accompanying over-exploitation of resources has given everyone cause to worry about the future of fresh water. The water quality question has raised a host of new issues, and has put in jeopardy the sustainability of water supplies throughout the world. Different arrangements have already been put into place, with some success, to protect and allocate water resources both within and between states; none, however, has achieved a workable balance of the needs of all interest groups - as well as the environment. To reach this level of integration and cooperation it is necessary to agree both on the nature of water, and its place in our societies, and on who has the right to appropriate it, for what and when. To speak of the "ownership" of a substance as indispensable as water seems inappropriate; yet the question of the dominion over water by the individual, community or state is crucial to the uncovering of a solution to the world's water problems, and the establishment of viable systems of management for each region. The absence of such solutions and the consequential inadequacy of water supplies - even for the maintenance of minimal standards of health and human dignity - is a principal reason why millions of people continue to face poverty, disease and forced migration.

Over 40% of the world's population resides in the just under 300 river basins shared by more than one country, which make up almost 50% of the earth's land surface (not including Antarctica). Over 90% of the conventionally calculated water resources of the Middle East cross international borders. Africa alone contains 60 international rivers, 11 of which drain 4 or more states. The basin of the River Danube is shared by 17 independent states. Across the world, there are 39 states which have over 90% of their territory located within international basins. Global water demand is currently said to double every 21 years, and water scarcity and population growth are becoming major causes of social stress and serious impediments to stability and economic growth in many poorer countries. Water has caused tension and disputes on the international level on many occasions, and is also an important and contentious aspect in the drawing up of political boundaries and treaties between states. Millions of people depend on transboundary watercourses for their very survival, yet there is still a need for the clear codification of the use and protection of this vital natural resource in international law, and most of these watercourses lack any workable agreement on how they should be shared among the riparians and different groups of users.

The question of international watercourses and national sovereignty is central to the resolution of two critical problems. The first is the growing urgency to find a more holistic, integrated system of water cooperation which considers all water-users and serves to link the needs of human society and economy with those of the environment. The other is the need to anticipate conflicts over shared water resources and to find international legal and political mechanisms to assist in resolving them. The water requirements of the different states, people and ecosystems in a basin are often perceived as conflicting and in competition with each

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other, in fact they are all interdependent and potentially complementary. It is for this reason that cooperation is essential if water resources are to be used in a way that is optimal, fair and sustainable for the society, economy and environment concerned. Each basin must devise a way to share their waters, between states and between different stakeholders, possibly based on an international set of rules but shaped by the particular features and peoples of the region.

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Water should be linked to the whole philosophy of sustainable development. The idea of "sustainability as opportunity" translates easily into "cooperation as opportunity". The establishment of a multi-dimensional system of cooperation encompassing an entire river basin implies opportunities for all water users, including the silent ones such as the environment and future generations, and is an infinitely more effective means for States to retain sovereignty than engaging in constant competition, risking violent conflict, or merely not working together to optimise and protect the shared water resources. A glance at a map is enough to see that water management must transcend political borders. Rather than abuse the flow of the river to fit the short-term interests of particular states, the people sharing a river or aquifer need to account for the needs of all. The static ethos of "water allocation" quotas and restrictions can be turned around to inspire complex and vibrant systems of regional water management and protection. Microcosmic examples of this nature can already be found in some small communities where local people have improved their lives and expanded their opportunities by taking charge of their own water resources management. Water should serve to unify not divide a region and the river basin represents the ecologically and historically logical wider unit of operation for both decision-making and implementation.

National sovereignty is frequently seen as an ideological and logistical barrier to international or regional cooperation. This should not be the case. Sovereignty is not a static concept, but one which can and should be responsive to changes in both the physical realities of the world and the minds of its people. An analysis of the multi-faceted notion of sovereignty, seen not exclusively on the state level but rather as a social construct involving everyone in a region, and its relationship to international watercourses, is important to the development of a new, integrated, basin-wide approach to water management which considers the needs of every water-user including the ecosystem itself. National sovereignty is the basic building block of the current world order and the keystone of international legal agreements; it has proved to be a useful organising principle, but watercourses have no respect for political boundaries. There are other, geographical characteristics of a basin, such as catchment areas, surface and underground flows and regional climate, which are more directly relevant to their management than is the fact of their being divided by state borders. In any event, it is the people and ecosystems which depend on this water for life which must be considered. In its optimal sense, the exercise of national sovereignty should reflect the aggregate of the needs and desires of each individual in a nation; when confronting a need as fundamental as water it becomes critical that every individual and every aspect involved is taken into account.

Sovereignty over shared resources is best expressed as cooperation. Water is so essential to every aspect of life, from health to recreation, that the better management and protection of water can enrich the lives of an entire population. Its scarcity, whether due to natural or manmade circumstances, can also be the source of regional tension and instability. A new Water Vision needs to be developed, which complements and augments the existing rules of water allocation, equitable use and abstention from "appreciable harm", with positive princi-

ples of cooperation. This Vision would encourage transboundary water resources to be viewed less as a potential source of friction and competition between states, than as a natural opportunity for cooperation between all water-users, and in so doing hopefully contribute towards the prevention of water-related disputes. Water is comparable only to air as an absolute necessity for life. It is this essential nature that both causes the problem of unsustainable pressure on, and fierce competition for, water resources, and makes the solution to such problems obvious, if by no means easily attainable.

Water must be seen as a shared resource. It is neither a commodity to be sold to the highest bidder, nor a part of a state's territory to be exploited for its own best interest. Since we cannot live without it, access to water should be seen as an integral part of a liveable environment. Since the location and flow of water pays no attention to political or state boundaries, these should not be the principal lines of demarcation for the management of this precious resource. It is therefore essential that a dual-faceted paradigm shift occur regarding the idea of sovereignty over water. Firstly, international watercourses must be recognised as a shared resource over which no one state has exclusive or prior rights. Secondly, sovereignty over water must be considered on more than simply the state level - it is the people, in harmony with the nature, not the governments, of a region which are the true holders of sovereignty over a resource such as water and they must therefore always be given a voice and a role in water management.

This report will promote a push towards the common management of whole aquatic ecosystems, replacing the fragmented approach to basin management (fraught with divisions between states, between the state and the people, and between different sectors of society) with the cooperative and collaborative efforts of everyone in the basin (see Box 1.). The key is to recognise the interdependence between human needs and the needs of nature, and the inter-connectedness of all the activities in the basin. Such recognition should serve as an important impetus in the advancement of a system of cooperation on the inter-state level supplemented by collaboration between different interest groups.

The objective of this report is not to submit further qualification and clarification of water allocation principles, or to decide on what and how much water and pollution a State should be permitted, such things must be negotiated on a case by case basis. Nor is the purpose of this report to reformulate the international framework agreed to in the 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses, which provides a useful, if inevitably limited, universal guideline on the principles for sharing and managing water resources between states. It will however insist that water issues be placed more clearly in the wider context of the emerging environmental and human rights frameworks. The end results of these practical and conceptual developments would be a scenario whose principal characteristics are determined less by the traditional notion of "restricted sovereignty" than by a positive spirit of cooperation and effective interdependence.

The management of international watercourses should be determined less by the traditional notion of "restricted sovereignty" than by a positive spirit of cooperation and effective interdependence.

2. Sovereignty and Water

It has been said that sovereignty over water is impossible to define. Water is so all-encompassing that it does not appear to be feasible to devise a formulation of sovereignty which will satisfy all the possible elements of which water is a factor. Water is a critical resource the possession of which confers power. It is also a substance which summons many distinct images and significances for different peoples. Although water has been a political and military issue since antiquity, it is only since the 20th Century that we have developed the means to dramatically alter, store and divert the natural flow of rivers and access the vital sources of deep underground water.

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This power has rested largely with State authorities, and the harnessing of water has become a vital component in the economic development of States. The capacity to control watercourses has raised new questions regarding the ownership of water. Now that States have the ability to abstract or divert the entire volume of a transboundary river, the question remains as to what rights they have to the waters which flow through their territory and what obligations they have to their fellow riparians down-stream. From the other perspective, in cases where the down-stream riparian has been the first to utilise the waters of the river, to what extent does this confer prior ownership rights which must be respected by states further up-stream? Does a State have a right to the amount of water it "contributes" to a watercourse through precipitation within its territory? If so, where does that leave states which rely on water originating outside their borders for the vast majority of their national water supply? These are all questions related to national sovereignty.

It is argued that the paradigm of a world order based on the principle of the inviolability of state sovereignty is shifting with increased "globalisation". On the subject of international watercourses, the principle of "restricted sovereignty", which establishes that a state does not have the right to do as it pleases with the transboundary watercourses flowing through or located under its territory, such as is held by the theory of "absolute territorial sovereignty", also known as the "Harmon Doctrine", has long been almost universally accepted in theory. It remains, however, to be fully acknowledged and implemented in practice. The same can be said about the theory of "absolute territorial integrity", the traditional defence of the down-stream riparian, which insists that the natural flow of the river should not be diverted by activities further upstream, and that the rights of prior use are inviolate. Although still advocated by some lower stream states this is also giving way to reinterpretation.

The fact that the 1997 UN Convention is yet to enter into force can largely be explained by the reluctance of certain states to sign away their various hard-line stances. The official abandonment of these doctrines in favour of sharing, cooperation and interdependence is a process which inevitably takes a long time and involves the complex task of analysing the different needs of the water users in each riparian state and how they can be amicably met, as well as the reluctant acceptance on the part of states of the need for the joint management of transboundary watercourses. To begin this process, there is a need for a shift in perception towards seeing water as a naturally shared resource. The gap left by the theoretical and increasingly accepted devolution of absolute sovereignty must subsequently be filled with the appropriate regional (i.e. basin-wide) and local governmental and non-governmental institutions, the potency, capacity and stability of which will be vital to the success of any management scheme. An emerging theory which has already been embraced by many jurists and

international lawyers, is that of the principle of common ownership of international watercourses. The very essence of water is its mobility, or fluidity. Flowing water is literally here today and gone tomorrow, and the principle of community of property reflects this essential character. The idea that water flowing between two states is communally owned is based on and assumes full cooperation over such water.

Box 1. Definitions

- According to the 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses, a watercourse is a "system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus," and an International watercourse is a "watercourse, parts of which are situated in a different state" (Part I, Article 2).
- The 1992 ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes, defines transboundary watercourses as "any surface or ground waters which mark, cross or are located on boundaries between two or more States" . (Part 1 Article 2),
- The Helsinki Rules on the Uses of the Waters of International Rivers, 1966, describes an "international drainage basin as a geographical area extending over two or more States determined by the watershed limits of the system of waters, including underground waters, flowing into a common terminus" (Article II).

State sovereignty can be deconstructed into domestic "internal sovereignty", the relationship between the Representatives of a State and its population, and "external sovereignty", the relationship of the State itself with other states. Water is essential to sustain and develop the region, the state, the community, the individual and the environment, and thus the exercise of sovereignty regarding water must also be considered on all these levels. The validity of state sovereignty is also seen as being challenged at the other extreme to "globalisation": the level of the individual. There is evidence to suggest that a shift is occurring whereby many people are replacing their allegiance to a particular government and territory as an important element in their identity with new socio-political affinities based on, for example, occupation or ideology. Since states are becoming more heterogeneous, and governments generally more representative and accountable, this is bound to have an effect on the ways in which natural resources will be managed in the future. The increased power and influence of the media and public opinion provide a balance to the strength of the State, and water management could become an important component in the democracy building process in many countries, for example in Eastern Europe and South America. Community participation in decisions and projects concerning water is so important to the creation and maintenance of a healthy and stable society that it can be considered an emerging human right, the provision of which can only re-enforce the strength and support of the Government. By contrast, disruptions in water supplies and perceptions of unfair distribution can quickly lead to protests: a reflection of the urgency of peoples' dependence on water. Such dissatisfaction can also lead to the increased influence of and reliance on international NGOs which are usually promoters of the idea of natural resources (forests, biodiversity, water, etc.) being of common interest. This idea implies, by the same token, un droit de regard, a universal entitlement to have a say in the preservation of these common resources.

Thus both the external and internal dimensions of sovereignty need to be analysed in the context of international watercourses as it is both from within and without that the idea of the inviolability of state sovereignty is being challenged, and at both these levels the question of "ownership" of water is relevant. Sovereignty is a highly emotive concept, and the role of state sovereignty as an organising principle and cornerstone of international relations cannot and should not be discounted. Neither should it be artificially or forcibly applied. Regional, basin-wide, cooperation over international water resources may paradoxically help in the protection of the sovereignty of a State from both internal and external pressures, thus maintaining its stability. By fortifying regional ties, a State can join with its neighbours to remain in control of its own affairs. In this way states can cooperate in order to preserve their independence, and their cultural heritage. Likewise, by cooperating with its fellow riparians, and encouraging more integrated collaboration between stakeholders and the active participation of the public, a State can both secure a more reliable and adequate water supply and a more representative and popular means of managing it.

The state cannot be said to own the water in its territory, but by this approach it can more beneficially and sustainably administer and protect it, and thus increase its security. It is therefore a misconception that state sovereignty is incompatible with interstate cooperation. One of the most important characteristics of an independent state is the ability to enter into international relations; the management of international basins is an obvious area where cooperation between states and peoples is essential, and this collaboration reinforces rather than diminishes the sovereignty of each state.

The identification of the locus of sovereignty over water would perhaps improve stability and foster development, but it is a question that must reflect the many forms that water itself takes. Transboundary water is used across the globe for a multitude of functions, ranging from the generation of power for entire populations, industries and agriculture, to the simple and essential provision of drinking water; likewise its sovereignty must be considered on every level, from the state to the community to the individual. The concept of "national sovereignty" is a fusion of the, sometimes complementary, sometimes opposing, principles of state and popular sovereignty. While it is necessary to distinguish between them, but what is most interesting is that the conclusion is applicable to cases both between and within states - water should be shared and managed by as wide a spectrum of stakeholders as possible, both inside and across international borders.

Water is indivisible in both time and space and as such is part of the shared heritage of peoples and nations. Its rational management involving the widest possible participation is an essential ingredient for both democracy and sustainable development. Water transcends time, and thus should never be entirely appropriated by either the state or the private sector, but managed in cooperation by representatives of all water users. In this discussion, the government and the people must be treated separately. The former is ephemeral, temporary, the latter is as permanent a feature of the region as the water that flows through it. Just as activities in one state can effect the water available to another, so can the policies of a government effect the people in the state, and indeed the whole region, for generations after it has left office. Features of a state's hydro-electrical infrastructure, for example the hydropower "white elephants" built in the 1960-70s, long outlive the authorities that build them, as do depleted aquifers and increased pollution levels. We therefore have to distinguish between the sovereignty of a people and a government, and realise that the traditional system of almost total and centralised government hegemony over water policy does not reflect the permanent and finite nature of water.

A more functional, participatory, administration of water, with more power residing at the local level, is required to allow decisions regarding the future of their water to be made by the people who will be effected, with due consideration for the future generations which will succeed them. Corresponding institutions, not only on the governmental level but also in the form of independent associations of water-users, scientists and environmentalists should be involved in the actual implementation, monitoring and assessment of water related policies, and play a key role in the decision making process. Water policy has traditionally been firmly in the governmental realm: for the true realisation of national sovereignty over water there needs to be wider involvement and actual participation from every sector in society, including those too often excluded such as ethnic minorities and women.

The reconciliation of the two concepts of National Sovereignty and International Watercourses is a necessary step. Sovereignty is an age-old term and states, particularly those which are relatively new or small, are rightly protective of it. To have sovereignty over something implies to have absolute rights over it at the exclusion of others. If a piece of land lies within the boundaries of a state it can clearly be said to have sovereignty over it, and it is in no way shared with neighbouring countries. It is a terrible mistake that international watercourses have been subjected to this same "ours" and "theirs" philosophy as it is contrary to their very nature and therefore irreconcilable. To place international watercourses under the umbrella of state sovereignty is to ignore the reality of the water cycle. The question of whether a state has "sovereignty" over water flowing through it as part of an international watercourse has been debated for so long, with so little agreement, because it is the wrong question asked for the wrong reasons. This formulation of the problem encourages the protectionist and nationalistic attitudes towards water which are the source of most disputes, rather than emphasising the fact that the renewable and fluid nature of water is more conducive to sharing than dividing.

When considered from a logical, neutral perspective, the most frequently asked questions regarding international watercourses and national sovereignty can all be answered with a resounding "no":

- Does a state have sovereignty over water flowing through its territory as part of an international watercourse owing to the fact that it "contributed" to that flow a certain percentage of precipitation? No. This would be an impossible precedent to set as it would imply that states with low rainfall have correspondingly low entitlement to water.
- Does a state have sovereignty over international watercourses, to an extent that would necessarily permanently prevent the development of fellow riparians, owing to the fact that it was the first to use or develop the resource? No. How could it possibly be acceptable for one state to so fundamentally restrict the development and perpetuate the poverty of another state on such a basis?

Such questions place the cooperative management of international basins at odds with national sovereignty, implying the need to make sacrifices in the highly guarded realm of sovereignty if any progress is to be made. This is a very static interpretation of the problem and, as has been witnessed repeatedly, is an ineffective approach to dealing with it.

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that they can mutually reinforce each other. This is the perspective that has been largely missed by previous analysis and political debate. Better management of international watercourses can strengthen national sovereignty by ensuring more reliable access to higher quality water, thus averting the civil strife which can be caused by water shortages or interruptions of services and making for healthier, more secure states. National Sovereignty should be seen as a social construct which provides a geographical and institutional framework very important to basin management and reduces the likelihood of tensions arising over water, not as the basis by which states can claim absolute rights to watercourses that are by nature shared resources.

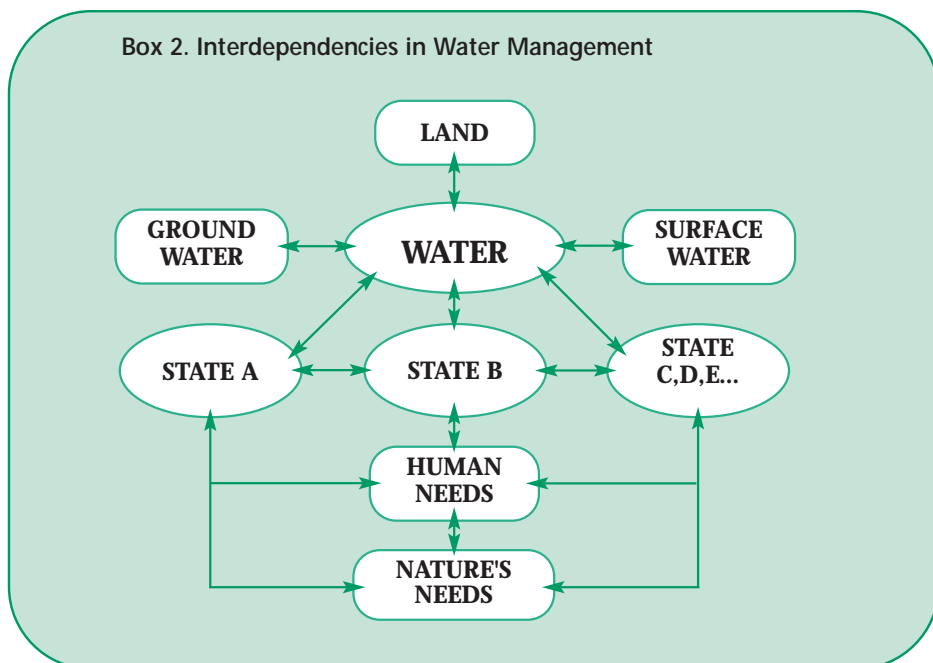
The State continues to play an important role in the lives of most people and this should also be true in the case of protecting and allocating the waters of international watercourses. States should be presented with suggestions of how cooperating with their fellow basin states can provide mutually beneficial circumstances for the states, people and environments involved, rather than with arguments for policies of "restricted sovereignty". National sovereignty is a fact; States need to be convinced that cooperation is in their own best interest and will benefit their people, as well as the people on the other side of the border.

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There is no national sovereignty over water, but the different manifestations of sovereignty, and the corresponding entitlements and responsibilities of individuals, communities and state authorities, can be pooled for the benefit of everyone in a basin. Every state has a right to water for its people and its development, but as with all rights this is balanced with the duty not to prevent another People from achieving the same. For this reason a very holistic view of international watercourses and their significance and uses needs to be taken, including consideration of the hydrological cycle and the rights and needs of different stakeholders.

Instead of grappling for a restrictive middle ground between upstream and downstream riparian claims, and mutually unsatisfactory compromise, the problem should be reformulated and directed away from questions of different degrees of sovereignty towards a vision of cooperation.

3. Interdependencies in the Water Cycle



Any effective system of management of transboundary watercourses must take into account the intricate web of interdependencies in the hydraulic cycle (see Box 2). Water in one state cannot be managed in isolation from practices in other basin states, or from the system of land-use in its own territory. Activities on land, particularly agriculture and urban development, directly effect surface run-off and pollution levels and must be taken into consideration in resolving all problems of water quality and quantity. The water needs of the State and the people should also be perceived as complementary, and the needs of the people should never be sacrificed for the sake of a higher, intangible "state interest". In the same way, the requirements of the ecosystem itself cannot be separated from those of either the people or the larger unit of the state. There is a growing realisation of the link between nature and the economy of a state, for example in the area of biodiversity.

Water is a finite resource in the sense that the same amount is continuously circulating on the planet, but contamination, pollution and salination distorts this permanence as much water has become unusable for many purposes at least for the foreseeable future. Though water quantity remains constant, the decline in water quality and increase in populations dictates the need for a change in our understanding of water and a greater emphasis on protection and sustainable use. While water scarcity is a problem with global dimensions, it has more regional implications. At the global level there is no identifiable problem of water shortage, but several regions are already suffering from acute water deficiency. In some cases this is an historic, geographical fact possibly exacerbated by recent societal changes; in others this is a direct consequence of human actions and decisions. At the same time, other regions are regularly subjected to the destructive forces of having too much water, with devastating floods

and storms. Scarcity itself is in part a perception, determined by cultural and geographical factors, as the same amount of water can constitute scarcity in one region and abundance in another. While what is thought of as an "acceptable" quantity of water per day is highly variable in different regions, there are identifiable characteristics of scarcity, such as the impossibility of maintaining crops and livestock, and insufficient water for domestic uses such as washing and cooking. Scarcity is a problem which needs to be tackled on the regional level.

The needs of man and the needs of nature are integral and any degradation of the environment will have correspondingly adverse effects on the lives of the people in it. Within these ecosystems, the practices in land management are also crucial. Agricultural activities and the preservation of wetlands are two of the most important examples of how land and water use are inseparable. Agriculture must be encouraged to use water more efficiently and limit pollution, while the wetlands need to be assured of enough water to fulfil their vital purifying function, owing to which they are water-providers as well as water-users, and protect the wealth of biodiversity which inhabits them. Water, both on the surface and underground is ever flowing and indivisible; contamination of surface water leads to contamination of ground water and vice-versa, over-exploitation in one state leads to water shortages further downstream, just as heavy dependence on a transboundary river for agriculture or development downstream can later hinder the development of upstream riparians. The diversion of too much water for agriculture or hydro-power can destroy the natural balance of a river's flow and be detrimental for the people and environment of the basin. These interdependencies naturally call for a participatory, inclusive, holistic approach to transboundary water management involving the cooperation of everyone in a river basin to create the optimum balance between different water needs.

There is also a temporal dimension to interdependency. International watercourses should be considered as a part of the wider environmental picture, and any planning and forecasting needs to take the global and regional projections for climate change into account. Watershed planning needs to take into account the long-term, cumulative, impact of proposed use and development by all parties. In particular, the connection between fresh water systems and the seas into which they flow cannot be forgotten. The great majority of the pollution of the Black Sea is caused by the inflow of the Danube River, and contaminated rivers in Russia pour out their waste into the Caspian Sea and the Arctic Ocean.

On the "human" side, predictions of future population increases, and other demographic changes are key to determining the requirements of the future, and the parameters of sustainability. The future generations in a region also have entitlements to water which must not be jeopardised. For these reasons, static, inflexible water allocation agreements are insufficient. Climatic changes can alter both the amount of water there is available, and the amount needed by different groups. Reductions in precipitation, for example, can result in such agreements becoming impossible to keep and this can result in conflicts, particularly at the local level. Rivers follow their natural course, and are highly responsive to changes in the climate and landscape. They are not regular and therefore agreements must reflect and make allowances for the fact that some seasons will be more subject to water stress than others. Sustainable development means more than just refraining from harming resources, it entails a responsibility to nurture these resources to ensure the survival of future inhabitants.

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Box 3. Transboundary Groundwater

Transboundary groundwater is an important and often neglected area of this debate. Important particularly because of its relative abundance compared to surface fresh water and its greater susceptibility to effectively irreversible pollution, contamination and depletion. With increased urbanisation throughout the world, the use of underground water supplies is becoming more and more crucial as the main means of supplying cities with water, and the unsustainable depletion of aquifers is a widespread problem. Activities in a state can have far reaching consequences for groundwater resources in other states, and for surface water, and yet the development of international law in this area is unclear, and has been slower than that for surface water. This is because of both lack of awareness, and the fact that groundwater opens up new questions regarding national sovereignty.

There are many important shared aquifers, often representing the main source of water in a region. Examples which have been known to cause disputes are the Northeastern Mountain Aquifer which includes Libya, Egypt and Sudan; the Chad aquifers shared by Chad, Niger, Sudan, the Central African Republic, Nigeria and the Cameroon; aquifers shared by Mexico and the United States; and the Mountain Aquifer between Israel and the West Bank. Although agreements have been made regarding some of these aquifers, the tapping of underground waters is a discreet and hard to monitor activity, and related activities in a basin can indirectly effect shared aquifers.

While it has become more and more accepted that absolute territorial sovereignty is not the most appropriate system for international rivers, whose transboundary nature is so visible, it is more difficult for states to acknowledge that they have duties regarding other states as to how they utilise groundwater literally in their territory. In fact the same principles must apply to both surface and ground water, as reflected in a number of conventions and agreements which apply equally to both; and if anything even more care should be taken to avoid inequitable and unsustainable exploitation of groundwater as this can lead to the irreversible pollution and depletion of aquifers. As with surface water use, prevention and precaution should be the key parameters.

Every living thing uses water, and some human activities are entirely dependent on it. Rivers and pumps sustain livelihoods by providing water for irrigation, power, navigation, fishing, tourism and all the different industrial and domestic uses of water. An integrated approach requires more than the general consideration of both people and nature, but a balancing of the different water needs of everyone from the cargo transporter to migratory birds and the careful and optimal management of the available supply. The future of water sharing should lie not in huge engineering projects, but in the careful assessment of and consideration for the entitlements and requirements of all members of the society and ecosystem. Huge power generation projects which require the forced resettlement of thousands of people, and incur untold other social and environmental costs, need to be undertaken with more caution than was often the case in the past. While the production of electricity is vital to support devel-

opment, the benefits are often not shared with the actual people who bear the costs. A truly integrated approach would not categorically condemn such constructions, but would ensure that all actors involved are considered, consulted and informed, and the benefits of the project are at least partially channelled back to support the people and environment affected. The launching of the World Commission on Dams, by the World Bank and the World Conservation Union (IUCN) in 1998, has been a positive step in this direction. The process of setting up an international body to review dam construction and look for alternatives was initiated at an international conference of dam-affected people held in Curitiba, Brazil in March 1997. The Curitiba Declaration called for an end to large dam-building until a number of conditions are met, including the establishment of an "international independent commission . . . to conduct a comprehensive review" of large dams. The Commission's mandate denotes its two main goals to be: "to review the development effectiveness of dams and assess alternatives for water resources and energy development"; and "to develop internationally-accepted standards, guidelines and criteria for decision-making in the planning, design, construction, monitoring, operation and decommissioning of dams".

It is largely the terrifying capacity which authorities now have to alter the course of rivers, and subsequently the entire landscape, that necessitates increased control, at both the global and regional level, and greater participation and representation at the local and national level to ensure the responsible use of this power.

With all sectors working together, and extending consideration for each other, optimal solutions to problems of water scarcity and quality are more likely to be found. These are often more simple and cost-effective than an uncoordinated web of measures taken unilaterally by various groups. Government attention to each sector individually, rather than regarding all as part of an inter-related network or cycle, is highly inefficient. Huge amounts of water can often be spared by changing the system of irrigation, or reusing partially treated water for various purposes. Breaking down the total hegemony of the central authorities and encouraging participation and information sharing across the board is a key component to redistributing the control over water to the public. This can also be mirrored at the international level, where it is necessary to integrate not only the different types of users, but also the priorities of the different States. With more decisions taken at the local level, water would over time be seen less as a "national" issue and the basin rather than the individual state could naturally become the larger management unit. This would require well structured and empowered river basin authorities.

4. The Value of Water

Different Peoples have different perceptions of the value of water. Throughout history these perceptions have been known to change, culminating in many areas in the belief that water is an infinite, renewable resource which can be exploited without concern. Evolutions in the public perceptions of the value of water take place very slowly; it is the shift from the wasteful tendencies of the afore-mentioned perception that we are striving for today. Water is an international public good which is absolutely essential to socio-economic development. The fact that water is not fully integrated into the economic system, and particularly the lack of a suitable pricing system is frequently blamed for the inefficient use of water by both the public and private sectors. Subsidised water for agriculture and other enterprises removes the incentive to develop methods to minimise water use, and failure to charge a reasonable price for the domestic use of water has resulted in terrible wastage, especially in large cities such as Mexico City and Cairo, where over 50% of water supplied to the town is lost due to leakage. While no one should ever be deprived access to water as a result of their financial circumstances, failure to recognise the value of water in terms applicable to the rest of the economy only results in water being more expensive for everyone, in particular the poorer members of society, and exacerbates the already dire problem of water scarcity facing some regions. There is a need for the establishment of a set of principles for a new water economy to avoid abuses of the resource, while ensuring universal access for basic needs. As long as natural resources are not priced accordingly, it is doubtful whether they will gain prominence or be built in to political and financial institutions and decisions, and stop being abused for short-term economic gain.

There is a need for the establishment of a set of principles for a new water economy to avoid abuses of the resource, while ensuring universal access for basic needs.

Water is disproportionately distributed throughout the world. As an element in regional cooperation, and a gesture of solidarity, this natural imbalance could be at least partially rectified through a system of trade-offs between states well-endowed with water and their more water-stressed neighbours who may have other tradable assets to offer as compensation. Such a system of compromise would be clearly advantageous for the Nile basin and is already being developed. Egypt is historically the major user of the waters of the Nile, due to its absolute dependence on an ancient and fragile system of irrigation and its minimal rainfall. As the more powerful and comparatively economically strong of the two states, Egypt is in a position to improve relations with upstream Ethiopia and thereby strengthen cooperation over the use of the Nile and equilibrate the distribution of water by arranging trade-offs for example of food in exchange for water. Alternatively, agreements can be reached exchanging hydro-electric power for other benefits. For example, in 1991, India and Nepal tentatively resolved their long-standing water controversies over the Mahakali River (see Box 10, Annex VIII) through a series of agreements whereby India gained access to power generated by hydro-electric projects in Nepal, in exchange for offering Nepal flood control and irrigation support. The potentials for such arrangements should be more fully explored both in these and other basins as part of the more integrated approach to transboundary water management.

Trade-offs are another way in which transboundary watercourses can be shared on a regional level, and although they are usually dependent on the power relations of the states involved they can also encourage both cooperation and create incentives to cooperate further on other levels. They are a way of encouraging upstream states in the developing world which, owing to their topography and climate, are frequently less well developed and have less tendency to be water-stressed, to be a party to basin management systems as they may

stand to gain in trade-offs. Such compensations do not represent the actual selling of water but are a recognition that water has a value. It is from those who know the reality of living without water security that we can best learn this essential lesson. Water is essentially and necessarily a shared resource, but one which States are loath to "give" away, trade-offs offer a way around this problem by establishing mutually beneficial arrangements.

An ongoing debate related to the value of water, from an economic and a strategic perspective, is the argument over whether States should aim for Food Security or Food Self-Sufficiency. The water embedded in food traded on the international market is known as "virtual water". Many states in arid regions have already "run-out" of water in terms of being anywhere close to the ability to claim self-sufficiency in food production. Yet the ideal of self-sufficiency has so long been connected with state-security and independence that states are loath to admit this, thinking it would be "political suicide" and weaken their position in relation to other states. This is another paradigm which should be encouraged to shift if the political, social and environmental consequences of water scarcity are to be averted. The alternative and preferable policy choice is often that of food security. This option was long ago adopted by states such as Japan, resulting in massive increases in the development and wealth of the country as there are much "higher returns" to water in service and industrial sectors than in agriculture - particularly when there is the likelihood of low yields and even drought as there is in arid zones. The trade in water-intensive commodities, usually represented by the global wheat and rice markets, is a means of redistributing the invaluable soil-water in temperate zones to dryer regions in the form of food. It is also a way that the wealth of the "North" can be shared with the "South" as agricultural products heavily subsidised by Governments in the well-endowed regions can be sold for less than cost-price on the world market.

At the global level there is no problem of water scarcity. The trade in food has been presented as a solution to the regional scarcity crises in the Middle East and several parts of Africa. It is also a potential solution to the problem of reconciling economic growth with environmental protection. Developing states frequently argue that the "North" is unreasonable, and hypocritical, to expect states to sacrifice economic development for the sake of the environment and the area of water use is no exception. By importing food, arid states can use the water which they have for more profitable ends, thereby raising their GDP and increasing the amount of water left to sustain the immediate needs of the population and the ecosystem. It also creates a more secure food situation, no longer reliant on rainfall - or even the quantity or quality of transboundary water received, but bought on the market with the increased revenues. Considering that it takes one thousand tons of water to produce one ton of wheat, it appears to make perfect sense to import the wheat and spare the water. It also makes the idea of importing water, from Turkey to Israel for example, apparently non-sensical - particularly into a state like Israel which also exports water-intensive agricultural products. Another consideration is for the states in arid regions who lack the means to purchase foreign food; if they are to import food they will have to export other commodities to gain the currency required - for underdeveloped states with few natural resources this is impossible. In the interests of international solidarity, industrialised nations must consider and respect the balance between subsidising agriculture for export, and investing in developing states to boost their economic capacity.

A cultural element must be considered when suggesting that the solution to the world's water and food problems is to be found in the global trading system. Is this not the ultimate "commodification" of water, virtual or otherwise? What is to become of the communities in arid regions whose way of life, culture and religion is entirely founded on farming, herding,

fishing or any other water-sensitive occupation? If their activities do not produce the same "returns to water" as others is their life-style worthless? Are these people to be resettled as industrial, urbanised workers so that they stop using water that can be "bought" more cheaply on the market and used more "efficiently" at home? What about peoples' preference (often contributing to their cultural identity) for local foods/grains as opposed to wheat grown abroad? A balance must be sought between food imports and domestically grown produce suitable to the economy, way of life and hydrology of each particular region. The adoption of a "virtual water" type solution to water scarcity is perhaps more attractive, and less damaging to the autonomy of states, if it is conceived on a regional rather than a global level. States in a basin can trade in the different agricultural products which they are particularly suited to growing, and thus achieve regional food security while still maintaining the independence of the region and providing people with more locally familiar products.

The virtual water solution is being embraced by some states in Southern Africa, and more covertly by those in the Middle East, and can certainly go a long way to improving the lives of the people and the environment in these areas. Caution must however be taken regarding the cultural repercussions to the societies in these states. Some societies, such as Japan and probably Israel, obviously have a greater capacity than others to undergo such a shift in land and water-use priorities; and no change in water policy will ever be effective if it out-runs the capacity or the willingness of the people involved.

Certain cultures teach that water is so vital that it should not be considered an economic good. Widespread resistance to the "commodification" of water brings home the fact that the value of water to humanity and the environment cannot really be priced. This raises the question of how states which do not see water as an economic good can cooperate with those that do? One idea being explored in the Islamic world in the face of extreme scarcity is the notion of the offence entailed in wasting water, a God-given resource which must be preserved. This implies a shared and universal responsibility for using and treating water resources sustainably; a notion which could be applicable in all cultures, and used to promote and legitimate demand-management practices. This would support the reasoning behind the pricing of water services in order to reduce unnecessary losses. Water services can be priced and financed through taxation and charges and provided to everyone in a community. The integration of different visions and perceptions of water is necessary to a certain, functional extent on the level of the basin, but it is not beneficial to formulate a universal fixed set of principles which define the value of water to a community or an individual. It is important not to rob water of its sacred and various meanings and significances.

5. Water and Culture

There has already been a great deal of attention given to forming a link between and reconciling the environmental and economic needs for water, with due consideration for the survival requirements of different species, including our own. While these are important considerations, it is also crucial not to forget another, ancient dimension to water - that of the significance of water to culture. Civilisations have always evolved close to and developed along waterways, and water is highly symbolic to all peoples, whether as a vital source of transport and communication, as to the indigenous peoples of the Amazon or for Russians along the Volga, or for its purifying role, as exemplified by the significance that the Ganges holds the Hindu civilisation which has developed in its basin. Water is also universally recognised as the source of all life, a belief that is held most fervently by peoples in arid regions. It is for this reason that the abuses which have been inflicted on water and watercourses should be, and increasingly are, considered unacceptable and a major indication of the urgent need for us to change our behaviour and priorities.

Any sovereignty which we may have over water, on any level, should be viewed primarily as a custodial function, with due respect shown to the water which has ceaselessly sustained the earth and is part of our heritage. Our legacy to the future should not be a planet plagued by impoverished water resources, and it should not be considered "progress" to disassociate water from its traditional images. Local water-related practices, such as farming techniques and flood control methods, have evolved out of centuries of knowledge and experience of a particular region and climate and should be valued and studied when implementing new schemes. In many regions, big dams continue to erase history under water; the world has to be more responsible and conscious of the fragility of its natural resources and become more aware of the web of interdependencies between states and between water and people.

Cultural considerations are also key to the achievement of regional cooperation. People should not be forced to abandon their traditional beliefs about water and its properties, but can be educated in the ways to protect it. Different cultures can reach cooperative agreements if all are taken into account and allowances are made for the non-economic or scientific values of water. Such factors can even be the entry point for the attainment of understanding and respect among peoples and states. Water is an important determining factor in peoples' life-style choices and therefore changes in its availability can be devastating for communities, causing cultural and societal breakdown and even the abandonment of whole regions. An important incentive to cooperate with neighbouring riparians is the notion of uniting to preserve the cultural heritage of a region, which in many cases will have originally developed around the river itself.

People identify strongly with local water sources, not only for their practical utility but also for their aesthetic value. This should also be a consideration when deciding policy. It is an appalling suggestion that rivers should be viewed solely for the uses which we can abstract from them, and dammed, diverted and polluted with no regard for their place as part of the earth's natural heritage and our own cultural history. One suggestion could be the inclusion of more international rivers, or at least parts of them, and lakes on UNESCO's list of cultural and natural World Heritage Sites, as has already been done concerning several wetlands and deltas. This would emulate

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practices already existing at the national level; for instance, in the United States, 18,000 km of 150 rivers have been protected under the 1966 Federal Wild and Scenic Rivers Act which acknowledges the “scenic, recreational, geologic, fish and wildlife” and other not necessarily economic values of remaining pristine rivers, removing them from consideration for engineering projects. As a move in this direction, the Loire River authorities have expressed their willingness for a portion of the Loire Valley to be designated as a UNESCO heritage site. The return to such values would necessarily require, and encourage, basin-wide cooperation to protect the integrity of rivers, lakes and wetlands from over-exploitation. Increased respect for watercourses includes the recognition of their position as the lifeline of entire regions, and the corresponding regional responsibility to maintain them.

... allocation agreements are often made in the absence of some riparians and therefore run a risk of pre-empting the rights of these other states and causing divisions within a basin.

6. Cooperation as Allocation

The dangerous lack of cooperative agreements on how to share the resources of most of the world's almost 300 international river basins necessitates the adoption of a very realistic approach to the encouragement towards cooperation. In effect, any movement towards working out ways to jointly manage, partition or even exploit international watercourses should be viewed as positive. The kind of integrative, basin-wide, participatory schemes which have been described by this and other reports are ideals, which even in the best case scenarios would take decades to achieve and involve enormous administrative, institutional and social adaptations and costs. As a start to the process, there has been an encouraging trend in the past few decades to support international conventions aimed at providing guidelines for resource exploitation, even though these are often non-enforceable, vague and conditional upon national interest. Regional and bi-lateral agreements have also been reached regarding several shared basins, but truly integrated, basin-wide systems have yet to be fully developed. The achievement of peaceful and even mutually beneficial co-existence is an important step to regional management. Careful agreement on and adherence to water allocation and pollution level quotas can help towards the prevention of the worst kinds of over-exploitation and degradation and to the protection of national interests. They do not, however, encourage the levels of public participation and basin-orientated institution building which characterise an ideal, progressive transboundary water management scheme; nor do they forward the holistic vision of the basin as the optimum unit for administration and policy making.

Accelerated population growth and increased consumption, resulting in a significant decline in the amount of water available per capita, and the development and increased severity of environmental problems, have resulted in the evolution of a new component of international law dealing with the environment. Water allocation agreements ideally should exist as one of a number of elements in integrated solutions to the complex issues raised by international watercourses, as on their own they do not reflect the important developments in demography and environmental problems which have been taking place in the past thirty years. The rise of environmental concerns, and the principles of sustainable development and conjunctive management, have dramatically altered the way in which water management is perceived, and the obligations of “equitable utilisation” and the “no harm principle” need to be adapted to accommodate these new concerns. Single-focused agreements of any kind are inadequate. The focus should not be confined to mechanisms and principles to resolve disputes over water-allocation, but must include the protection of water resources and the environment in the long-term. Co-existence created by allocation agreements is an improvement on conflict, but it is still too limited. For example, the hydro-electric sector is rarely integrated with the other considerations, and is often given precedence disregarding the effects on communities or the environment concerned.

The partition of the water is just one issue to be taken into account, and is insufficient on its own to establish a viable regime which reflects all water related problems, including quality, quantity, distribution and the environment. The needs of states change with population and economic growth, and allocation agreements can quickly become outdated and even restrictive to development. This approach to transboundary water runs contrary to the whole idea of water being a shared resource as once two states agree to their quotas this amount of water becomes in effect theirs and attempts to renegotiate the division in the future can inevitably lead to tension. In addition, allocation agreements are often made in the absence of some riparians and therefore run a risk of pre-empting the rights of these other states and causing divisions within a basin. Such ad hoc solutions do not adequately reflect the integral nature of the problem as they often lack the basin-wide commitment to a shared set of priorities, principles and goals.

Box 4. The Ganges River Basin: Water Sharing Arrangements

The Basin of the River Ganges is home to more than 300 million people, making it one of the most densely populated basins in the world. While the Ganges-Brahmaputra-Meghna Basin is shared by India, Bangladesh, Nepal, China, Bhutan and Myanmar, the dispute over the water in the Ganges Basin has been primarily between India and Bangladesh. In 1951 (before the establishment of Bangladesh as an independent state) India announced plans to construct a barrage close to the borders with Bangladesh, claiming that the Farakka Barrage was needed to divert water from the Ganges River to the Hooghly river during the dry season so as to make it navigable, to save the port of Calcutta and counteract the salinity and provide water to Calcutta for irrigation, domestic and municipal purposes. A dispute ensued as Bangladesh contended that the dry season flow of the Ganges constituted the normal basic requirements of Bangladesh and that any decrease in the flow of the Ganges would negatively affect all sectors of water users and the environment.

The Barrage was commissioned on April 21, 1975, following an interim arrangement with Bangladesh announced on April 18, 1975 on the sharing of the waters of the Ganges, which lapsed on May 31, 1975. Bangladesh continued to object to the barrage and raised the issue at a number of regional and international fora, including the thirty first session of the United Nations General Assembly in 1976.

A treaty on the sharing of the waters of the Ganges during the dry season (January to May) was concluded in 1977 and lasted for five years. The treaty was followed by two Memoranda of Understanding (in 1982 and 1985), both of which were also short-lived. After a lapse of almost a decade, the Ganges Treaty was signed on December 12, 1996.

The 1996 Treaty laid down a formula for sharing the waters of the Ganges during the dry season, and also included a seasonal schedule of the available water and the share of each country. The Treaty, which is to last for thirty years, sets up a Joint Committee to oversee the water sharing arrangements under the Treaty.

Although there was not enough water in the Ganges during the dry season of the first year of the Treaty (1997) to meet the shares of both countries under the Treaty, the Treaty worked well during the dry seasons of 1998 and 1999, and there was more water during those two dry seasons than the Treaty had anticipated.

Despite the low flow of the Ganges during the first year, the Treaty is still considered a major breakthrough and has facilitated the discussion of a number of other water-related issues between the two countries. The treaty provides both States with an opportunity for meaningful long-term cooperation over the Ganges basin.

see Annex II

7. Cooperation as Salvation

Many would put every example of cooperative efforts in this category. The claim that most cooperative schemes are only implemented once the problem has reached proportions beyond the control of any one state is largely true, for example in the case of the Danube, but cases where real humanitarian or ecological catastrophes occur before nations come together are thankfully rare. The Aral Sea Basin is an obvious exception (see Box 5), with equally obvious political considerations. It is also an interesting case through which to illustrate the extent to which political boundaries are not the only aspects of sovereignty. Excessively short-sighted water policies can lead to the total destruction of the fabric of societies, destroying livelihoods, health and the natural environment needed to sustain communities. Groundwaters are particularly vulnerable, and cooperation over their use and protection even more imperative as the alternative is often a race between states to exploit the aquifer and little consideration for the consequences of its irreversible contamination. States have a responsibility to refrain from such policies, whether those who stand to suffer live within or beyond their national borders.

Groundwaters are particularly vulnerable, and cooperation over their use and protection even more imperative as the alternative is often a race between states to exploit the aquifer and little consideration for the consequences of its irreversible contamination.

Another respect in which cooperation can be seen as the only way of averting disaster is in the context of a watercourse which is shared by states with historical, territorial, ethnic or any other contentious issues which have the potential to ignite conflicts. In such cases the shared river can be seen as yet another potential cause of tension, or as a possible means of proving that cooperation even between traditional "enemies" is possible. A clear example is the case of India and Pakistan's efforts to cooperate over the sharing of the Indus River. The two states have gone to war and engaged in armed conflicts several times since their independence in 1947, but never over water. This is largely thanks to the intervention of the World Bank, which offered the essential additional incentives to cooperation in the form of development and infrastructure projects on both sides of the border.

The achievement of peace and accepted partition over water, if not yet over territory, is particularly commendable in this region where millions are without an adequate supply of water, and water shortages, particularly in Pakistan are a major factor in the stagnation of economic growth. This is also a region in which water is seen as sacred, making the fact that its allocation has been relatively peacefully resolved all the more significant, even if it did take 12 years to sign the 1960 Indus Water Treaty. It must however be remembered that India particularly made it very clear in the negotiations that this was to be an agreement to divide - not to cooperate over - the Indus, and did not admit any natural legal responsibility or obligation, beyond the limited terms of the Treaty, to ensure a certain amount of water to Pakistan merely by virtue of their being a fellow riparian. Nonetheless, this case should stand as an example to the world's development organisations, including the World Bank, UNDP, and the Regional Banks, that with technical, institutional and financial assistance even states with seemingly

Even states with seemingly irreconcilable disputes can be given the incentive to resolve their differences over water. This can make for one less element likely to cause conflict, and improve the lives of the millions of people caught in the middle of these endless political battles.

irreconcilable disputes and heated ethnic, religious and territorial tensions, can be given the incentive to resolve their differences over water at least. This can make for one less element likely to cause conflict, and improve the lives of the millions of people caught in the middle of these endless political battles.

Box 5.
The Aral Sea Basin The Need for Salvation through Cooperation

The tragedy of the mismanagement of the waters in the Aral Sea Basin is well known. The Aral Sea became an "international watercourse" with the independence of the Central Asian Republics in 1991 and the full extent of the disaster was revealed. The over-extraction of the water from the two feeding rivers of the Aral Sea, the Amu Darya and the Syr Darya, to irrigate intensive cotton cultivation has resulted in the shrinking of the Aral Sea to less than half of its natural volume, with consequently disastrous effects on the people, economies and environment of the entire region.

In recognition of the urgency for action, the five basin states signed the 1992 Agreement on Cooperation in the Management, Utilisation and Protection of Water Resources in Interstate Sources, and, with the support of UNDP, UNEP, the World Bank, the European Commission and others, developed the comprehensive Aral Sea Basin Program (ASBP) in 1994. Thus the foundations for inter-state cooperation have been well laid, and the international community has been active in this regard, but in reality there is little cooperation on the ground and the situation continues to be critical and at a risk of developing into conflict. The economic and political instability of the region in the decade since independence dictates the need for continued international assistance; but the most important issue is for the states themselves to cooperate and share the burden of the task ahead. The continued practice of extensive irrigation is perpetuating the problem and must be modified as part of a region-wide strategy by all states. States are naturally resentful when they perceive themselves to be making more sacrifices, or bearing more of the burden of costs, than others: to be effective the repair program must be carried-out multilaterally by all the basin states.

The Aral Sea Basin disaster continues to effect every aspect of the lives of the people in the region, causing serious health problems and unemployment, though the State whose administration was the root cause of the problem, the USSR, has long since ceased to exist. This is representative of the transient nature of political borders and governments when compared to the permanence of Peoples and the natural features of a basin. The active participation and support of the people of the region and the re-application of centuries-old local knowledge will be fundamental to the success of the rescue of the Aral Sea basin.

See Annex III

8. Cooperation as Opportunity

The people with the least water, and the greatest and most direct dependence on it, have the most to gain from cooperation - an opportunity that has been largely wasted so far in the Middle East for political reasons, but which has been embraced by many African states. West Africa in particular seems to have adopted the idea that common management results in the optimisation of resources and thus increased and sustainable economic development for all. Natural partnerships are created by the shared rivers, resulting in very complex basin co-operatives,

Box 6. The Senegal River: a Lifeline in the Desert

There have been complex systems of cooperation along the Senegal River since antiquity, long before today's ill-conceived borders divided the drainage basin between nation states, and it remains one of the best examples of cooperation between riparian countries; in this case, Guinea, Mali, Mauritania and Senegal. In the post-colonial era, the management of the river has reverted back to the traditional, more unified approach, with the river seen as the heart of the region rather than as a border between different peoples, and the cumulative rights of the different sectors (farmers, herders and fishermen) should not lead to conflict because they are complementary to each other. However, as a resource, the river has never been more heavily exploited, with population and economic growth, coupled with reduced rainfall upstream, increasing the competition over and importance of shared water for the two million inhabitants of the Senegal River Basin.

Since the establishment, in 1963, of the Senegal River Inter-State Committee, and the agreement on the international status of the river and reformation into the Organisation for the Development of the Senegal River (OMVS) in 1972, the riparian states have shown a willingness to cooperate within a very flexible framework based on the two key principles that: a) each state should have something to gain, and b) no state should be entirely dependent on another for access to the resources of the Senegal. Unfortunately, in 1971, Guinea withdrew from the system and remains reluctant to return, due mainly to the fact that its needs are different and, for the time being, minimal, compared with those of the other three states. The region also suffered one serious water-related conflict between Senegal and Mauritania in 1988, which is explained in more detail in Chapter 12, on "Water and Security", of this report.

The OMVS remains a strong organisation, and, as the only body which links the three Member states, it is integral to all aspects of cooperation in the region, including the continuing healing of wounds from the 1988 conflict. For the time being however, the economic needs of the basin states are given the absolute priority in all joint projects on the River, with the environment and considerations of long-term sustainability not receiving adequate attention.

See Annex IV

with continuous and inter-sectoral collaboration in multi-purpose projects. The River Development organisations that have arisen around the Senegal (see Box. 6) and Niger Rivers are seen as such important focuses of economic growth and development that even non-basin states want to join. These organisations have had problems, both financial and political, but they are inspirational in their genuine quest for opportunity through cooperation and adoption of the theory of community of interests in the waters. The next step which needs to be taken is to direct these cooperative efforts towards more sustainable environmental practices.

Cooperation over water also creates opportunities for cooperation in other areas. A useful way to sustain dialogue is to seek opportunities for mutual benefits. For example, states are more likely to cooperate to protect degraded watersheds if it can be seen that their reservoirs and canals are suffering as a result. There are always difficulties in developing an agreed method for sharing the costs of watershed management, but one way that this can be achieved is by tapping potential hydro-power to help raise the funds for economically and environmentally-sound infrastructure investments. A good start is to engage in joint water quality monitoring programmes, which encourage information sharing and cooperation on the technical level. Such initiatives not only allow for improved measures to control water quality in international watercourses, but can be a precursor to cooperation on a more official or governmental level.

Hydropower has been the key to resolving conflicts over water and territory in the Parana-La Plata basin, particularly between Paraguay and Brazil. The shared physical geography allowed two states with a history of difficult relations and of very disparate size, as well as military and economic strength, to embark and complete an immense and long-term project together, the Itaipu Power Project. It also helped to resolve long-standing territorial disputes between the two states. The five states which share the Parana-La Plata Basin have a history of riparian disputes based on navigation routes, resentment of extra-regional interference, and concerns to protect national sovereignty and territorial integrity in a region with a history of colonial domination. The basin also has a very complex riparian structure, with no clear division between up-stream and down-stream states. Tapping the huge hydropower potential of the shared rivers has proven to be a means of achieving economic growth, inter-state cooperation, and independence from outside influence. These opportunities are invaluable to the region, but should be pursued with more concern for the environment and the societies affected. In this way the true long-term benefits of cooperation will be realised.

The opportunities which can be gained through effective cooperation are endless, and international water schemes should focus on the benefits which can be obtained by all rather than the losses in terms of autonomy or sovereignty. The idea of sharing water can be a source of discord between states, it is therefore better to emphasise the sharing of benefits instead. The promotion of more efficient water use and the broadening of the range of partners in the cooperative efforts can be presented as a mutually beneficial opportunity.

Cooperation is a slowly evolving process, which though in itself is not enough is an important step in the process towards states accepting regional responsibilities, challenges and opportunity. It is also clearly important that the efforts be directed towards a sustainable development of the resource, not just the extraction of its optimal benefits. One criticism of some of the current systems is that they work towards cooperative but precarious use of water for economic development and short-term gains often at the expense of the natural environment, and therefore the people whose lives are so closely linked to it. However, although water scarcity can lead to tension, it also has the ability to encourage a set of principles based

on the ideas that no individual or state can resolve their water problems on their own, and that such a critical resource must always be shared. In a world where more and more water is threatened by pollution and misuse, valuable lessons can be learned from those who have already been forced to recognise that fresh water cannot be taken for granted.

Box 7. The Danube River- Water Quality Monitoring

In 1994, the riparian states of the Danube River signed the Convention on Cooperation for the Protection and Sustainable Use of the River Danube (DRPC). The aim of the Convention, the latest in a long history of agreements over the use of the Danube stretching back at least to 1846, was to integrate and incorporate all the uses of the River and establish a framework for the protection of the ecosystem. To date, the activities of the Commission have been confined mainly to water quality monitoring. Among the problems faced by those attempting to implement the DRPC is the fact that Yugoslavia, now the Federal Republic of Yugoslavia, has been excluded from the joint system since 1991 thus making even basic monitoring impossible in the Balkans region. The conflicts in the Balkans over the past decade have seriously jeopardised the quality of the Danube's water, effecting health in the region and raising the question of establishing emergency water protection procedures to allow more rapid and effective reactions to the dangerous consequences to international watercourses which can arise as a result of war.

Differences in priorities and economic capabilities between the upper and lower Danubian States is also an impediment. Before they will be able to achieve a truly integrated and equitable system, and adhere to the principles which they espoused in the DRPC, the riparians will have to engage in more economic cooperation to help transitional states such as Romania and Bulgaria to acquire the means to participate fully in the protection of the Danube. This would be greatly aided by the admittance of the Eastern European states into the European Community.

The Danube River is the artery connecting Western and Eastern Europe. It is a source of drinking water, transport, communication and tourism as well as providing the main supply of water for agriculture, industry and the sustenance of the natural environment of the entire region. Water quality monitoring and pollution control are essential elements to the protection of the Danube, and are still inadequate in some areas of the basin, but in such a complex and heavily populated basin a more wide-reaching programme is urgently needed.

See Annex V

It must be established that the idea that environmental consideration and protection is a "rich country luxury" is a false notion. In fact the opposite is true. No State can afford not to preserve their natural environment. A holistic approach must be taken to preserve the integrity of ecosystems - for the benefits of people as well as nature, as the consequences of ignoring the environment can be irreversible and severe. States in Southern Africa, particularly Botswana and South Africa, are developing better environmental policies and are even setting precedents in ecological awareness. The growing link between the environment and job creation, for example in tourism, can be used as a reconciling agent in the struggle between economic gain and environmental protection.

Box 8. Southern African Development Community – Opportunities to be Gained through Cooperation

Southern Africa is facing a serious water shortage problem. In anticipation of this, the 14 Member States of SADC have signed a progressive Protocol on Shared Watercourse Systems (1995) to promote equitable sharing and conservation of water in the region. Many states are becoming increasingly reliant on international watercourses as national supplies are used-up necessitating an agreement on how to share them to avoid conflicts in the future. 70% of the surface water resources of Southern Africa are shared by two or more states and water is very unevenly distributed in the region.

The intention is also that peacefully sharing water, without prejudicing the sovereign rights of Member States, will lead to cooperation in other areas. Shared basin committees have already been established for most of the large transboundary rivers in the region. Some SADC states are trying to strengthen the rights of down-stream riparians and make the Protocol wider and more equitable in its application. There needs to be a redistribution of hydro-political privilege and functioning institutions for information sharing. The Protocol is currently being revised and strengthened with the hope that it can move from theory to action and have a preventative effect both on any potential conflicts of interest and on the extent of the actual and impending water scarcity.

See Annex VI

In Europe the principle of basin-wide cooperation is yet to be fully explored in terms of integrating all aspects of water-use, but there is the growing awareness of the importance of the environment - made evident by the constant physical reminders of the consequences of lack of foresight in the past. Recent efforts to jointly administer the Rhine and the Danube Rivers (see Box 7.) have been largely successful in reducing pollution and creating more equitable divisions of the water, but effective long-term administration requires a more flexible, inclusive and cooperative approach along the framework of integrated management based on the needs and commitments of different interest groups and a respect for the integrity of the ecosystems of the basin. In the Rhine Basin there is an acceptance, reflected in the newly agreed Convention for the Protection of the Rhine, signed in April 1999 but yet to enter into force, that cooperation between the states is the only solution; but the accomplishment of such collaboration has been difficult to achieve and many of the agreements reached between the basin states have not been kept.

The financing of basin-wide schemes is a cause of much contention and delay in the River Basin Authorities which are already functioning. A holistic, integrated approach requires the fair apportionment of finances across the board, but in reality it is always easier to obtain financing for some projects, such as energy generation, than others, such as waste treatment. The reason is clearly that some projects have more evident financial potentials than others. Means need to be found to balance the direction of private investment with other sources, such as donations and public financing, and to create incentives to encourage the private financing of less obviously profitable areas. Inter-state cooperation in itself attracts investment as it is an important indication of regional stability.

Regarding the question of sustainable basin management there is no one example worthy of emulation, and it is certainly not the case that the developed world can be held up as a model. Rather many systems should be considered for their good and bad points, to guide the way to the much needed new model of drainage-basin cooperation for those critical areas, encompassing much of the world, in need of peaceful inter-state management of water resources. In this respect, the activities both real and potential of a number of actors should also be considered. What is the role of the different development agencies in the creation, maintenance and support of basin cooperation? One under-developed field is the provision of incentives for cooperation; a function which could be fulfilled by any one or combination of sources, such as the World Bank, UNDP, the Global Environmental Facility, and the relevant Regional Development banks. International organisations have tried to play a role in managing international rivers, particularly the World Bank over the Indus, UNDP for the Mekong and UNEP for the Zambezi, with various and still to be seen levels of success. This needs to be increased as the establishment of basin cooperatives is an expensive and complicated process. Once the incentives have been offered and accepted, investigations need to be made to determine the optimal approach to ensuring the continuity of the projects, the provision and allocation of funds, and the evolution of the principles and priorities of the basin states according to social, ecological or economic changes. Beyond incentives and enforcement there is implementation. The real benchmark of the success of a basin regime is the degree to which the conventions, agreements and facilities are actually and effectively put to work and sustained over time. For this reason it is essential to have local participation and support, both financially and practically, to sustain projects for the long term once international attention has faded.

Box 9. The Mekong Basin: Prospects for Cooperation

The major problem any attempt at basin-wide cooperation in the Mekong Basin faces is the lack of official inclusion of China and Myanmar in basin treaties and institutions. The absence of China from regional agreements is particularly damaging as it is the upstream riparian and a major user of the River for agriculture and hydropower. The Lower Mekong Sub-Region (Cambodia, Vietnam, Thailand, Laos) however has a long history of cooperation over the River, often surviving against the odds as it did in the extended period of conflict from the 1950s to 1980s. In 1957, the creation of the Mekong Committee for Coordination of Investigations of the Lower Mekong Basin was the first example of UN involvement in a program to develop an international river basin, and many claim that regional cooperation was stronger then than it is now. The 1975 Joint Declaration of Principles stated that "The sovereign jurisdiction of a riparian State over mainstream waters is subject to the equal rights of the other riparian States to use the waters".

This commitment was not reiterated in the 1995 Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin. The new Agreement, while specifying a number of areas for cooperation including irrigation, hydropower, navigation, flood control and fisheries, has been accused of undoing the 1975 spirit of cooperation and of having a primarily "dam-building agenda". Public and international protest over the damming of the Mekong, particularly the extensive damming in Laos to supply Thailand's energy needs, has been steadily mounting and the concern of down-stream states, particularly Vietnam, about the effects the dams will have on their agriculture presents a serious conflict of interest.

It is hoped that the Mekong River Commission (MRC), established by the 1995 Agreement, which enjoys the status of an international body, will develop a more comprehensive approach to the management of the Mekong River to make it clearly an agent of cooperation rather than a means of managing the region's literal "power-struggle". The MRC faces two serious impediments to achieving sustainable cooperation and development of the Mekong basin. The first is the fact that China's water requirements are growing, and China is not only not a member of the MRC, but is also one of only three countries which voted against the 1997 UN Convention. The second is the fact that the Mekong Agreement does not specify any water-allocation quotas. However, China and Myanmar are both official dialogue partners of the MRC and there are already signs of their increased willingness to participate. There are also indications that the Chinese Province of Yunnan is becoming more willing to be involved in negotiations; although the Province cannot participate as representatives of the Peoples' Republic of China, it would create another link between the peoples of the upper and lower Mekong Basin. The Global Environmental Facility is currently negotiating a grant to be provided directly to the MRC to develop a plan for sharing and utilising the waters of the Mekong River among all six basin states.

See Annex VII

9. Cooperation and Participation of Stakeholders

Public participation in decisions relating to water management is so crucial that it is starting to be considered as an emerging human right. However, such participation is often lacking in practice. Both within and between States, the involvement and participation of stakeholders is essential to achieving efficient and fair use of international watercourses. As between States, water use between sectors is often considered as a zero-sum relationship; if a certain amount of water is used for agriculture, it is therefore unavailable for municipal use etc.. In fact, with increased cooperation and coordination, water supplies can be significantly increased. Partially treated municipal wastewater can be used for certain types of agriculture, rainwater can be harvested in cities, and the encouragement of a demand management approach can reduce inefficiency and waste in all areas. The integration of all the water-user sectors at the national and international basin level is fundamental to alleviating problems of both water quality and scarcity, a fact which is being increasingly recognised by governments and international organisations. This requires communication and information sharing between stakeholders of all kinds, and most importantly a willingness to actively participate and cooperate in order to improve the water situation for all. Stakeholders in water includes everyone in a basin from the individual to the corporate to the government level. An understanding and appreciation of the needs of other sectors is therefore essential. Creating the means for communication and awareness raising amongst such a varied group is a challenge for the education, media and information services of any region. In the case of international basins there is the additional aspect of nationality to contend with. To initiate an operative and integrated system, all stakeholders need to be assured that others are also playing their part. No one State or sector should bear a disproportionate share of either the burden or the rewards of water conservation efforts.

Women across the world are often denied a role in decisions affecting the apportionment and location of water supplies, and yet they remain in effect the guardians and providers of water in the majority of regions. This is an illustration at the grass-roots level of the importance of bringing about a convergence between the holders of power and money, and those who both want and need changes to be made and have the local experience and knowledge essential to the formation of viable agreements. The issue at hand is that of adequate representation and participation of the people in a basin in the drawing up, implementation and monitoring of the agreements and programmes for international water management. There is an increasing amount of international attention directed at this issue. Several international conferences have recently been dedicated to analysing the role of public participation in water management, and how to encourage it. In May 1999, UNEP, the World Bank and the Government of Kenya held a Forum to exchange information on African water resources with particular reference to the importance of civil society. A UN/ECE group of experts to the 1998 Aarhus Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters, has proposed to take into account prescriptions on public participation in water management for improving the quality and implementation of decisions, increasing transparency and public awareness, and contributing to both the development of democracy and the protection of the environment. While all recent basin agreements include reference to the participation and awareness of civil society, further active efforts need to be made to provide the necessary opportunities for the practical application of this principle. The participation of all stakeholders will naturally also work towards the goal of cooperation and integration of the different sectors and groups of water users, and the creation of the climate of confidence and commitment essential to the amicable sharing and conservation of water.

Women across the world are often denied a role in decisions affecting water supplies, and yet they remain in effect the guardians and providers of water in the majority of regions.

10. Framework for the Integrated Management of International Watercourses

Any universal framework for the integrated management of transboundary watercourses must include accepted rules and principles, as well as practical institutions, and be duly flexible to cultural and geographic differences between regions. There already exists, in the form of the 1997 UN Convention on the Law of the Non-Navigational Uses of International Watercourses, a workable universal framework which provides the basic elements for managing transboundary watercourses. Considering that this took 30 years to be accomplished, and is yet to come into force, it is unthinkable to suggest a reworking or a new international convention - unthinkable and unnecessary. Prior to its signing there was no international set of written rules and principles, which had been universally negotiated by states, for dealing with the sensitive issue of shared water resources. The UN Convention, although very general, is useful in providing the constitutive foundations for a legal regime and a framework that can be used as a preliminary model for regional agreements. These foundations reveal a system for an integrated approach based on four main pillars:

- The water sharing principles, i.e. equitable and reasonable use and the no-harm rule, and a series of factors which are to be taken into account when allocating water.
- The obligation of riparian states to cooperate. According to the UN Convention, this cooperation may be achieved through a variety of means; for example: setting joint mechanisms and commissions, regular exchange of information and data, and notification of planned measures.
- The protection of the environment as an integral component of the regime applicable to international watercourses.
- The promotion of dispute settlement and dispute avoidance mechanisms.

The universal framework, provided by the state-orientated UN Convention, is an important step and like all agreements has the additional benefits of providing greater stability and predictability, but it is far from sufficient to ensure integrated management of all international river basins. An important omission from the international instrument is adequate reference to other stakeholders apart from states themselves, such as local communities, NGOs and even individuals (although there is a clause assuring individuals access to judicial procedures in the event of suffering transboundary harm). Means need to be found for incorporating the wider public in the management of international watercourses, and ensuring greater access to information. This would increase awareness and support for efforts to improve water policies. In addition, the institutions concerned with international human rights law should examine the question of whether there is a right to clean water, a right which would install significant government parameters to guarantee that international watercourses are governed according to the interests of all.

All water instruments, regional conventions etc., should be a part of a consistent legal framework dealing with international watercourses. The rule of law should not be a static phenomenon, but, as concluded by the International Court of Justice in the *Gabcikovo-Nagy-maros* case (see Box 14), treaties should be open to the emerging norms of international law, including those regarding the environment. This would encourage the development of a genuine ecosystemic perspective, focusing on the dynamics and linkages existing in freshwater, terrestrial, marine and atmospheric systems. In addition, the law and management of international watercourses needs to be placed within the bigger picture and seen in the context of the emerging norms of environmental protection, human rights law, increased globalisation

and regional unity, and the changing parameters of the state sovereignty paradigm. Cooperation remains to be further developed towards the effective co-management of transboundary watercourses. Essential elements would combine the inclusion of all water and land which are components of a drainage system; the creation of an institutional framework providing for regular exchange of information to allow riparians to manage the watercourse in the best interests for all; and the involvement of all the various stakeholders in a scheme founded on an ecosystemic perspective and within the economic development context.

Box 10. The Mahakali River - Integrated Approach to Water Resources Development

Cooperation between India and Nepal over the Mahakali River has been ongoing since 1920 when the Sarada Treaty provided for the construction of a barrage and a power station, and authorised Nepal to use some of the waters of the Mahakali for irrigation purposes. In 1991, a new agreement over the Mahakali (the Tanakpur Agreement) was concluded between India and Nepal which provided for the installation of a head regulator at the Tanakpur Barrage. India agreed to provide Nepal with water and electricity.

On February 12, 1996, India and Nepal signed a treaty for the integrated development of the Mahakali River. The Mahakali Treaty incorporated both the Sarada Treaty and the Tanakpur Agreement, and provided for a new project called the Pancheshwar Multi-purpose Project (PMP). The Treaty also included provisions regarding Nepal's share of the waters of the Mahakali River. The Mahakali Treaty established four main principles for the design and implementation of the PMP. First, the PMP will be designed to produce the maximum total net benefit for both countries in the form of power generation, irrigation use and flood control. Second, both countries will work together in an integrated manner to develop and share their common water resources and the total energy generated will be shared equally between India and Nepal. Thirdly, the two countries will share the cost of the PMP in proportion to the benefits accruing to each, and will jointly endeavour to mobilise the financing required to implement the PMP. Fourthly, a portion of Nepal's share of energy will be sold to India. The quantum of such energy, and its price shall be agreed upon between the two countries.

In addition, the Letter of Exchange between the two countries established the Pancheshwar Development Authority (PDA) for carrying out the PMP. Furthermore, pursuant to the Mahakali Treaty, a Mahakali River Commission would be appointed to oversee the PDA.

Although work on the DPR has not yet been completed, and the financing package for the PMP is still to be sought, the Treaty has, no doubt, provided a mechanism for a reinforced collaboration between India and Nepal on the Mahakali river. If both countries cooperate diligently to carry out the provisions of the Treaty, many economic, political and social advantages should materialise.

See Annex VIII

Legal instruments alone cannot guarantee cooperation over international watercourses, but cooperation is very unlikely to be put in place and maintained without them. There already exists a large number of different legal agreements regarding shared water resources; the 1997 UN Convention should be the foundation for, and encourage, more detailed and specific arrangements to be negotiated by basin states, in accordance with the principles as stipulated by the UN Convention. States are frequently wary about arrangements which they fear will restrict their sovereignty and rights while increasing their international obligations. The UN Convention included articles specifically aimed at reassuring these fears. Article 3 (see Annex 1.) on Watercourse Agreements relates to the rights and obligations of states arising from existing agreements, and Article 33 on the Settlement of Disputes, presents a course of action to follow once states have failed to reach an agreement between themselves. The concept of basin management must be presented in terms of the benefits such arrangements can offer. Incentives need to be identified, not least of which the very basic idea that legal agreements are cost-effective, and greater awareness of the potential benefits arising from basin agreements encouraged at Governmental levels.

Box 11. Regional Basin Authorities

There is no universal prescription or model for Regional Basin Authorities. Looking at those already in operation, reveals that they take on many forms, from internationally recognised bodies to committees of experts, and are as varied in their objectives and activities as the basins themselves. Their priorities also change over time, with one noticeable and welcome recent development being a the trend away from Committees formed with particular goals, usually centred on large engineering projects, towards the establishment of Authorities with more multiple and integrated aims.

Rather than speak of a recommended uniform structure of Basin Authorities, it is more useful to think in terms of the functions which they should fulfil. The starting point for the creation of many such authorities, and in some respects their most fundamental function, is data monitoring and information sharing. Systems of data collection and exchange, including information regarding availability of water resources, water users, hydro-systems and land management are an essential component of any cooperative system. In reality, such information is rarely gathered and seldom available. Data is collected on the hydrological and meteorological aspects of water systems, but is often lacking on water quality, ecosystems, land practices and water users. A priority in any movement towards integrated basin management should therefore be the standardisation of data procurement methods and increased information exchange and transparency between countries and between different sectors of water users and experts.

The next important function is the provision of a forum for open discussion of ideas and problems between states and users. This frequently begins at the level of technicians, but if successful should gradually extend to user associations, local authorities and official basin state representatives. This raises the question of representation. It is always difficult to select peo-

ple who are truly representative of communities or interest groups, but this is easier in more open societies. Through the establishment of this forum, information and training can be made available to different categories of users, allowing them to participate more informatively and actively in future debates. Training is particularly urgent. There are currently no training courses for integrated river management, and it is still the case in many regions that the only people who claim to know about water are engineers. It is necessary to develop different training and awareness programmes in the field aimed at government officials, engineers, and most importantly, all the categories of users.

Once the information and the input of user groups has been gathered, the role of the basin authority should be to devise a Basin Level Master Plan. This is necessarily a long-term project, operating on the basis of a time-frame of about a generation (25 years), which requires the evaluation of the situation, identification of objectives, and development of the means to implement sustainable solutions. Funding is an essential consideration; one way to maintain interest and ensure results is to concentrate on projects and schemes revolving around shorter-term priority investment programmes, without losing sight of the long-term goals. It is also important to organise the funding on the basis of user/polluter-pays principles as public budgets can rarely mobilise funds for the implementation of integrated watercourse management projects.

One of the powers essential to basin authorities is the ability to mobilise funding, without which no action can be taken. Even in basins where there are no specific conflicts or problems it is very complicated and expensive to develop even the information systems needed to exchange data. Long-term project implementation and training programmes intended to reach large sections of the population require technical skill, funding and, above all, the willingness of the people and authorities involved in order to succeed.

The existing Basin Authorities described in the previous boxes in this report have all been decades in the making. The ideal situation is to have a Regional Basin Authority founded by a solid and representative Agreement, and involving the willing cooperation of State Governments, local authorities and water user representatives. It is usually most effective to start with the practical, technical exchanges and discussion relevant to the particular basin, and progress gradually towards more and more representative activities. Through increased awareness and cooperation the fact that the problems of a shared basin should be viewed as collective problems, rather than as a collection of problems, becomes evident. The admission that there are problems and the discussion of possible solutions at any level is the beginning of basin-wide cooperation.

International watercourses are a global issue, but “globalisation” is not the answer. Universal principles embodied in the UN Convention should be respected, but water is a very regionally and culturally sensitive concern and should be managed at this level. The significance of the UN Convention is that it lays down the rule that water is a shared resource. The ways in which it is shared are matters to be dealt with at the more local level. Another potential importance of the UN Convention is that it could be used as the defence and protector of smaller states, which have a tendency to be over-dominated in regional arrangements. This tendency is another reason for the strengthening or creation of more river basin authorities, such as the ones already mentioned, for international watercourses. Transferring the general management of transboundary water resources from the agenda of State governments to international basin authorities, which subsequently coordinate the relevant local authorities and users' groups, relocates the decision making level to that of the basin rather than the State, and should result in more ecological, democratic and efficient water management. The existing basin authorities have had a tendency to be preoccupied with hydro-power rather than more intricate water allocation and preservation principles and practices. It is important not only that these River Basin Authorities (see Box 11) should be equitable, representative and empowered, but that they work together for the truly integrated and sustainable management of water for all sectors.

Good water practices at the national level can be emulated by, and be a positive influence on, those at the international or basin level. Bad internal practices are a source of social, economic and environmental degeneration, the effects of which will not necessarily be confined to within the state boundaries. Few States have well-established legislation for the organisation of water at the level of the river basin; exceptions are France and Spain each with advanced basin laws. However, particularly in Central and South America, there is an emerging inclination to administer water around the unit of the basin. Brazil, Chile and Mexico (see Box. 12) are all in the process of developing very complex federal systems of water management in order to decentralise the power over water, and avert the impending water crisis. The growth of huge cities and rapid industrialisation of these states has made such a move imperative as equally accelerated population growth makes water provision a matter of internal security and stability. The new legislation gives water an important role in the more general democratisation process, and their success will depend largely on the will of the people. Success in the joint management of heavily exploited river basins in large, complex, emerging states such as these would both improve internal stability and serve as an example to other states. The increased representation of more localised authorities, and the people themselves, regarding national basins should also encourage increased involvement in creating the necessary mechanisms to share transboundary watercourses.

Good water practices at the national level can be emulated by, and be a positive influence on, those at the international or basin level. Bad internal practices are a source of social, economic and environmental degeneration, the effects of which will not necessarily be confined to within the state boundaries.

Box 12. National Water Policy in Mexico

Mexico is facing water scarcity and pollution problems throughout the country. In 1992, a new National Water Law was enacted, which among other things provided the legal foundation for, and apparent Governmental commitment to, the creation of river basin councils as new tools for the more effective and representative administration of the nation's water. The first river basin council was created in 1993 for the large and heavily populated Lerma-Chapala Basin and has already brought about concrete improvements in distribution and allocation of water.

This movement to a more democratic and transparent system of national water management, with increased emphasis on the river basin as the unit of administration, is already serving as a model elsewhere and is attracting international funding. The Federal Government's acceptance of a more custodial role in favour of representative, integrated river basin councils could also be emulated at the level of the international basin. The Government in Mexico must prove its commitment to this process in deed as well as on paper, and it is yet to be seen whether this new approach will survive changes in Government following future elections.

See Annex IX

It is futile to promote a complex, integrated approach without also giving due consideration to the practicalities involved. The question remains as to who should be responsible for the establishment, overseeing, and implementation of such schemes? The trend towards international river basin authorities is definitely preferable to a myriad of sometimes conflicting bi-lateral agreements and is an important step in the acknowledgement of the basin as the logical unit of operation. A multi-sectoral approach should be promoted through the establishment of joint bodies, commissions, information/data resources, research facilities and project implementation bodies. The involvement of interest groups and associations of water-users, scientists, environmentalists, representatives from big cities and other concerned groups should always be encouraged.

At the international level there is also a need for institution building and redefining, to provide a coordinated framework and forum for the establishment of the complementary regional instruments. This role is important particularly in cases where traditionally more powerful states would otherwise dominate the proceedings and negotiations, and thus prevent the implementation of a truly regional scheme. An international forum for the evolution of democratic and transparent basin-wide agreements, encouraging the sharing of information and experiences to allow states to benefit from the successes and failures of others, and fulfilling a coordination function would provide a global dimension and solidarity to fortify regional efforts. An International Fund for Water would also provide an essential incentive to cooperate over shared resources, and regulate use and potential polluters, as a condition of accessing the funds for the development of the Basin. This Fund could also be used to provide assistance in times of emergencies which threaten international watercourses.

11. A Human Right to Water?

Without water life is impossible, but does this mean that it automatically follows that access to water is an integral part of the "right to life"? This would have far reaching implications for water management, and for the question of sovereignty. Even if access to clean water were considered a human right, would that mean that states had an active duty to provide it? Or are they merely not permitted to forcibly deprive anyone of it? This is a much debated issue. What should be evident to all is that everyone has the entitlement to enough water to fulfil their basic needs, and that this is irrespective of any political situation in their region or country. It is in this respect that the only meaningful and inviolable sovereignty over water belongs with the people who need it. Article 25 of the Universal Declaration of Human Rights provides that "Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family...". Considering that a person cannot survive for more than a few days without water, and requires it for the most fundamental needs of growing food and sanitation, it is clear that the right to water is enshrined in the Universal Declaration. The right to a certain standard of living clearly encompasses the right to live in an uncontaminated environment with clean air and access to clean water.

What should be evident to all is that everyone has the entitlement to enough water to fulfil their basic needs.

An indication of such an entitlement is provided by article 24 of the 1989 Convention on the Rights of the Child, which states that:

1. States Parties recognize the right of the child to the enjoyment of the highest attainable standard of health and to facilities for the treatment of illness and rehabilitation of health. States Parties shall strive to ensure that no child is deprived of his or her right of access to such health care services.
2. States Parties shall pursue full implementation of this right and, in particular, shall take appropriate measures:
 - (a) To diminish infant and child mortality;
 - (b) To ensure the provision of necessary medical assistance and health care to all children with emphasis on the development of primary health care;
 - (c) To combat disease and malnutrition, including within the framework of primary health care, through, inter alia, the application of readily available technology and through the provision of adequate nutritious foods and **clean drinking-water**, taking into consideration the dangers and risks of environmental pollution;

This statement clearly indicates that it is the duty of States to actively "strive to ensure" that no child is deprived access to clean water. Such a responsibility must entail at least the requirement not to deny other States the ability to do the same within their borders by denying them adequate resources from international watercourses. A more proactive interpretation of the words "all children" suggests that States are required to also work towards the provision of water to children in other countries. It also assigns absolute priority to basic domestic uses of water, of which drinking is the most essential, above all others and indicates the related responsibility to avert the risks associated with pollution.

Box 13. Rights to Water in the South African Constitution:

"Everyone has the right to have access to sufficient water" (Bill of Rights, Constitution of South Africa, Section 27 (1) (b)).

South Africa is a country in the middle of a very painful transition period, but it nonetheless has articulated a new water policy which aims to reflect the reality of the serious water shortages faced by the country and work towards more efficient uses and distribution of what little water there is. In addition, the Constitution has not only declared that water is a basic human right, but the new South African Water Law is possibly the only one in the world to allocate water by legal right to the environment:

"There shall be no ownership of water but only a right to its use" (Principle B.1)

"The water required to meet peoples' basic domestic needs and the needs of the environment should be identified as "the Reserve" and should enjoy priority of use" (Principle C.4)

"The right of all citizens to have access to basic water services necessary to afford them a healthy environment on an equitable and economically and environmentally sustainable basis should be supported" (Principle G.1)

The nation's water has gained new status as an indivisible national asset of which the Government is the custodian, responsible for ensuring that everyone has access to a minimum amount of water, on an equitable basis, and in a sustainable manner; eloquently phrased as: "some water, for all, forever".

The Government has therefore accepted that it has the duty to provide enough water to sustain a reasonable standard of living for each individual as a constitutional right. So far this remains a promise rather than an actuality for many South African people, but the fact of its inclusion in the Constitution can only help the basic provision of water as a human right become a reality.

The question of whether there is a human right to water, however, raises many questions central to the discussion of international watercourses and national sovereignty. Rights to have water imply duties to provide, or at the very least duties not to deliberately restrict access to, water, an idea which is fraught with implications and controversies concerning issues both within and between states. If water is a human right then states can be seen to have an obligation to provide their citizens with an adequate supply of safe water to permit a decent and healthy way of life. It could also follow that a country has a right to receive enough water from a co-riparian state, both in terms of quality and quantity, to meet these same needs of its population (assuming that this would be possible under the natural flow of the watercourse). In this context the role of international human rights law in the resolution of inter-state water disputes would gain new precedence as an important factor to be considered.

Deprivation of water, whether by one's own government or as a result of the decisions of another state, is a life-threatening action which demands the attention of the international community. Individuals suffering from such actions should have recourse to neutral, perhaps regional, institutions to report and protest their critical situation. The availability of such institutions could prevent conflicts breaking out over water policies which are, or are perceived as being, prejudiced.

One problem with the absolute predominance of state sovereignty in international relations is that throughout the world large groups of people are not adequately represented in the "state" system, and when considering a need as fundamental as water it is imperative that groups of people should not be bypassed or marginalised. Unfortunately, this is an all too common reality. Although there may be increasing cooperation between governments regarding shared water, frequently these agreements overlook the essential needs of portions of society, including future generations. A balance must be reached in every basin between economic progress, public well-being and environmental integrity - only in this way can sustainable development become a reality. Claims to sustainable development are merely fictitious if proper account is not taken of the growth rate of the population and the needs of the future inhabitants of the region. The human rights approach to water sharing may be seen as a more modernistic way of interpreting the elements of Article 6 of the UN Convention to reflect social as well as biological needs.

National sovereignty can only be adequately expressed through a government which is both representative and responsible. At various times many states have lacked any, or any responsible/recognised government, but this should in no way jeopardise the peoples' sovereignty over their water. The people of Afghanistan have suffered both occupation and unrecognised government in recent years, but no one could question the fact that they have retained their rights and entitlements to water. States which have suffered from decades of civil war and internal turmoil, the so called "imploding" or "collapsed" states, also lack the governmental infrastructure, both during and following the conflict period, to manage their waters. This can have consequences for international watercourses particularly when, as in the case of Angola and the Okavango River, the tumultuous state is the upstream riparian.

Box 14. Gabčíkovo-Nagymaros Dam Dispute (Hungary-Slovakia)

The history of this case spans 20 years, from the signing of a treaty between Hungary and Czechoslovakia agreeing to build two jointly operated barrages in 1977, to the International Court of Justice's 1997 judgement on the dispute that resulted from Hungary's withdrawal from the agreement and Czechoslovakia's decision to proceed unilaterally. The judgement has important consequences for the law of international watercourses and for the emergent international environmental law. In the decision on this case, the ICJ accepted that there existed a principle of "ecological necessity" whereby a state may be absolved of responsibility for an otherwise wrongful act, in this case the breaking of a treaty, by invoking the law of State Responsibility on the grounds that environmental degradation threatened an "essential interest" of the State. The effects of the judgement are tempered due to the fact that the Court decided that an "ecological necessity" can only be said to exist when there is a real, grave and imminent peril at the time it is invoked, thereby refuting that Hungary's more long-term concerns for its wetlands and biodiversity constituted an essential interest.

Regarding Czechoslovakia's (after 1992, Slovakia) unilateral diversion and control of a part of the Danube, a recognised shared resource, the decision of the Court reflected and thereby fortified the principles laid out in the 1997 Convention on the Law of Non-Navigational Uses of International Watercourses, in decreeing that Czechoslovakia had deprived Hungary of its right to an equitable and reasonable share of the natural resources of the Danube. It reaffirmed the principle of the "community of interest" in shared watercourses.

The 1997 decision of the International Court of Justice over the Gabčíkovo-Nagymaros dam dispute asserted the fact that states may be considered as having a right to the equitable use of water, but, disconcertingly, omitted similar reference to people and the environment. It was the people of Hungary who in the late 1980s pressurised the authorities to suspend work on their side of the joint project with Czechoslovakia, out of fear for their water-supply and for the consequences to the environment; a clear case of a population reasserting their sovereignty after a long period of denial. This should draw attention to the dangers of decisions concerning such essential resources being taken exclusively by Governments, particularly those which do not democratically represent the people. A more participatory system of decision-making would reduce the probability of agreements which do not take the people and the environment into proper account being undertaken in the first place.

The right to water can also be extended to include consideration for the millions of people who face forced migration due to national water policies. Dam construction represents the most overwhelming display of the power of the state over water and consequently peoples' lives. It is also a reminder that water scarcity issues represent only a fraction of the problem. Just as pressing is the question of whether the State has the right to implement projects which require the devastation of the lives and homes of thousands of people, some of whom may reside across state boundaries. In the countries most heavily affected by such policies, such as India and Brazil, public opinion is very divided on this issue and the stability of whole regions is put in question by protracted and bitter disputes over the construction of dams and reservoirs, such as is currently the case over the Narmada River in India. Should governments have the power to enforce the destruction of entire and often ancient communities in order to generate electricity and increase irrigation, primarily to cater for the growing urban population rather than improve the opportunities for the people relocated? The frequent practice of withholding information from concerned groups, blocking objections and then later halting construction in the face of large scale protests is clearly highly inefficient, destabilising and destructive to the people and environments involved. Cooperation and negotiation between stakeholders, peoples and states would help develop more sustainable alternatives to big engineering structures and would encourage a more trusting relationship between those involved.

Important cases where representation on the state level becomes inadequate is where peoples lack statehood, or recognition of statehood (obvious examples being the Palestinians, the Kurds and many indigenous peoples, such as the Himba people in Namibia) and are constantly compromised and discriminated against. There is often no forum in which such peoples can air their grievances other than to the very authorities that are accused of ignoring them in the first place. Restrictions of access to water can be used as a deliberate tool of oppression and domination of minorities or occupied peoples. An integrated scheme would also need to include the necessary framework for the discussion and resolution of such problems and the eventual inclusion of a better codification of the status of water in international law to avoid these loop-holes for injustice in the state-system. Conflicts over water are not always between States, they can also be between peoples within a State, and this cannot be forgotten when searching for ways of preventing and resolving water disputes. The state system is a social construct, with sovereignty one of its binding forces, which though useful is not unimpeachable; the fair and accepted apportionment of water amongst different groups within a state would mean one less factor which could spark the kind of ethnic and religious disputes which are threatening the state system in many areas today.

12. Water and Security

Water is a factor in security in many different respects. It has traditionally been seen as a crucial element in national security and for this reason is often closely guarded as an element in the power relations between states. However, there is an emerging tendency to shift the focus from national to human security concerns in reflection of the growing realisation that the actual personal security of the individual and the smaller community is at least as important as the, sometimes largely symbolic, security of the state. There is also increased awareness that internal, social stability can be more vital to the maintenance of national and regional peace and stability than good relations between states. In providing food, sanitation, and possibilities for development, water is an essential component to the realisation of such social security. The labelling of states considered to be facing "hydropolitical risk" more often refers to the internal situation rather than to the potential for inter-state conflict. Unpopular or insufficient water policies can be the trigger of civil disturbances and conflicts, particularly in areas already facing weak economies and ethnic troubles. The machete or shotgun is far more likely to be used in a water conflict than a state army.

The "water war" that is so feared is therefore more likely to have its origins in internal disputes. The real, practical results of chronic water shortages of the like currently facing many countries of the world, and which many more appear set to face in the next decades, such as famine, epidemics and spiralling poverty have the potential to impair the moral authority of the state over its people and therefore bring into question its capacity and authority to govern. This could feasibly lead to a breakdown of the fabric of a poor society, causing wide-spread instability and inevitably violence. The potential for violence in situations of water deprivation has already been seen in communities across the developing world. Internal conflicts have the tendency to cross borders and cause unrest and even conflict in neighbouring states, particularly when the effects of the conflict are felt directly in these other states as in the case of refugee outflows. Internal disputes also often take on a transboundary nature when they occur across federal or any type of administrative boundaries within a single state.

The potential for violence in situations of water deprivation has already been seen in communities across the developing world.

Africa in particular is prone to such occurrences due to the combination of water scarcity, poverty and unstable state borders. The issue of national sovereignty takes on different guises when considering states whose borders do not well reflect the natural ethnic borders in a region. Good internal practices can be crucial for the security of whole regions, to avoid the process of exploitation, inequality, injustice and violence through the maintenance of organic, interconnected and interdependent systems of sustainable water management. Stability and cooperation regarding water can also help attract investment and growth in a region. Lack of water-security has the opposite effect, thus adding to the problems of poverty and instability.

Fortunately it is the case that disputes and tensions over water rarely develop into armed conflicts, and water related conflicts which do erupt are almost always at the local level. For a water dispute to even threaten actual inter-state war, certain circumstances must usually be in place. The downstream country must be the more powerful, but the upstream country must have the ability to assert control over the water; and it is also usual for there to be a long history of friction. This was the case in the war between Israel and Syria in 1967, in which water was an important factor. In reality, the more usual situation is that which exists between India and downstream Bangladesh, with India so much more powerful than its neighbour that

Bangladesh had no means to fight, for example, the construction of the Farakka dam. Bangladesh turned instead to the forum of the United Nations General Assembly in discussions from 1968 to 1976, and gained a provisional, if imperfect, resolution to its problems over the allocation of the waters of the Ganges with the 1977 Agreement on Sharing the Ganges Water. This Agreement was short-lived, and was replaced in 1996 (see Box 4.), but the fact of the relative weakness of Bangladesh remains and means that she will never attempt to use force to solve any lingering or future water disputes with India with force. Thus, disputes over water arise frequently, but up until now it has been extremely rare that they have been the cause of outright inter-state conflict.

In cases of conflicts where the states themselves appear unable to reach sustainable agreements amongst themselves, the utilisation of international mediation facilities should be an option.

However, it is dangerous to be too complacent on the issue of the possibility of future armed inter-state conflict over water. The nature and causes of international wars have changed dramatically over the past decades and respond to changes in power relations and priorities. If current practices and patterns persist, over 60 states will face water stress in the next 25 years. The already growing need to look towards international watercourses for provisions will be heightened as more and more states exhaust their domestic supplies. If this takes place in regions where distrust, suspicion and nationalistic exclusionary rivalry predominate, the likelihood of conflicts arising appears great.

If this water stress emerges along-side other regional stability problems such as ethnic or religious disputes or environmental disasters, it is likely to greatly exacerbate them. If states start "running out" of water before coming to arrangements over how to share and protect the international watercourses which they have access to this could lead to panic and competition rather than responsible cooperation. If plans are made in each basin to properly manage and use water now, circumstances where states feel they have to fight over it should never arise.

Conflict prevention of this type should apply to all people within a basin; building up sustainable practices, encouraging the perception of water as a shared and unifying resource, and promoting mutually beneficial solutions to all water related problems before they become out of control. In cases of conflicts where the states themselves appear unable to reach sustainable agreements amongst themselves, the utilisation of international mediation facilities should be an option. An example of such a case is the festering antagonism and dispute between three of the basin states of the Tigris-Euphrates Rivers (see Box 15.). Where solutions cannot be amicably and universally agreed between basin states, the problems should be raised and discussed in a neutral International Forum for mediation in water disputes, and through the function of an International Watercourses Ombudsman. These conflict resolution and prevention facilities should be established and made available to states and peoples as a part of the international response to the growing water crisis.

These conflict resolution and prevention facilities should be established and made available to states and peoples as a part of the international response to the growing water crisis.

Box 15. The Tigris-Euphrates: The Need for International Mediation

There is a very long history of hydropolitical tension over the Tigris-Euphrates Rivers between Turkey, Syria and Iraq. Serious tension has arisen twice in recent history; in 1975 between Syria and Iraq, and in 1990, which saw Syria and Iraq united in their dispute against Turkey's South-Eastern Anatolia Project (GAP). The latter conflict remains unresolved and Turkey's unilateral continuation of the controversial GAP project is resulting in a very tense situation.

Turkey and Syria represent opposite ends of the spectrum on the question of national sovereignty over international watercourses. Turkey promotes the theory of absolute territorial sovereignty over all watercourses as long as they flow on or under Turkish soil, whereas Syria is notably one of the few States in the world to have ratified the 1997 UN Convention, which significantly restricts national sovereignty over international watercourses and recognises the rights of fellow riparians. Iraq follows the principle of absolute territorial integrity and subsequently objects to both Turkey and Syria's use of the water as it reduces the flow that would otherwise naturally enter into Iraq. In an extremely arid basin, with many social, religious, historical and political sources of division, this has created a permanent and seemingly irreconcilable stand-off over the Tigris-Euphrates.

This is a case in point where neutral, universally accepted international mediation is possibly the only answer. An impartial assessment and analysis of the situation would at least provide a basis from which to build greater trust and clearer channels of communication. This could be carried out by an international team of respected mediators.

See Annex X

The record of cooperation on the Senegal River described earlier (see Box 6) is marred by at least one serious water-related conflict, between Mauritania and Senegal in 1988. This conflict was a poignant example of the tensions between traditional territorial arrangements of the communities in the basin and the recently imposed state boundaries, which in this case is formed by the River Senegal itself. It is also an example of how even international conflicts can have a very localised character, in this case farmers on different banks of a river forming the frontier between the two States. Thousands of farmers and herders have always used both sides of the river during different seasons of the year, ignoring the state boundaries, but in 1988-89 this system broke down in a series of events which culminated in the massacre of hundreds of Mauritanian and Senegalese people on both sides of the border, the repatriation of over 200,000 people to their respective countries, and even the deployment of troops. The conflict also had ethnic undertones, reviving age-old rivalries between black and Beydane communities in Mauritania, and resulted in the abolition of the titles, and in many cases the deportation to Senegal, of the customary black African land owners along the banks of the River Senegal in favour of the formerly nomadic Beydanes. Diplomatic relations between Mauritania and Senegal have been restored and, as the OMVS (Organisation pour la Mise en Valeur de Fleuve Sénégal) was the only administrative structure common to the two states and

Water is a cardinal resource for stability and prosperity and should be used as a force for regional integration not division.

neighbouring Mali at that time, it helped the countries meet and negotiate the successful and conciliatory sharing of the resources of the Senegal River. The OMVS continues to play a key role in resolving the remaining points of contention between the States and ensuring more predictable and stable accessibility of the river to all the communities reliant upon it.

Water is a cardinal resource for stability and prosperity and should be used as a force for regional integration not division. The sharing of water constituted the first steps towards the emergence of civilisation and to this day it is an important aspect in the building and unifying of communities. In contrast, the act of depriving a people of water, or even the belief that one's own people somehow have a superior right to transboundary watercourses, can be seen as a very fundamental manifestation of nationalism whether within or across the boundaries of a state. As the competition for natural resources intensifies, environmental concerns will become more and more closely related to national and international security issues and therefore dispute avoidance mechanisms, including diplomatic and judiciary practices need to be further developed. Agreements over the sharing of transboundary resources such as water will become essential to maintaining stability throughout the world.

Agreements over the sharing of transboundary resources such as water will become essential to maintaining stability throughout the world.

13. Water for Peace - Peace for Water

Water can be a cause of conflict, but it can also be a target in conflict, as it has been in disputes from Northern Ireland to Central America. To date, no adequate legal framework exists for the protection of transboundary watercourses in times of war. The recent bombings in the Balkans have put the health of the Danube River and its tributaries in jeopardy, potentially affecting millions of people throughout central and eastern Europe, and civil disturbances in the African Great Lakes region both put the Congo River system at risk and prevent measures being taken to protect, share and utilise the much needed water. Just as it has always been considered a crime of war to poison an enemy's source of drinking water, the "sanctuarisation" of watercourses should be extended to protect them from the horrors of modern warfare, particularly in the case of international watercourses. Among the many legacies of wars, including the Cold War, is the terrible and long-term pollution of waterways - including transboundary ones.

Water should also not be forgotten in peace settlements or in the reconstruction phase following a conflict. Adequate water is essential for the regeneration of war-torn societies and environments, and its protection can play a role in the prevention of outbreaks of further conflicts in an area following a war or humanitarian disaster. There is always a very complex relation between riparian dispute and interstate conflict. In regions such as the Middle East, Indian Sub-Continent and Nile Basin, where many issues of "high politics", particularly relating to the location of borders, already cause disputes, water disputes can become protracted and caught up in the seemingly unresolvable other matters.

Box 16. The Emerging Nile Basin Initiative: Cautious Optimism

Perhaps for the first time there currently appears to be the genuine political will to achieve a basin-level agreement and framework for long-term cooperation on the part of the ten riparian States of the Nile Basin. In 1992, a new period in the history of cooperation and conflict over the Nile commenced when representatives of all ten States agreed upon a Nile River Basin Action Plan charged with the task of developing a cooperative scheme for the management of the Nile. The diverging interests and differing capabilities of the basin States, five of which are among the world's ten poorest nations, makes the process of devising a framework for a convention which would be acceptable to each State inevitably slow, but the agreement to work towards a shared vision of equitable use is already a major achievement.

In 1999 the Nile Basin Initiative was launched, with the membership of all basin states except Eritrea, and negotiations continue to explore possible strategies for joint water management and to formulate a suitable and accepted permanent agreement on cooperation in the Nile Basin. The international community, particularly the World Bank, UNDP and the Canadian International Development Agency, is very supportive of this initiative. The process is ongoing, and necessarily will take time, but the transitional institutional arrangements of the NBI, aimed at strengthening cooperation, will hopefully already provide for greater security throughout the region and a decline in inter-state tensions, as well as improved availability of water for all.

See Annex XI

Water disputes in such areas may persist due to other political and territorial conflicts rather than the fact that differences over water itself are irreconcilable.

Water is rarely the cause of war, but it can be a factor in them and an element in their resolution. It is important that due consideration be shown to water in peace agreements and in post-war reconstruction.

It is widely believed that solving issues such as transboundary water arrangements cannot solve the political conflicts. It is also widely believed that it is the absence of good-will and genuine political commitment that prevents the issue of shared water from being addressed and resolved. Again, a realist approach is the most appropriate. Rather than leave water out of the mainstream negotiations, or refrain from addressing the subject until the other problems are resolved, water could be seen as a first step towards reconciliation and peace. Strengthened and recognised river basin authorities, and other international and regional bodies, could play an important dispute settlement function in the future.

Water is rarely the cause of war, but it can be a factor in them and an element in their resolution. It is important that due consideration be shown to water in peace agreements and in post-war reconstruction, rather than it being "sacrificed" or neglected as a low priority. Water is a highly strategic resource, the location and control of which plays a role in international relations at all levels, often very discretely. If regional conflicts are to be prevented, water should not be ignored in their negotiations. The resolution of water-related disputes can only help towards the amelioration of conflicts relating to territory, recognition or any other "high politics" issue.

Both within and between states, cooperation in water management and the consideration for all water users has the potential to be an important unifying force. Fragmented attempts at resolving water disputes, which exclude other basin states or important sectors of water-users, have seriously compromised chances of achieving long-term solutions. Examples of such attempts are all too common, including the 1994 peace agreement between Israel and Jordan, which left out the Palestinians, Lebanon and Syria, and the 1959 agreement between Egypt and Sudan over the Aswan High Dam which ignored all other Nile riparian states, most importantly Ethiopia. There is no greater cause of fear, and perceived threat to national sovereignty, than that felt by a nation totally excluded from negotiations which effect them. Transparency and openness are the surest means towards the build-up of confidence and trust necessary for international agreements to share resources according to a common and sustainable vision.

Fragmented attempts at resolving water disputes, which exclude other basin states or important sectors of water-users, have seriously compromised chances of achieving long-term solutions.

14. Principles and Proposals

Water Sharing Principles:

- Everybody should have access to their basic entitlement to clean water - which is a human right.
- Water has many values: cultural, environmental, economic, aesthetic.
- Water involves ethical as well as technical questions.
- The cultural diversity of peoples in a basin should be accepted and safeguarded.
- Stakeholder participation at all levels must be recognised as essential.
- Information sharing and transparency are a necessary condition of joint water management.
- Water is a limited resource.
- Water must be used efficiently.
- User-pays; Polluter-pays.
- Water demand management should be promoted as a potential and sustainable means of increasing water-supply.
- Irreversible contamination, depletion and destruction of watercourses must be absolutely avoided. This applies particularly to transboundary groundwaters.

Proposals:

At the International Level:

- The universal acknowledgement that a basic supply of water to allow a healthy lifestyle is a fundamental human right.
- The ratification of the UN Convention on the Law of the Non-Navigational Uses of International Watercourses. This would not only contribute to the universal application of the principles of equitable utilisation and the obligation not to cause significant harm, but would be a gesture of goodwill and indicate a high level of dedication to resolving the question of international watercourses. Political will is vital to the process of resolving and preventing conflict over water, the ratification of the Convention would help remove the misplaced suspicion of many states by providing a stable framework within which each basin could operate. The fact that the most important international basins all contain some states which approved the Convention and some which opposed or abstained, suggests that, until ratification, it could be the cause of more rather than less mistrust between riparians.
- The strengthening of the role of international organisations. Currently 26 United Nations Agencies are involved in some respect with water. There is clearly a need for more coordination and rationalisation of Agencies in their support and financing of projects. Where International institutions have been dedicated to helping basin states to manage international watercourses, such as the World Bank over the Indus, UNEP over the Zambezi and UNDP over the Mekong, the results have been positive and such efforts should be continued and increased.
- International funding bodies should continue to become more responsible. The funding of large engineering projects on international waterways should be undertaken only after serious consideration for the people and environment of the entire basin. Funding for such projects should be withheld until all basin states have been consulted.

- The inclusion of certain, or certain sections of, international watercourses in UNESCO's list of World Heritage Sites. This could include sites spanning across national borders.
- The "sanctuarisation" of international watercourses in order to better protect them in times of warfare.
- The increased use of subtle diplomatic dispute settlement mechanisms. This could include: information sharing; the creation of a roster of international experts; fact finding missions; scientific assessments; and the creation of independent assessment teams. Note should be taken of the availability of the good offices of the Fact-Finding Commission facilities of the 1997 UN Convention, when it comes into force. Having and sharing information is already a form of dispute settlement and conflict prevention.
- The establishment of an International Fund for Water, for use in cooperative basin development and in times of emergencies.
- The establishment of a neutral International Forum for the resolution and mediation of international water conflicts, including the position of an "International Watercourses Ombudsman". In the past, third-party States have often acted as mediators in water disputes to good effect. The creation of a highly respected, neutral, international forum would remove the distrust which sometimes surrounds the involvement of (perhaps not entirely neutral) other states and provide more consistent decisions. This Forum would be involved in the identification and prevention of potential conflicts, as well as their resolution, and could be instrumental in developing a sophisticated system of water-conflict analysis which would assist in anticipating future disputes.

At the International Basin Level:

- The promotion of any initiative which helps to create a climate of confidence, trust and favourable political will among the states in a basin.
- Acceptance on the part of States that national sovereignty is limited by the respect for the sovereignty and rights of others.
- The creation of integrated River Basin Authorities to oversee the interests of all states, peoples and ecosystems in the basin. Many existing Agreements omit some Basin states: to be effective all states must be equal members.
- Regional commitment to and respect for the various needs of all cultures and peoples in the basin. Efforts to involve as wide a portion of stakeholders as possible at all levels.
- The opening up of communications between states, including dialogue between different interest groups, minorities, and local people immediately on either side of state boundaries.
- Active dedication to improving the status of women in water-related negotiations. Increased representation and encouraged participation of women in all regional water committees and activities.
- Regional negotiations to address the question of food security, as opposed to food self-sufficiency.
- The encouragement of economic cooperation to encourage the more efficient use of the waters of a basin. The trade in food, flood control schemes, hydropower and other water-related goods and services can help alleviate the effects of uneven water supplies between riparians and prevent water being used for purposes which can be supplied more efficiently and sustainably elsewhere in the basin. Greater interdependence can also encourage better relations and cooperation between states as it creates a situation where everyone has too much at stake to risk conflict.

At the National Level:

- National "Clean Water Acts" as a starting point and expression of commitment to better water management.
- The review of existing water laws following the principle of the basin as the unit of administration and protection and the desire for more local-level and public participation. The decentralisation of water policy-making in order to increase the role of local authorities and involve as many concerned people as possible.
- The establishment of high-level Government representation dedicated to water issues to raise the profile of and prioritise water on Government agendas and allow for more senior level negotiation between States. This would also serve to separate water from other sectors, particularly avoiding the automatic association of water and agriculture (and sometimes energy) which frequently occurs at the Government level, resulting in equal attention being given to all uses of water.
- Acceptance of Governmental responsibility for the supply of basic human and environmental water needs, ideally through an addition or amendment to the Constitution or similar instrument. This should include the recognition that water, and environmental degeneration, are matters of state security which cannot be overlooked and shortcomings should therefore be pre-empted. In order to meet these responsibilities, Governments should follow the example of several water-stressed states and formulate comprehensive long-term strategies for addressing future water needs.
- In relation to the above forward planning, it is crucial that assessments be made of present and future water resources and trends, taking projections of climate and demographic changes into account.
- Regarding international basins, the above suggestions for stronger national water policy should of course apply equally to shared watercourses, with the inclusion of inter-state cooperation, and membership and dedication to regional basin-orientated schemes.

At the Local Level:

- Greater communication and representation between those with the money and the power and those who will be directly affected by changes in water policy or big water projects. Participation of all stakeholders to act as a balance to the power of the private sector. Water should come to play a key role in the democracy-building process and illustrate how a broad-based participatory approach can engender more sustainable and stable projects. The democratic process, however, is not enough on its own.
- Strengthening of the link between education, awareness, confidence building and water. Local level conflict over water, which can also be of a transboundary nature across internal or international boundaries, can be greatly reduced by better understanding and more efficient practices. Demand-management rather than continuously increasing water supply should be pursued.

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Annex I

United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses

The Parties to the present Convention,

Conscious of the importance of international watercourses and the non-navigational uses thereof in many regions of the world,

Having in mind Article 13, paragraph 1 (a), of the Charter of the United Nations, which provides that the General Assembly shall initiate studies and make recommendations for the purpose of encouraging the progressive development of international law and its codification,

Considering that successful codification and progressive development of rules of international law regarding non-navigational uses of international watercourses would assist in promoting and implementing the purposes and principles set forth in Articles 1 and 2 of the Charter of the United Nations,

Taking into account the problems affecting many international watercourses resulting from, among other things, increasing demands and pollution,

Expressing the conviction that a framework convention will ensure the utilization, development, conservation, management and protection of international watercourses and the promotion of the optimal and sustainable utilization thereof for present and future generations,

Affirming the importance of international cooperation and good-neighborliness in this field,

Aware of the special situation and needs of developing countries,

Recalling the principles and recommendations adopted by the United Nations Conference on Environment and Development of 1992 in the Rio Declaration and Agenda 21,

Recalling also the existing bilateral and multilateral agreements regarding the non-navigational uses of international watercourses,

Mindful of the valuable contribution of international organizations, both governmental and non-governmental, to the codification and progressive development of international law in this field,

Appreciative of the work carried out by the International Law Commission on the law of the non-navigational uses of international watercourses,

Bearing in mind United Nations General Assembly resolution 49/52 of December 9, 1994,

Have agreed as follows:

PART I. INTRODUCTION

ARTICLE 1

Scope of the present Convention

1. The present Convention applies to uses of international watercourses and of their waters for purposes other than navigation and to measures of protection, preservation and management related to the uses of those watercourses and their waters.
2. The uses of international watercourses for navigation is not within the scope of the present Convention except insofar as other uses affect navigation or are affected by navigation.

ARTICLE 2

Use of terms

For the purposes of the present Convention:

- (a) "Watercourse" means a system of surface waters and groundwaters constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus;
- (b) "International watercourse" means a watercourse, parts of which are situated in different States;
- (c) "Watercourse State" means a State Party to the present Convention in whose territory part of an international watercourse is situated, or a Party that is a regional economic integration organization, in the territory of one or more of whose Member States part of an international watercourse is situated;
- (d) "Regional economic integration organization" means an organization constituted by sovereign States of a given region, to which its member States have transferred competence in respect of matters governed by this Convention and which has been duly authorized in accordance with its internal procedures, to sign, ratify, accept, approve or accede to it.

ARTICLE 3

Watercourse agreements

1. In the absence of an agreement to the contrary, nothing in the present Convention shall affect the rights or obligations of a watercourse State arising from agreements in force for it on the date on which it became a party to the present Convention.
2. Notwithstanding the provisions of paragraph 1, parties to agreements referred to in paragraph 1 may, where necessary, consider harmonizing such agreements with the basic principles of the present Convention.
3. Watercourse States may enter into one or more agreements, hereinafter referred to as "watercourse agreements", which apply and adjust the provisions of the present Convention to the characteristics and uses of a particular international watercourse or part thereof.
4. Where a watercourse agreement is concluded between two or more watercourse States, it shall define the waters to which it applies. Such an agreement may be entered into with respect to an entire international watercourse or any part thereof or a particular project, programme or use except insofar as the agreement adversely affects, to a significant extent, the use by one or more other watercourse States of the waters of the watercourse, without their express consent.

5. Where a watercourse State considers that adjustment and application of the provisions of the present Convention is required because of the characteristics and uses of a particular international watercourse, watercourse States shall consult with a view to negotiating in good faith for the purpose of concluding a watercourse agreement or agreements.
6. Where some but not all watercourse States to a particular international watercourse are parties to an agreement, nothing in such agreement shall affect the rights or obligations under the present Convention of watercourse States that are not parties to such an agreement.

ARTICLE 4

Parties to watercourse agreements

1. Every watercourse State is entitled to participate in the negotiation of and to become a party to any watercourse agreement that applies to the entire international watercourse, as well as to participate in any relevant consultations.
2. A watercourse State whose use of an international watercourse may be affected to a significant extent by the implementation of a proposed watercourse agreement that applies only to a part of the watercourse or to a particular project, programme or use is entitled to participate in consultations on such an agreement and, where appropriate, in the negotiation thereof in good faith with a view to becoming a party thereto, to the extent that its use is thereby affected.

PART II. GENERAL PRINCIPLES

ARTICLE 5

Equitable and reasonable utilization and participation

1. Watercourse States shall in their respective territories utilize an international watercourse in an equitable and reasonable manner. In particular, an international watercourse shall be used and developed by watercourse States with a view to attaining optimal and sustainable utilization thereof and benefits therefrom, taking into account the interests of the watercourse States concerned, consistent with adequate protection of the watercourse.
2. Watercourse States shall participate in the use, development and protection of an international watercourse in an equitable and reasonable manner. Such participation includes both the right to utilize the watercourse and the duty to cooperate in the protection and development thereof, as provided in the present Convention.

ARTICLE 6

Factors relevant to equitable and reasonable utilization

1. Utilization of an international watercourse in an equitable and reasonable manner within the meaning of article 5 requires taking into account all relevant factors and circumstances, including:
 - (a) Geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character;
 - (b) The social and economic needs of the watercourse States concerned;
 - (c) The population dependent on the watercourse in each watercourse State;
 - (d) The effects of the use or uses of the watercourses in one watercourse State on other watercourse States;
 - (e) Existing and potential uses of the watercourse;
 - (f) Conservation, protection, development and economy of use of the water resources

of the watercourse and the costs of measures taken to that effect;

- (g) The availability of alternatives, of comparable value, to a particular planned or existing use.
2. In the application of article 5 or paragraph 1 of this article, watercourse States concerned shall, when the need arises, enter into consultations in a spirit of cooperation.
 3. The weight to be given to each factor is to be determined by its importance in comparison with that of other relevant factors. In determining what is a reasonable and equitable use, all relevant factors are to be considered together and a conclusion reached on the basis of the whole.

ARTICLE 7

Obligations not to cause significant harm

1. Watercourse States shall, in utilizing an international watercourse in their territories, take all appropriate measures to prevent the causing of significant harm to other watercourse States.
2. Where significant harm nevertheless is caused to another watercourse State, the States whose use causes such harm shall, in the absence of agreement to such use, take all appropriate measures, having due regard for the provisions of articles 5 and 6, in consultation with the affected State, to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation.

ARTICLE 8

General obligation to cooperate

1. Watercourse States shall cooperate on the basis of sovereign equality, territorial integrity, mutual benefit and good faith in order to attain optimal utilization and adequate protection of an international watercourse.
2. In determining the manner of such cooperation, watercourse States may consider the establishment of joint mechanisms or commissions, as deemed necessary by them, to facilitate cooperation on relevant measures and procedures in the light of experience gained through cooperation in existing joint mechanisms and commissions in various regions.

ARTICLE 9

Regular exchange of data and information

1. Pursuant to article 8, watercourse States shall on a regular basis exchange readily available data and information on the condition of the watercourse, in particular that of a hydrological, meteorological, hydrogeological and ecological nature and related to the water quality as well as related forecasts.
2. If a watercourse State is requested by another watercourse State to provide data or information that is not readily available, it shall employ its best efforts to comply with the request but may condition its compliance upon payment by the requesting State of the reasonable costs of collecting and, where appropriate, processing such data or information.
3. Watercourse States shall employ their best efforts to collect and, where appropriate, to process data and information in a manner which facilitates its utilization by the other watercourse States to which it is communicated.

ARTICLE 10

Relationship between different kinds of uses

1. In the absence of agreement or custom to the contrary, no use of an international watercourse enjoys inherent priority over other uses.

2. In the event of a conflict between uses of an international watercourse, it shall be resolved with reference to articles 5 to 7, with special regard being given to the requirements of vital human needs.

PART III. PLANNED MEASURES

ARTICLE 11

Information concerning planned measures

Watercourse States shall exchange information and consult each other and, if necessary, negotiate on the possible effects of planned measures on the condition of an international watercourse.

ARTICLE 12

Notification concerning planned measures with possible adverse effects

Before a watercourse State implements or permits the implementation of planned measures which may have a significant adverse effect upon other watercourse States, it shall provide those States with timely notification thereof. Such notification shall be accompanied by available technical data and information, including the results of any environmental impact assessment, in order to enable the notified States to evaluate the possible effects of the planned measures.

ARTICLE 13

Period for reply to notification

Unless otherwise agreed:

- (a) A watercourse State providing a notification under article 12 shall allow the notified States a period of six months within which to study and evaluate the possible effects of the planned measures and to communicate the findings to it;
- (b) This period shall, at the request of a notified State for which the evaluation of the planned measures poses special difficulty, be extended for a period of six months.

ARTICLE 14

Obligations of the notifying State during the period for reply

During the period referred to in article 13, the notifying State:

- (a) Shall cooperate with the notified States by providing them, on request, with any additional data and information that is available and necessary for an accurate evaluation; and
- (b) Shall not implement or permit the implementation of the planned measures without the consent of the notified States.

ARTICLE 15

Reply to notification

The notified States shall communicate their findings to the notifying State as early as possible within the period applicable pursuant to article 13. If a notified State finds that implementation of the planned measures would be inconsistent with the provisions of articles 5 or 7, it shall attach to its finding a documented explanation setting forth the reasons for the finding.

Article 16*Absence of reply to notification*

1. If, within the period applicable pursuant to article 13, the notifying State receives no communication under article 15, it may, subject to its obligations under articles 5 and 7, proceed with the implementation of the planned measures, in accordance with the notification and any other data and information provided to the notified States.
2. Any claim to compensation by a notified State which has failed to reply within the period applicable pursuant to article 13 may be offset by the costs incurred by the notifying State for action undertaken after the expiration of the time for a reply which would not have been undertaken if the notified State had objected within that period.

ARTICLE 17*Consultations and negotiations concerning planned measures*

1. If a communication is made under article 15 that implementation of the planned measures would be inconsistent with the provisions of articles 5 or 7, the notifying State and the State making the communication shall enter into consultations and, if necessary, negotiations with a view to arriving at an equitable resolution of the situation.
2. The consultations and negotiations shall be conducted on the basis that each State must in good faith pay reasonable regard to the rights and legitimate interests of the other State.
3. During the course of the consultations and negotiations, the notifying State shall, if so requested by the notified State at the time it makes the communication, refrain from implementing or permitting the implementation of the planned measures for a period of six months unless otherwise agreed.

ARTICLE 18*Procedures in the absence of notification*

1. If a watercourse State has reasonable grounds to believe that another watercourse State is planning measures that may have a significant adverse effect upon it, the former State may request the latter to apply the provisions of article 12. The request shall be accompanied by a documented explanation setting forth its grounds.
2. In the event that the State planning the measures nevertheless finds that it is not under an obligation to provide a notification under article 12, it shall so inform the other State, providing a documented explanation setting forth the reasons for such finding. If this finding does not satisfy the other State, the two States shall, at the request of that other State, promptly enter into consultations and negotiations in the manner indicated in paragraphs 1 and 2 of article 17.
3. During the course of the consultations and negotiations, the State planning the measures shall, if so requested by the other State at the time it requests the initiation of consultations and negotiations, refrain from implementing or permitting the implementation of those measures for a period of six months unless otherwise agreed.

ARTICLE 19*Urgent implementation of planned measures*

1. In the event that the implementation of planned measures is of the utmost urgency in order to protect public health, public safety or other equally important interests, the State planning the measures may, subject to articles 5 and 7, immediately proceed to implementation, notwithstanding the provisions of article 14 and paragraph 3 of article 17.

2. In such case, a formal declaration of the urgency of the measures shall be communicated without delay to the other watercourse States referred to in article 12 together with the relevant data and information.
3. The State planning the measures shall, at the request of any of the States referred to in paragraph 2, promptly enter into consultations and negotiations with it in the manner indicated in paragraphs 1 and 2 of article 17.

PART IV. PROTECTION, PRESERVATION AND MANAGEMENT**ARTICLE 20***Protection and preservation of ecosystems*

Watercourse States shall, individually and, where appropriate, jointly, protect and preserve the ecosystems of international watercourses.

ARTICLE 21*Prevention, reduction and control of pollution*

1. For the purpose of this article, "pollution of an international watercourse" means any detrimental alteration in the composition or quality of the waters of an international watercourse which results directly or indirectly from human conduct.
2. Watercourse States shall, individually and, where appropriate, jointly, prevent, reduce and control the pollution of an international watercourse that may cause significant harm to other watercourse States or to their environment, including harm to human health or safety, to the use of the waters for any beneficial purpose or to the living resources of the watercourse. Watercourse States shall take steps to harmonize their policies in this connection.
3. Watercourse States shall, at the request of any of them, consult with a view to arriving at mutually agreeable measures and methods to prevent, reduce and control pollution of an international watercourse, such as:
 - (a) Setting joint water quality objectives and criteria;
 - (b) Establishing techniques and practices to address pollution from point and non-point sources;
 - (c) Establishing lists of substances the introduction of which into the waters of an international watercourse is to be prohibited, limited, investigated or monitored.

ARTICLE 22*Introduction of alien or new species*

Watercourse States shall take all measures necessary to prevent the introduction of species, alien or new, into an international watercourse which may have effects detrimental to the ecosystem of the watercourse resulting in significant harm to other watercourse States.

ARTICLE 23*Protection and preservation of the marine environment*

Watercourse States shall, individually and, where appropriate, in cooperation with other States, take all measures with respect to an international watercourse that are necessary to protect and preserve the marine environment, including estuaries, taking into account generally accepted international rules and standards.

ARTICLE 24*Management*

1. Watercourse States shall, at the request of any of them, enter into consultations concerning the management of an international watercourse, which may include the establishment of a joint management mechanism.
2. For the purposes of this article, "management" refers, in particular, to:
 - (a) Planning the sustainable development of an international watercourse and providing for the implementation of any plans adopted; and
 - (b) Otherwise promoting the rational and optimal utilization, protection and control of the watercourse.

ARTICLE 25*Regulation*

1. Watercourse States shall cooperate, where appropriate, to respond to needs or opportunities for regulation of the flow of the waters of an international watercourse.
2. Unless otherwise agreed, watercourse States shall participate on an equitable basis in the construction and maintenance or defrayal of the costs of such regulation works as they may have agreed to undertake.
3. For the purposes of this article, "regulation" means the use of hydraulic works or any other continuing measure to alter, vary or otherwise control the flow of the waters of an international watercourse.

ARTICLE 26*Installations*

1. Watercourse States shall, within their respective territories, employ their best efforts to maintain and protect installations, facilities and other works related to an international watercourse.
2. Watercourse States shall, at the request of any of them which has reasonable grounds to believe that it may suffer significant adverse effects, enter into consultations with regard to:
 - (a) The safe operation and maintenance of installations, facilities or other works related to an international watercourse; and
 - (b) The protection of installations, facilities or other works from wilful or negligent acts or the forces of nature.

PART V. HARMFUL CONDITIONS AND EMERGENCY SITUATIONS**ARTICLE 27***Prevention and mitigation of harmful conditions*

Watercourse States shall, individually and, where appropriate, jointly, take all appropriate measures to prevent or mitigate conditions related to an international watercourse that may be harmful to other watercourse States, whether resulting from natural causes or human conduct, such as flood or ice conditions, water-borne diseases, siltation, erosion, salt-water intrusion, drought or desertification.

ARTICLE 28*Emergency situations*

1. For the purpose of this article, "emergency" means a situation that causes, or poses an imminent threat of causing, serious harm to watercourse States or other States and

that results suddenly from natural causes, such as floods, the breaking up of ice, landslides or earthquakes, or from human conduct, such as industrial accidents.

2. A watercourse State shall, without delay and by the most expeditious means available, notify other potentially affected States and competent international organizations of any emergency originating within its territory.
3. A watercourse State within whose territory an emergency originates shall, in cooperation with potentially affected States and, where appropriate, competent international organizations, immediately take all practicable measures necessitated by the circumstances to prevent, mitigate and eliminate harmful effects of the emergency.
4. When necessary, watercourse States shall jointly develop contingency plans for responding to emergencies, in cooperation, where appropriate, with other potentially affected States and competent international organizations.

PART VI. MISCELLANEOUS PROVISIONS**ARTICLE 29***International watercourses and installations in time of armed conflict*

International watercourses and related installations, facilities and other works shall enjoy the protection accorded by the principles and rules of international law applicable in international and non-international armed conflict and shall not be used in violation of those principles and rules.

ARTICLE 30*Indirect procedures*

In cases where there are serious obstacles to direct contacts between watercourse States, the States concerned shall fulfil their obligations of cooperation provided for in the present Convention, including exchange of data and information, notification, communication, consultations and negotiations, through any indirect procedure accepted by them.

ARTICLE 31*Data and information vital to national defence or security*

Nothing in the present Convention obliges a watercourse State to provide data or information vital to its national defence or security. Nevertheless, that State shall cooperate in good faith with the other watercourse States with a view to providing as much information as possible under the circumstances.

ARTICLE 32*Non-discrimination*

Unless the watercourse States concerned have agreed otherwise for the protection of the interests of persons, natural or juridical, who have suffered or are under a serious threat of suffering significant transboundary harm as a result of activities related to an international watercourse, a watercourse State shall not discriminate on the basis of nationality or residence or place where the injury occurred, in granting to such persons, in accordance with its legal system, access to judicial or other procedures, or a right to claim compensation or other relief in respect of significant harm caused by such activities carried on in its territory.

ARTICLE 33*Settlement of disputes*

1. In the event of a dispute between two or more Parties concerning the interpretation or application of the present Convention, the Parties concerned shall, in the absence of an applicable agreement between them, seek a settlement of the dispute by peaceful means in accordance with the following provisions.
2. If the parties concerned cannot reach agreement by negotiation requested by one of them, they may jointly seek the good offices of, or request mediation or conciliation by, a third party, or make use, as appropriate, of any joint watercourse institutions that may have been established by them or agree to submit the dispute to arbitration or to the International Court of Justice.
3. Subject to the operation of paragraph 10, if after six months from the time of the request for negotiations referred to in paragraph 2, the Parties concerned have not been able to settle their dispute through negotiation or any other means referred to in paragraph 2, the dispute shall be submitted, at the request of any of the parties to the dispute, to impartial fact-finding in accordance with paragraphs 4 to 9, unless the Parties otherwise agree.
4. A Fact-finding Commission shall be established, composed of one member nominated by each Party concerned and in addition a member not having the nationality of any of the Parties concerned chosen by the nominated members who shall serve as Chairman.
5. If the members nominated by the Parties are unable to agree on a Chairman within three months of the request for the establishment of the Commission, any Party concerned may request the Secretary-General of the United Nations to appoint the Chairman who shall not have the nationality of any of the parties to the dispute or of any riparian State of the watercourse concerned. If one of the Parties fails to nominate a member within three months of the initial request pursuant to paragraph 3, any other Party concerned may request the Secretary-General of the United Nations to appoint a person who shall not have the nationality of any of the parties to the dispute or of any riparian State of the watercourse concerned. The person so appointed shall constitute a single-member Commission.
6. The Commission shall determine its own procedure.
7. The Parties concerned have the obligation to provide the Commission with such information as it may require and, on request, to permit the Commission to have access to their respective territory and to inspect any facilities, plant, equipment, construction or natural feature relevant for the purpose of its inquiry.
8. The Commission shall adopt its report by a majority vote, unless it is a single-member Commission, and shall submit that report to the Parties concerned setting forth its findings and the reasons therefor and such recommendations as it deems appropriate for an equitable solution of the dispute, which the Parties concerned shall consider in good faith.
9. The expenses of the Commission shall be borne equally by the Parties concerned.
10. When ratifying, accepting, approving or acceding to the present Convention, or at any time thereafter, a Party which is not a regional economic integration organization may declare in a written instrument submitted to the Depository that, in respect of any dispute not resolved in accordance with paragraph 2, it recognizes as compulsory ipso facto and without special agreement in relation to any Party accepting the same obligation:
 - (a) Submission of the dispute to the International Court of Justice; and/or
 - (b) Arbitration by an arbitral tribunal established and operating, unless the parties to the dispute otherwise agreed, in accordance with the procedure laid down in the annex to the present Convention.
 A Party which is a regional economic integration organization may make a declaration with like effect in relation to arbitration in accordance the subparagraph (b).

PART VII. FINAL CLAUSES**ARTICLE 34***Signature*

The present Convention shall be open for signature by all States and by regional economic integration organizations from 21 May 1997 until 20 May 2000 at United Nations Headquarters in New York.

ARTICLE 35*Ratification, acceptance, approval or accession*

1. The present Convention is subject to ratification, acceptance, approval or accession by States and by regional economic integration organizations. The instruments of ratification, acceptance, approval or accession shall be deposited with the Secretary-General of the United Nations.
2. Any regional economic integration organization which becomes a Party to this Convention without any of its member States being a Party shall be bound by all the obligations under the Convention. In the case of such organizations, one or more of whose member States is a Party to this Convention, the organization and its member States shall decide on their respective responsibilities for the performance of their obligations under the Convention. In such cases, the organization and the member States shall not be entitled to exercise rights under the Convention concurrently.
3. In their instruments of ratification, acceptance, approval or accession, the regional economic integration organizations shall declare the extent of their competence with respect to the matters governed by the Convention. These organizations shall also inform the Secretary-General of the United Nations of any substantial modification in the extent of their competence.

ARTICLE 36*Entry into force*

1. The present Convention shall enter into force on the ninetieth day following the date of deposit of the thirty-fifth instrument of ratification, acceptance, approval or accession with the Secretary-General of the United Nations.
2. For each State or regional economic integration organization that ratifies, accepts or approves the Convention or accedes thereto after the deposit of the thirty-fifth instrument of ratification, acceptance, approval or accession, the Convention shall enter into force on the ninetieth day after the deposit by such State or regional economic integration organization of its instrument of ratification, acceptance, approval or accession.
3. For the purposes of paragraphs 1 and 2, any instrument deposited by a regional economic integration organization shall not be counted as additional to those deposited by States.

ARTICLE 37*Authentic texts*

The original of the present Convention, of which the Arabic, Chinese, English, French, Russian and Spanish texts are equally authentic, shall be deposited with the Secretary-General of the United Nations.

IN WITNESS WHEREOF the undersigned plenipotentiaries, being duly authorized thereto, have signed this Convention.

DONE at New York, this 21st day of May one thousand nine hundred and ninety-seven.

ANNEX ARBITRATION

ARTICLE 1

Unless the parties to the dispute otherwise agree, the arbitration pursuant to article 33 of the Convention shall take place in accordance with articles 2 to 14 of the present annex.

ARTICLE 2

The claimant party shall notify the respondent party that it is referring a dispute to arbitration pursuant to Article 33 of the Convention. The notification shall state the subject matter of arbitration and include, in particular, the articles of the Convention, the interpretation or application of which are at issue. If the parties do not agree on the subject matter of the dispute, the arbitral tribunal shall determine the subject matter.

ARTICLE 3

1. In disputes between two parties, the arbitral tribunal shall consist of three members. Each of the parties to the dispute shall appoint an arbitrator and the two arbitrators so appointed shall designate by common agreement the third arbitrator, who shall be the Chairman of the tribunal. The latter shall not be a national of one of the parties to the dispute or of any riparian State of the watercourse concerned, nor have his or her usual place of residence in the territory of one of these parties or such riparian State, nor have dealt with the case in any other capacity.
2. In disputes between more than two parties, parties in the same interest shall appoint one arbitrator jointly by agreement.
3. Any vacancy shall be filled in the manner prescribed for the initial appointment.

ARTICLE 4

1. If the Chairman of the arbitral tribunal has not been designated within two months of the appointment of the second arbitrator, the President of the International Court of Justice shall, at the request of a party, designate the Chairman within a further two-month period.
2. If one of the parties to the dispute does not appoint an arbitrator within two months of the receipt of the request, the other party may inform the President of the International Court of Justice, who shall make the designation within a further two-month period.

ARTICLE 5

The arbitral tribunal shall render its decisions in accordance with the provisions of this Convention and international law.

ARTICLE 6

Unless the parties to the dispute otherwise agree, the arbitral tribunal shall determine its own rules of procedure.

ARTICLE 7

The arbitral tribunal may, at the request of one of the Parties, recommend essential interim measures of protection.

ARTICLE 8

1. The parties to the dispute shall facilitate the work of the arbitral tribunal and, in particular, using all means at their disposal, shall:
 - (a) Provide it with all relevant documents, information and facilities; and
 - (b) Enable it, when necessary, to call witnesses or experts and receive their evidence.
2. The parties and the arbitrators are under an obligation to protect the confidentiality of any information they receive in confidence during the proceedings of the arbitral tribunal.

ARTICLE 9

Unless the arbitral tribunal determines otherwise because of the particular circumstances of the case, the costs of the tribunal shall be borne by the parties to the dispute in equal shares. The tribunal shall keep a record of all its costs, and shall furnish a final statement thereof to the parties.

ARTICLE 10

Any Party that has an interest of a legal nature in the subject matter of the dispute which may be affected by the decisions in the case, may intervene in the proceedings with the consent of the tribunal.

ARTICLE 11

The tribunal may hear and determine counterclaims arising directly out of the subject matter of the dispute.

ARTICLE 12

Decisions both on procedure and substance of the arbitral tribunal shall be taken by a majority vote of its members.

ARTICLE 13

If one of the parties to the dispute does not appear before the arbitral tribunal or fails to defend its case, the other party may request the tribunal to continue the proceedings and to make its award. Absence of a party or a failure of a party to defend its case shall not constitute a bar to the proceedings. Before rendering its final decision, the arbitral tribunal must satisfy itself that the claim is well founded in fact and law.

ARTICLE 14

1. The tribunal shall render its final decision within five months of the date on which it is fully constituted unless it finds it necessary to extend the time limit for a period which should not exceed five more months.
2. The final decision of the arbitral tribunal shall be confined to the subject matter of the dispute and shall state the reasons on which it is based. It shall contain the names of the members who have participated and the date of the final decision. Any member of the tribunal may attach a separate or dissenting opinion to the final decision.
3. The award shall be binding on the parties to the dispute. It shall be without appeal unless the parties to the dispute have agreed in advance to an appellate procedure.
4. Any controversy which may arise between the parties to the dispute as regards the interpretation or manner of implementation of the final decision may be submitted by either party for decision to the arbitral tribunal which rendered it.

Annex II

The Ganges River - Water Sharing Arrangements

The Ganges-Brahmaputra-Meghna Basin, which is home to more than 300 million people and includes several major river systems, is one of the most densely populated and complex basins in the world. Although it is shared by India, Bangladesh, Nepal, China, Bhutan and Myanmar, the dispute over the water of the Ganges Basin has been primarily between India and Bangladesh. The first dispute erupted in 1951 (prior to the emergence of Bangladesh as an independent state), following the decision of India to construct a barrage about ten miles from the borders with Bangladesh. India contended that the barrage was needed to divert water from the Ganges river to the Hooghly river during the dry season so as to flush the silt deposited in the Hooghly and make it navigable, to save the port of Calcutta and counteract the salinity and provide water to Calcutta for irrigation, domestic and municipal purposes. On the other hand Bangladesh contended that the dry season flow of the Ganges constituted the normal basic requirements of Bangladesh for irrigation, domestic, municipal and other uses, and that any decrease in the flow of the Ganges would negatively affect irrigation, decrease water supply, inhibit fishery production, reduce groundwater tables, aggravate salinity and restrict river navigation.

The Farakka Barrage was commissioned on April 21, 1975, following an interim arrangement with Bangladesh announced on April 18, 1975 on the sharing of the waters of the Ganges, which lapsed on May 31, 1975. Bangladesh continued to complain about the barrage and raised the issue at a number of regional and international fora, including the thirty-first session of the United Nations General assembly in 1976. A treaty on the sharing of the waters of the Ganges during the dry season (January to May) was concluded in 1977 and lasted for five years. The treaty was followed by two Memoranda of Understanding which were both short-lived (1982 to 1984, and 1985 to 1988, respectively). A lapse in agreements prevailed during the period 1988 to 1996, and was finally filled by the Ganges Treaty that was signed on December 12, 1996.

The 1996 Treaty lays down a formula for sharing the waters of the Ganges River during the dry season, and also includes an indicative schedule of the available water and the share of each country during ten day periods from January 1 to May 31. The Treaty, which is to last for thirty years, also sets up a Joint Committee to oversee the water sharing arrangements under the Treaty. Although there was not enough water in the Ganges during the dry season of the first year of the Treaty (1997) to meet the shares of both countries under the Treaty, the Treaty worked well during the dry seasons of 1998 and 1999, and there was more water during most of the ten-day periods during those two dry seasons than the Treaty had anticipated.

Despite the low flow of the Ganges during the first year, the Treaty is still considered a major breakthrough. The Treaty is a long-term treaty and has filled a gap of eight years. However, the most important outcome of the Treaty is that it has created a conducive atmosphere for discussing a number of water-related issues between the two countries and reaching an agreement on them. Those issues include the problem of augmentation of the flow of the Ganges River during the dry season (which the two States have been deadlocked over for more than two decades) and the frequent and devastating floods during the monsoon. They also include the Ganges Barrage that Bangladesh is considering building to store the monsoon season flow of the Ganges for use during the dry season. The two countries have also agreed

to take up six shared rivers for which treaties will be discussed. The highest priority is being given to the Teesta River. Thus the Treaty has clearly provided both countries with an opportunity for meaningful cooperation over the Ganges Basin as well as other shared rivers.

Map 1 The Ganges - Brahmaputra Basin



Annex III

The Aral Sea Basin - A Need for Salvation through Cooperation

When the Central Asian Republics gained independence in 1991, the Aral Sea Basin was virtually a biological desert, with the sea itself covering barely half of its former area. The case is particularly interesting in a discussion of national sovereignty as, when the agricultural and general land and water management practices which were largely responsible for the environmental devastation of the Basin were carried out, the Basin was and had long been almost entirely under the dominion of the Soviet Union, whereas the consequences of, and responsibility for solving, the problem would be shared by the five newly independent Republics. Thus, when the extent of the disaster was revealed in 1991, the management, investments and funds from Moscow were gone and the newly independent states were facing economic and political turmoil (in the case of Tajikistan, civil war); the potential for conflict over water was very high. Fortunately the states elected to cooperate in elaborating the necessary institutional and monitoring framework for dealing with water scarcity and to work together to confront the disaster.

Among the repercussions of the major depletion and pollution of water resources were desertification, ecosystem degradation, salination, climate change, loss of agricultural land, loss of livelihood for whole communities, depletion and contamination of drinking water supplies, and serious health problems for the inhabitants of the region, ranging from increased cancer rates, respiratory and heart problems, to higher levels of infant and maternal mortality. Thus the Aral Sea Basin water-management catastrophe is therefore the ultimate example of how all pervasive water issues are; and is a clear indication of the need for widespread cooperation and public participation not only to develop and implement recovery plans, but also to prevent future degradation.

In recognition of the urgent need for action, the five states signed the 1992 Agreement on Cooperation in the Management, Utilisation and Protection of Water Resources in Interstate Sources, and, with the support of UNDP, UNEP, the World Bank, the European Commission and others, developed the comprehensive Aral Sea Basin Program (ASBP) in 1994. Five regional institutions and a series of annual bi- and multi-lateral agreements have been established to reinforce interstate cooperation and to deal with the complex web of issues and points of contention inevitable in a large region containing states and peoples with conflicting water needs. Further integration of all the sectors and actors (local, national, regional, and international) involved, and strengthening of the already effective aspects of the cooperative effort (particularly information sharing and data collecting), should prevent conflict and help with the long and arduous task of reversing 40 years of mismanagement of the Amu Darya and the Syr Darya Rivers.

Each state's sovereignty and access to the precious and fragile water which flows through it is strengthened by cooperation, the only possible salvation from the ecological nightmare which has been inflicted on this region. The recent waning of the ASBP programme needs to be reversed and stimulated back into action before the water crisis reaches irreversible and conflict-arousing proportions. This region is in desperate need of confidence building measures to develop the political and public will necessary to confront the arduous struggle ahead. The extent of the damage to the societies hit by this disaster is such that it will take more than financial assistance and the establishment of committees to achieve real results. It is essential

that the States work together and that each of them involves the people at the local level, using their traditional knowledge of the region and encouraging their participation in the reconstruction process.



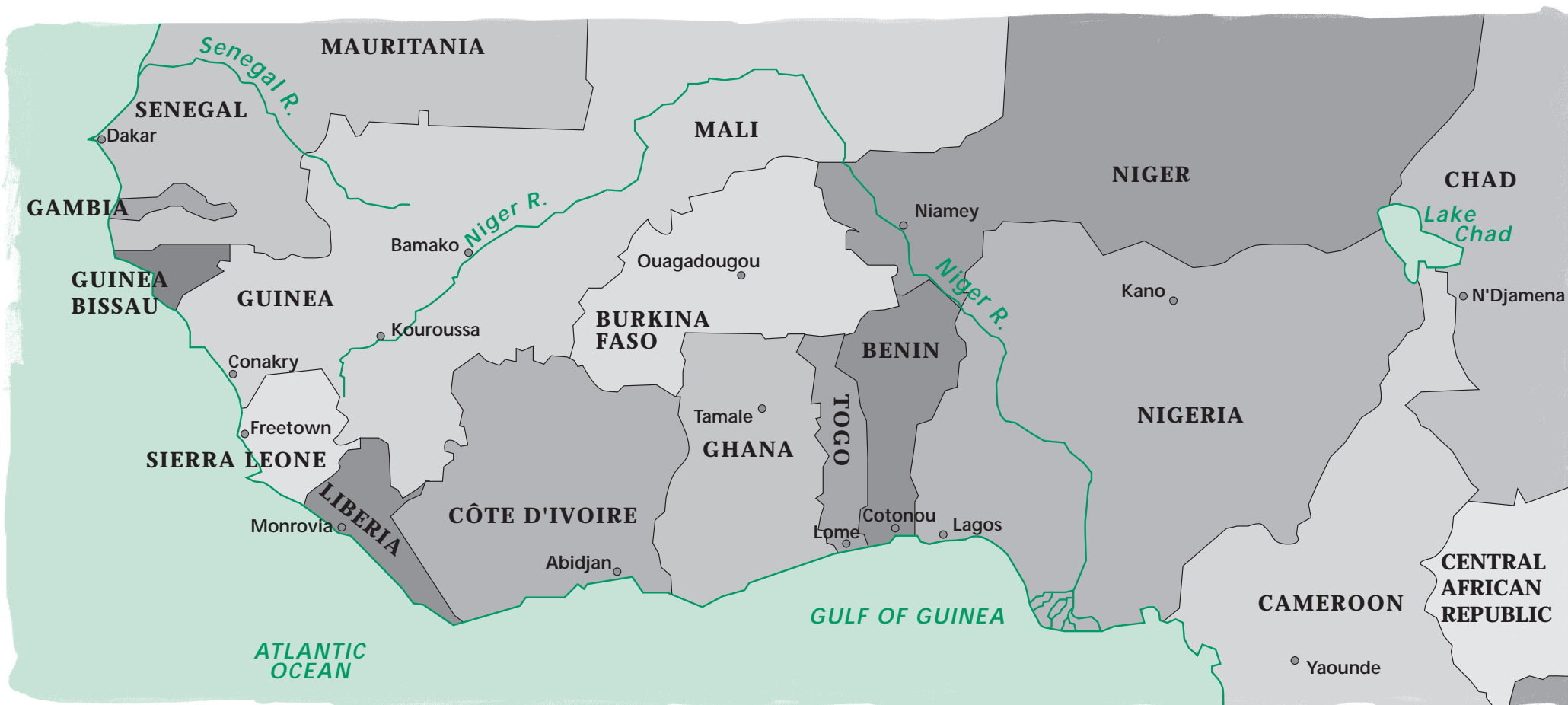
Annex IV

The Senegal River - a Lifeline in the Desert

There have been complex systems of cooperation along the Senegal River since antiquity, long before today's ill-conceived borders divided the drainage basin between nation states, and it remains one of the best examples of cooperation between riparian countries; in this case, Guinea, Mali, Mauritania and Senegal. In the post-colonial era, the management of the river has reverted back to the traditional, more unified approach, with the river seen as the heart of the region rather than as a border between different peoples. However, as a resource the river has never been more heavily exploited, with population and economic growth, coupled with reduced rainfall upstream, increasing the important of, and competition over, the shared waters for the two million inhabitants of the Senegal River Basin.

Prior to colonial domination, the river basin was managed under an integrated and very complex system of ethno-territorial units called "leydi", which operated by coordinating the activities and guaranteeing the rights of the herders, farmers and fishermen in each unit. Under this system, the river is not perceived as a border but is the centre of the integrated management of agricultural resources; and the cumulative rights of the different sectors should not lead to conflict because they are presented as complementary to each other. The principles of the leydi were revived when the newly independent riparian states began their negotiations for the common management of the river in the early 1960s, but problems have arisen due to the incompatibility between the rationales of the modern state system and those of the traditional methods of management of the Senegal. There remain very different sets of spatial and political perceptions between the people at the grass-roots level and the state elites. Tensions therefore exist on two levels, between modern and traditional visions, and based on the different priorities and interests of the riparian states.

Map 3 The Senegal and Niger River Basins



This long and complex inheritance makes the achievements of the Senegal River authorities all the more impressive. From the establishment in 1963 of the Senegal River Inter-State Committee, to the agreement on the international status of the river and reformation into the Organisation pour la Mise en Valeur de Fleuve Sénégal (OMVS) in 1972, the riparian states have shown a willingness to cooperate within a very flexible framework based on the two key principles that: a) each state should have something to gain, and b) no state should be entirely dependent on another for access to the resources of the Senegal. Unfortunately, in 1971, Guinea withdrew from the system and remains reluctant to return (largely due to the fact that its interests and problems relating to the river are different from the more arid down-stream states, and relatively minor).

The record of cooperation on the Senegal River is unfortunately marred by at least one serious water-related conflict, between Mauritania and Senegal in 1988. This conflict is a poignant example of the tensions between the traditional territorial arrangements of the communities in the basin and the recently imposed state boundaries, which in this case is marked by the River Senegal itself. It is also illustrative of the way that even international conflicts can have a very localised character, in this case farmers on different banks of a river forming the frontier between the two States. Thousands of farmers and herders have always used both sides of the river during different seasons of the year, ignoring the state boundaries, but in 1988-89 this system broke down in a series of events which culminated in the massacre of hundreds of Mauritanian and Senegalese people on both sides of the border, the repatriation of over 200,000 people to their respective countries, and even the deployment of troops. The conflict also had ethnic undertones, reviving age-old rivalries between black and Beydane communities in Mauritania, and resulted in the abolition of the titles, and in many cases the deportation to Senegal, of the customary black African land owners along the banks of the River Senegal in favour of the formerly nomadic Beydanes. Diplomatic relations between Mauritania and Senegal have been restored and, as the OMVS was the only administrative structure common to the two states and neighbouring Mali at that time, it helped the countries meet and negotiate the successful and conciliatory sharing of the resources of the Senegal River. The OMVS continues to play a key role in resolving the remaining points of contention between the States and ensuring more predictable and stable accessibility of the river to all the communities reliant upon it.

The main programmes of the OMVS have so far reflected the prime economic interests of the three states (power and irrigation for all, and navigation particularly for land-locked Mali), while concerns for the environment appear for the time-being to be taking a back-seat in negotiations. There have also been financial problems and all major projects have been delayed and down-scaled due to insufficient funding and infrastructure.

Annex V

The Danube River - Water Quality Monitoring

The history of cooperation on the Danube River goes back at least to the establishment of the European Danube Commission in 1846. The 1985 Bucharest Declaration focused on regional cooperation in the field of pollution prevention, and in 1992, the Environmental Program for the Danube Basin (DREP) agreed to establish an operational and regional basis for strategic and integrated environmental management in the basin; but the most important recent development has been the signing of the 1994 Convention on Cooperation for the Protection and Sustainable Use of the River Danube (DRPC) which seeks to incorporate all uses of the river, as well as establish a framework for protecting the ecosystem.

The Danube was divided by the "Iron Curtain" for more than 40 years, the majority of it flowing through centrally controlled, autocratic states whose policies displayed little concern for the environment, resulting in heavy pollution and over exploitation. Even now, the political evolution and economic disparities of the 17 basin countries (Germany, Austria, Slovakia, Hungary, Croatia, Federal Republic of Yugoslavia, Romania, Bulgaria, Ukraine, Moldova, Poland, Italy, Switzerland, Albania, Slovenia, Bosnia Herzegovina and the Czech Republic) makes it difficult to reach common agreements on standards, targets and financial commitments to implement measures and projects for effective pollution reduction and equitable use. Fortunately, one of the main ambitions of many of the central and eastern countries is to join, or at least link with the European Community, necessitating the adoption of European standards for environmental protection in general and water management in particular. The European Commission and UNDP/GEF also provide technical and financial assistance to help states to reach these standards, and to reinforce regional cooperation and a reduction in the trans-boundary effects of pollution in the Danube and wider Black Sea area. This has been insufficient to prevent the recurrence of environmental problems, and even crises in the eastern segment of the Basin. The transition period and changing priorities of the early 1990s did lead to one serious dispute; between Czechoslovakia (later Slovakia) and Hungary over the Gabčíkovo-Nagymaros Dam (see Box 14 of the Report).

The DRPC is useful in that it established the essential administrative and legal mechanisms for inter-regional cooperation and the definition of common goals and measures for the sustainable use of the Danube. It has the dual aims of achieving sustainable development and equitable water management in the basin; quite a challenge when considering that 17 countries, 5 major rivers, and 165 million people pour pollution into the river. The Danube also flows through ten cities of more than 100,000 inhabitants, and its banks are host to countless heavy industries, refineries, chemical plants and irrigation systems. With so much human activity it is important not to forget that the basin is also home to thousands of species, and contains some of Europe's most significant wetland areas as well as the Delta itself, which unfortunately suffers most from the nutrient and pollution build-up. The management of a transboundary resource upon which so much and so many are dependent requires maximum cooperation, integration and participation.

For the present, cooperation on the Danube River is largely confined to water quality monitoring and pollution control, and even this to a limited degree in some areas. The conflicts in the Balkans region during the 1990s has demonstrated that this is insufficient if the Danube is to be truly protected. Yugoslavia, now the Federal Republic of Yugoslavia, has been excluded from agreements since 1991 greatly hindering both quality control and access to

information on this important central section of the River. This has served to even further separate the more affluent states of the upper Danube from Romania and Bulgaria, as it is these latter states which are most adversely effected by the communication and pollution problems caused by conflict in the Balkans. The conflicts have also exposed the lack of any emergency procedures to deal with, for example, the humanitarian and environmental hazards of water pollution caused by the bombing of industrial sites, or with urgent contamination problems.

Despite the diversity of interests, concerns and problems across the Danube basin, the riparian countries share many values and principles relating to the environment and to the conservation of resources. These common ideas constitute the framework of the Strategic Action Plan for the restoration and protection of the Danube River basin. The Plan is the result

binding principles are: the precautionary principle; use of Best Available Techniques/Best Environmental Practice; control of pollution at the source; the polluter-pays principle; regional cooperation; and shared information. There is also agreement regarding the responsible sectors and actors.

All of this must take place in a region in the midst of political, economic and social transition, and whose ethnic and religious tensions are known to inspire nationalistic sentiments which can run contrary to the spirit of regional cooperation. The achievement of co-existence should not be under-estimated, and is a step towards seeing the water and land of the Danube basin as an ecological administrative unit whose efficient and sustainable development and protection would improve the lives of all its inhabitants.



Annex VI

Southern African Development Community – Opportunities to be Gained through Cooperation

SADC is a regional cooperation initiative with extensive coverage of many issues, from trade to forestry. The 14 member states have recognised the benefits to be gained from taking a regional perspective to development on all levels, and in a water scarce region, 70% of whose unevenly distributed surface water is shared by two or more states, it was natural that this should extend to water management. In recognition of the importance of a coordinated approach to the utilisation and preservation of water within an ecosystemic context, the original 11 SADC states signed a Protocol on Shared Watercourse Systems in 1995. To date, two-thirds of the States have ratified the Protocol, thereby allowing it to come into force. The main thrust of the Protocol, which is a legally binding document, is to ensure equitable sharing and conservation of water in the region.

Some of the requirements of states party to this progressive agreement are that they:

- Maintain a proper balance between resource development for a higher standard of living for their peoples and conservation and enhancement of the environment to promote sustainable development.
- Establish River Basin Commissions and River Authorities or Boards between basin states and in respect of each drainage basin, and a central monitoring unit.
- Collect, analyse, store, retrieve, disseminate, exchange and utilise data relevant to the integrated development of the resources within shared watercourse systems and assist member states in the collection and analysis of data in their respective states.
- Stimulate public awareness and participation in the sound management and development of the environment, including human resources development.
- Monitor, control and conduct research into water utilisation, environmental protection, and hydro-electric power installations.
- Settle disputes through the SADC tribunal for adjudication, which has final and binding authority.

SADC water agreements include the Okavango River Basin Commission, the Zambezi Action Plan, and the Limpopo Basin Committee.

With this Protocol, SADC has taken the opportunity offered by the natural partnerships created by shared watercourses to foster yet another area of cooperation between its members. In so doing it establishes still more ties to strengthen its union, which will encourage further cooperation in other areas, and provides a framework for the crucial protection of water supplies and aquatic ecosystems, without prejudicing the sovereign rights of its members. For now the Protocol resembles too strongly the traditional water monitoring agreements and needs reinvigorating and linking to economic development, tourism and other key aspects of SADC's programmes. There is also the need to move from theory to action for SADC to become the strong regional actor that it promises to be in water and other areas. The Water Protocol is currently under review, with the intention being to strengthen the regional commitment to water cooperation and to bring the Protocol in line with the 1997 UN Convention. Hydropolitical tensions linger in many areas of Southern Africa; it is hoped that the states will allow SADC to consolidate and empower itself sufficiently to resolve these problems before any crises erupt.

Map 5 Major Transboundary River Systems in Southern Africa



Annex VII

The Mekong River Basin - Prospects for Cooperation

The Mekong Basin has been an arena of cooperation, competition and conflict for the past several decades. The region was subject to competing superpower influences during the Cold War, which took the form of military conflict in Vietnam and Cambodia, during which period the Mekong River was an axis of division rather than cooperation preventing the implementation of many projects originally proposed during the 1960s. Since the late 1980s there has been an attempt at integration around a proposed regional resource economy, named the "Lower Mekong Subregion" by the Asian Development Bank, consisting of Thailand, Laos, Vietnam and Cambodia. The absence of the official participation of China and Myanmar in basin agreements has and continues to be a major obstacle to the joint management of the Mekong, but despite this the Mekong River Commission (MRC), and its precursors dating back to 1957, provide good examples of long-term cooperation over terrestrial and aquatic resources in an international river basin.

At its inception in 1957, the Mekong Committee was perhaps a truer testament to integrated regional cooperation than it is today, and the first example of UN involvement in a program to develop an international river basin on a scale not hitherto attempted anywhere. Principles of "non-obstruction" by any member state (Vietnam, Thailand, Laos and Cambodia) were enshrined and reiterated in agreements made up until 1975. The Joint Declaration of Principles for Utilisation of the Waters of the Lower Mekong Basin, 1975, stated that "mainstream waters are a resource of common interest not subject to major unilateral appropriation by any riparian State without prior approval by the other Basin States through the Committee" (Article X), and that "The sovereign jurisdiction of a riparian State over mainstream waters is subject to the equal rights of the other riparian States to use these waters" (Article XI). Thus unanimous approval was required for any mainstream project; an unprecedented declaration of interdependence and cooperation. The revised document signed in 1978, following the difficult post-Vietnam War period, the Vietnam-Cambodian War and the withdrawal of Cambodia from the Mekong Committee, signified a retreat from this strong regional commitment to the protection of the rights of all lower riparians to use of the waters of the Mekong. The agreements have been more nationally focused and less integrated ever since.

In 1995 a new Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin was signed by all four lower Mekong riparian states (with China and Myanmar present as observers) in recognition of their desire to "continue to cooperate in a constructive and mutually beneficial manner for sustainable development, utilisation, conservation and management of the Mekong River basin water and related resources". The proposed areas of cooperation include, but are not limited to: "irrigation, hydro-power, navigation, flood control, fisheries, timber floating, recreation and tourism, in a manner to optimise the multiple-use and mutual benefits of all riparians and to minimise the harmful effects that might result from natural occurrences and man-made activities" (Article 1). It also provides for the extension of the Commission to include China and Myanmar. To the frustration of the two most down-stream riparians, Vietnam and Cambodia, it does not however, include any mutually binding clauses concerning the use of the river's resources, and has therefore been accused of undoing what the 1975 agreement accomplished in terms of establishing both a spirit and an obligation for cooperation.

In addition, compared with the previous schemes which had projects to integrate hydro-power, irrigation, navigation and flood control, the new Commission appears to have a "dam-

Map 6 The Mekong River Basin



building agenda" which could potentially threaten the lower, rice-growing regions, including the delta and cause wide-spread and disruptive migration. Public opinion in Thailand has already rallied strongly on several occasions against the large hydro-power projects, with the support of many international organisations. There is also particular tension created by the opposing priorities and agendas of Vietnam, the most down-stream riparian with a heavy dependence on irrigated rice-cultivation, and Thailand, the regional power with the highest energy requirements.

The 1995 Agreement is a living, evolving instrument, which should be responsive to and encourage increased incentives for cooperation (possibly provided with the help of third-party facilitators such as the World Bank, the Asian Development Bank, ASEAN, GEF and UNDP). However, just as political objections have reduced and even blocked foreign aid to Vietnam and Cambodia in the past, current environmental concerns arising from the damming of one of the world's last great rivers are leading to a precautionary stance being taken by many lending institutions. Economic development needs to be sought with greater regard to the ecology of the basin, particularly downstream.

The MRC faces two serious impediments to achieving sustainable cooperation and development of the Mekong basin. The first is the fact that China's water requirements are growing, and China is not only not a member of the MRC, but is also one of only three countries which voted against the 1997 UN Convention. The second is the fact that the Mekong Agreement does not specify any water-allocation quotas. There are however positive signs of increased willingness on the part of the Chinese province of Yunnan to be involved in negotiations, if not actual commitments, which is a positive step towards a Greater Mekong Sub-region containing peoples joined not only by the River but also by common nationalities that live in both Yunnan and Indochina. The Province's involvement would of course not be as representatives of the Central Government of The Peoples' Republic of China, but would indicate another link between the Peoples joined by the Mekong River. In addition, China and Myanmar are both dialogue partners of the MRC, which was established by the 1995 Agreement, and the Global Environment Facility is currently negotiating a grant to be provided directly to the MRC to assist the development of a plan for sharing and utilising the waters of the Mekong River among all six basin states.

Annex VIII

The Mahakali River - Integrated Approach to Water Resources Development

Cooperation between India and Nepal over the Mahakali River, a tributary of the Ganges, started as early as 1920. The Sarada Treaty concluded that year provided for the construction of a barrage and a power station, and authorised Nepal to use some of the waters of the Mahakali for irrigation purposes. In 1991 another agreement over the Mahakali River was concluded between India and Nepal which provided for the installation of a head regulator at the Tanakpur Barrage. India agreed to provide Nepal with water and electricity. The Memorandum of Understanding entered into in 1991, known as the Tanakpur Agreement, according to which Nepal provided land for a hydro-electric project in exchange for electricity and water for irrigation, caused a major political controversy and was brought before the Supreme Court in Nepal. Despite these objections, elements of the Tanakpur Agreement, as well as the Sarada Treaty, were incorporated into the treaty for the integrated development of the Mahakali River eventually signed by India and Nepal in February 1996.

The 1996 Mahakali Treaty provided for a new project called the Pancheshwar Multi-purpose Project (PMP). The Treaty also included provisions regarding Nepal's share of the waters of the Mahakali River. The Mahakali Treaty established four main principles for the design and implementation of the PMP. First, the PMP will be designed to produce the maximum total net benefit for both countries in the forms of power generation, irrigation use and flood control. These benefits will be assessed on a continual basis to ensure maximum performance. Second, both countries will work together in an integrated manner to develop and share their common water resources. The PMP will be implemented as a joint effort that will include the erection of power stations of equal capacity on each side of the Mahakali where it is a boundary river. The two power stations will be operated together and the total energy generated will be shared equally between India and Nepal. Thirdly, the two countries will share the cost of the PMP in proportion to the benefits accruing to each, and will jointly endeavour to mobilise the financing required to implement the PMP. Fourthly, a portion of Nepal's share of energy will be sold to India. The quantum of such energy, and its price shall be agreed upon between the two countries.

In addition, the Letter of Exchange between the two countries establishes principles to be applied and arrangements to be made for finalising the Detailed Project Report (DPR) for the PMP, completing the negotiations and implementing the PMP. The Letter mandates that the DPR be finalised within six months from the effective date of the Treaty, provides that the necessary data be exchanged expeditiously, instructs that the irrigation benefits be conducted, and establishes the Pancheshwar Development Authority (PDA) for carrying out the PMP. In addition, pursuant to the Mahakali Treaty, a Mahakali River Commission would be appointed to, *inter alia*, oversee the PDA.

Although work on the DPR has not yet been completed, and the financing package for the PMP is still to be sought, the Treaty has, no doubt, provided the mechanism for a reinforced collaboration between India and Nepal on the Mahakali river. If both countries cooperate diligently to carry out the provisions of the Treaty, many economic, political and social advantages should materialise.

Annex IX

National Water Law in Mexico - Recognition of the River Basin

The future socio-economic development capacities of Mexico have been closely linked with water. In response to scarcity and quality problems brought about by rapid industrial development, population growth and poor allocation schemes, an integrated approach to river basin management is being advanced. In 1992, the National Water Law (NWL) was enacted. The NWL and its corresponding regulations clearly defines the roles for all key actors within a regional water scenario, and promotes the wide and harmonious participation of state and municipal governments, water users, and society itself in water resources planning, management and preservation. The updated legislation also initiated a new concept of the water market involving water-rights transfers among users and effluent discharge (a pseudo-tax similar to the French *redevance* and Spanish *canon*, designed to raise money to partially fund the water sector). Most importantly however, the NWL provided the legal foundation, and Government obligation, to create river basin councils as powerful tools to work towards a more effective and representative water sector. This apparent Government commitment to river basin councils reflects and will encourage the new policy of dividing Mexico into hydrological regions for the purposes of integrated water administration.

As a result of national demand for the decentralisation of power in the water sector, which has previously been held almost exclusively by the Federal Government, the new legal framework has allocated a more important role to state and municipal level authorities through a process named "water federalisation". These state and local actors are to work closely with the river basin authorities, a major function of which is to coordinate federal, state and municipal bodies. The end result should be a more democratic - and even more complex - water sector. Rising levels of social participation in many aspects of Mexican life, as well as democratisation and decentralisation processes, is redefining the concept of water management as a common task to all involved.

In 1993, the first river basin council in Mexican history was created for the Lerma-Chapala River Basin, a heavily populated region where 15% of Mexico's agricultural produce and 35% of its industrial GNP is produced. The basin is also transboundary in that it includes a portion of the territory of five of Mexico's States. The Lerma-Chapala river basin council was initiated by: the Ministers of Agriculture and Hydraulic Resources, Social Development, Health, Fisheries, Treasury and Public Credit, Energy, Mines and State-Owned Industry; the Federation Controller General; the Directors of the Federal Electricity Commission; Mexican Oil; the National Water Commission; the five State Governors; and representatives from different water- use sectors. The Council has already brought about concrete improvements in: distribution and allocation; irrigation efficiency (achieved through the raising of water tariffs closer to real costs); preventive and corrective reforestation; and information sharing (including the creation of an "interinstitutional information system", simulation and optimisation models, and several publications). There is also a longer-term commitment to a River Basin Water Quality Program, which will include improved facilities for the treatment of municipal waste, and increased compliance of industrial firms to pollution limits.

The success of the Lerma-Chapala River Basin Council is already serving as a model to emerging basin councils elsewhere in Mexico and attracting increased international financing. The wider success of Mexico's new framework for water management, the extent of which it is far too soon to tell, could set an example to other states in the region and beyond. The Government in Mexico must prove its commitment to this process in deed as well as on paper, and it is yet to be seen whether this new approach will survive changes in Government following future elections. As a working principle, the idea of the Federal Government adopting an increasingly custodial role adopted in favour of representative, integrated river basin councils should also be emulated at the level of the international river basin.

Annex X

The Tigris-Euphrates - A Need for International Mediation

The competing needs of Turkey, Syria and Iraq for the waters of the Euphrates and Tigris rivers is one of the most frequently referred to cases of a dispute over international waters with the potential to spark armed conflict. It is a dispute which goes back to the very beginning of civilisation, and incorporates every possible aspect of a geopolitical conflict, from territorial dispute to disparate ethnic, religious and historical claims. It is also a text book case to illustrate the potential irreconcilability of divergent riparian claims to sovereignty over international watercourses in a complex and arid region.

Ownership and rights to the rivers are at the centre of the conflict between the three main riparians and their positions are determined absolutely according to their geographic position. Turkey controls the headwaters of the Euphrates, and therefore adopts the position of "absolute territorial sovereignty" over the waters for as long as they flow on Turkish soil. This includes the right to divert and store the water which would otherwise flow to Syria and then Iraq, most controversially with the South Eastern Anatolia Project (GAP). Syria and Iraq claim an historical precedent as they were the first to use the water for irrigation purposes. They maintain that they have acquired water rights stemming from their existing irrigation projects and object to development upstream which reduces flow into their territory. In relation to Turkey, Syria and Iraq are united in adopting the position of territorial integrity; in relation to each other they have their own serious disputes arising from Syria's diversion and pollution of the Euphrates. Iraq also claims priority over Syria's demands. Each state is dedicated to the maximum development and exploitation of the River within their own boundaries, and the two down-stream riparians are absolutely dependent on the water. In the absence of any three-way agreement, this development is carried out unilaterally. Confusion, suspicion and political posturing add to the problem, and the unwillingness to compromise leaves the situation potentially explosive.

Serious tension has arisen over the Euphrates twice in recent history. In 1975, Syria and Iraq were brought to the verge of armed conflict over the completion of Syria's Tabqa Dam. Iraq threatened to bomb the dam and both States positioned troops along the common border. The threat of war was removed following the mediation of Saudi Arabia and the Soviet Union, and the release of more water from the dam to Iraq. Turkey also assisted the situation by pledging to increase the minimum outflow to Syria in a gesture of solidarity and an attempt to prevent a regional conflict. The terms of the agreement reached between Iraq and Syria were never made public. In 1990, the conflict was over the filling of the GAP Ataturk Dam reservoir, this time with Iraq and Syria joined in their objection to Turkey's drastic reduction of flow. The two states claimed that Turkey had caused considerable harm by not informing them in advance that they would be impounding the water. Turkey refuted that it had both informed them and released more water before-hand to allow them to store up. Again Iraq threatened to bomb the dam, and Syria and Iraq called on the Arab League to unite against Turkey regarding the GAP. Talks were convened between the three states but broke down first over Iraqi-Turkish disagreement over water quotas, and then due to the outbreak of the Gulf War, which saw Turkey and Syria in the coalition against Iraq. The situation is unresolved.

Turkey's unilateral continuation of the GAP project, despite the withdrawal of much international funding due to the controversy, requires that an agreement be reached between the three states on water quotas if conflict is to be avoided. The problem is that there is no agreement on the figures for either the total capacity of the rivers or the requirements of each state. Unfortunately the international community has shied away from this conflict and little attempt

Unfortunately the international community has shied away from this conflict and little attempt has been made at neutral assessment and mediation. Turkey is one of the three states which voted against the 1997 UN Convention, and Syria is one of the six States which has actually ratified it: therefore they exist at opposite ends of the spectrum and any referral to the terms of the Convention is rejected by Turkey. International Law cannot resolve this conflict. Other issues are intertwined with the water question making relations between the three states volatile.

Map 7 The Tigris-Euphrates Basin



Syria and Turkey have two other related disputes. The first is an unresolved disagreement over the Hatay Province, given to Turkey by the League of Nations at the expense of Syria. Another shared river flows through this region, this time with Syria as the upstream state. The territorial dispute makes an agreement on the Asi River impossible, and Syria's diversion of the flow is raised by Turkey every time Syria makes demands concerning the Euphrates. The other protracted dispute is regarding the Kurdish minority. Turkey claims that the GAP is being implemented largely for the benefit of the Kurdish people who live in the region of the construction as it will create employment opportunities and the accompanying infrastructure includes education and health-care facilities for the region. Syria denies that the project is for anything but Turkish aggrandisement and profit. In addition, whenever Syria complains to Turkey about water, Turkey responds by accusing Syria of accommodating and supporting the Kurdish Workers Party in their terrorist independence struggle against Turkey. The chances of Iraq and Syria uniting against Turkey over water are, fortunately, very unlikely as they have their own disagreements. As well as their riparian conflict, the two states are divided by their competing claims to be the true guardians of the Ba'athist ideology. The events in the Gulf have also resulted in the isolation of Iraq. Recent negotiations between Turkey and Israel over the possibility of Turkey exporting excess water to Israel also have the potential to worsen relations between the three states, despite the fact that the water used for such a scheme would come from entirely outside the Tigris-Euphrates Basin.

This history of hydropolitical tension, conflicting sovereignty claims and the combination of water with nationalistic issues relating to territory, religion and terrorism is not conducive to peaceful and mutually satisfying agreement. This basin is a case in point where neutral international mediation is essential. First an impartial assessment of the actual amount of water available, and the different needs of the riparians would have to be agreed to. On this basis an integrated proposal for the equitable and optimal use of the water could be presented, including plans to improve efficiency by updating current irrigation methods and sharing the benefits of projects along the River. For all the talk of disputes, the fact that armed conflict has been avoided on several occasions indicates that none of the states want to actually fight over the water. There have already been many attempts to cooperate and reach agreements; the presence of an impartial international body could depoliticise and add a much needed air of transparency to the process of finding a way to share the Tigris-Euphrates. This will not be achieved through futile attempts to convince States of the limits to their sovereign rights, but through the creation of incentives to cooperation and assurances to all three States that neither sovereignty, power nor national pride will be impaired.

Annex XI

The Emerging Nile Basin Initiative - Cautious Optimism

For the first time in its long history, all the Nile Basin states are currently expressing a sincere concern for and commitment to the need for joint discourse and action to manage the waters of the Nile. The recent movement towards basin-wide cooperation was initiated in 1992, by Representatives of the ten riparian states, to promote cooperation and development in the Basin. Within this framework, the Nile River Basin Action Plan (NRBAP) was established, one of whose projects is the development of a cooperative scheme for the management of the Nile. This is no easy task considering the diverging interests and capacities of the States involved. Since 1995, the World Bank, in conjunction with UNDP and the Canadian International Development Agency, has been working with an International Advisory Group, senior officials from the riparian countries, and a number of international donors to give impetus to this project. The hope is that positive intervention from the international community will provide the necessary coordinating and incentive building stimulus to reach an agreement despite the long-standing disputes and conflicting aspirations in the Basin, as they did in the 1950s in the Indus Basin.

Building upon these recent cooperative efforts, the Nile Basin Initiative (NBI) was launched in Dar es Salaam in February 1999. All Basin States except Eritrea are members of the NBI. This regional partnership reflects and supports the common pursuit on the part of the basin States for sustainable development and management of Nile waters. They have agreed to proceed under the transitional arrangements of the NBI, which succeeds the former Technical Cooperation Committee for the Promotion of the Development and Environmental Protection of the Nile Basin, until an accepted permanent legal framework is established. Joint Development of the Nile waters will require significant financial resources and the Basin States are, therefore, calling on the international community to provide support through the International Consortium for Cooperation on the Nile (ICCON), which seeks coordinated and transparent financing for cooperative water resources development and management and, related projects in the basin.

The Nile Basin, which includes the basins of the Blue and White Niles, is possibly the most complex and enigmatic in the world. With ten riparian states, five of whom are among the world's ten poorest nations, and stretching from well-watered highlands to the deserts of Egypt, the Nile has a unique place in the history of humanity and is the only source of water and livelihood for millions of people in its lower regions. Dependence and development on the Nile has always been asymmetrical; Egypt's dependence on the River is absolute, Sudan's is great, Ethiopia's interest is growing and the East African and Great Lakes states' utilisation is comparatively minimal. In the arid zone in Sudan and Egypt, the availability of the Nile waters is a question of essential state interest and survival. For Egypt in particular, the control of the Nile is a matter of great national pride and a source of cultural and historical identity. As the most developed and relatively powerful basin state and the traditional user of the Nile, the position of Egypt is key to the development of a basin management framework. However, unlike the case of the Euphrates, in the Nile Basin the otherwise most influential state is in the most disadvantaged, i.e. downstream, riparian position and thus theoretically has a greater interest in securing a regional agreement to protect and sustain the water supply.

The movement towards a basin-wide framework is a marked improvement on the previous system of bilateral agreements, most notably between Sudan and Egypt, which excluded the

Map 8 The Nile Basin



other riparians and encouraged tensions and suspicions. A regionally accepted scheme would also be more likely to balance the opposing interests of Egypt and Ethiopia than politically motivated negotiations solely between the two states. The involvement of international organisations in the drawing up of the framework and the financing of the project helps to neutralise the forum of discussion and operation, and give it a more stable supra-national status. Water can thereby cease to be a matter purely related to the power of states vis a vis each other and come to be regarded as an issue that can provide increased security throughout the region. This security is certain to come in the form of a decline in inter-state tension and in the greater reliability and quality of water, and therefore food and developmental resources. Considering the number of non-water related disputes which many of the basin states already face - from protracted civil war in the Sudan, territorial disputes and regular conflict between Ethiopia and Eritrea, and mass refugee movements and total political upheaval in the Great Lakes states, coupled with famine and extreme poverty in many areas - a resolution on a means to share the vital resources of the Nile would be invaluable.

The shared need for the water resources, and the particular urgency of the downstream states to secure more efficient water use and the control of flood waters throughout the basin, has provided the necessary momentum to the Initiative. The riparian states have agreed, during the seven annual conferences of the Council of Ministers since the start of the Initiative, on a shared vision of "equitable utilisation of the Nile waters for development and poverty alleviation" and have "recognised the rights of each riparian state to use the resources of the Nile within its boundaries for development"; this now needs to be legitimised by action on the ground. While the states, with the support of UNDP, continue the inevitably slow process of devising a framework for a convention acceptable to each state, the Council of Ministers have agreed, in May 1999, to transitional institutional arrangements to strengthen cooperation. Thus there appears to be a genuine political will to achieve basin-level cooperation, and the international backing to support it.

Select Bibliography

- Allan, Tony, "Virtual Water": A long term solution for water-short Middle Eastern Economies? Paper presented at the 1997 British Association Festival of Science, University of Leeds, 1997.
- Biswas, Asit K., Management of International Waters: Opportunities and Constraints, International Journal of Water Resources Management, Volume 15, No. 4, December 1999.
- Charrier, Bertrand, and Samson, Paul, International Freshwater Conflict: Issues and Prevention Strategies, Green Cross International, 1997.
- Elhance, Arun P., Hydropolitics in the Third World: Conflict and Cooperation in International River Basins, United States Institute of Peace, Washington DC, 1999.
- Gleick, Peter, The World's Water: The Biennial Report on Freshwater Resources, 1998-1999, Island Press, Washington DC, 1998.
- Gleick, Peter, The Human Right to Water, Water Policy, Fall 1999.
- Hiniker, Mike, Sustainable Solutions to Water Conflicts in the Jordan Valley, Green Cross International, Cambridge Review of International Affairs, Spring/Summer 1999, Volume X11/2.
- International Committee of the Red Cross, War and Water, Forum.
- Kobori, Iwao, and Glantz, Michael, (eds.), Central Eurasian Water Crisis: Caspian, Aral, and Dead Seas, Water Resources Management and Policy, United Nations University, 1998.
- Liftin, Karen, (ed.) The Greening of Sovereignty in World Politics, M.I.T., 1998.
- Lowi, Miriam, Water and Power: The Politics of a Scarce Resource in the Jordan River Basin, Cambridge, 1995.
- McCaffrey, Stephen, A Human Right to Water: Domestic and International Implications, Georgetown International Law Review, Volume V, Issue 1.
- Nguyen, Thi Dieu, The Mekong River and the Struggle for Indochina: Water, War and Peace, 1999.
- Petrella, Riccardo, Le manifeste de l'eau: Pour un contrat mondial, Editions Page deux, 1999.
- Salman, M. A. Salman, and Boisson de Chazournes, Laurence, (eds.), International Watercourses: Enhancing Cooperation and Managing Conflict, World Bank Technical Paper No. 414, 1998.
- Salman, M. A. Salman, (ed.), Groundwater: Legal and Policy Perspectives, World Bank Technical Paper No. 456, 1999.

- Turton, Anthony, Water and State Sovereignty: The Hydropolitical Challenge for States in Arid Regions, MEWREW Occasional Paper No. 5, Water Issues Study Group, SOAS, University of London, 1999.
- United Nations, Comprehensive Assessment of the Freshwater Resources of the World, Commission for Sustainable Development, Stockholm Environment Institute, Stockholm, 1997.
- Wolf, Aaron, Middle East Water Conflicts and Directions for Conflict Resolution, Food, Agriculture and the Environment, Discussion Paper 12, International Food Policy Research Institute, Washington, D.C. 1996.
- Wolf, Aaron, Jeffrey Natharius, Jeffrey Danielson, Brian Ward and Jan Pender, International Rivers of the World, International Journal of Water Resources Management, Volume 15, No. 4, December 1999.

National Sovereignty and International Watercourses Panel

An eminent Panel of former Heads of State and Government has been gathered from among the honorary members of the World Commission on Water for the 21st Century to investigate the question of how to share the world's almost 300 trans-boundary watercourses. The Sovereignty Panel includes the Hon. Mikhail Gorbachev (Chairman), Former President of the USSR, and President of Green Cross International, the Hon. Ingvar Carlsson, Former Prime-Minister of Sweden, the Hon. Sir Ketumile Masire, Former President of Botswana, and the Hon. Fidel V. Ramos, Former President of The Philippines. The objective of the Panel is to examine and propose concrete solutions to the following questions:

- What are the principles that should regulate the use of shared water?
- Can such a set of principles be codified in a meaningful sense?
- Is there a need for intergovernmental mechanisms for dealing with potential environmental conflicts?
- How can we link these mechanisms with national sovereignty, the keystone of international legal agreements?

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Professor Laurence Boisson de Chazournes, Director of the Department of International Law and International Organisations, Faculty of Law, University of Geneva
Dr. Bertrand Charrier, Executive Director, Green Cross International
Fiona Curtin, Water Project Manager, Green Cross International



Green Cross International - 160a, route de Florissant
CH-1231 Conches-Geneva - Switzerland
Tel: +41-22-789 1662 - fax: +41-22-789 1695
email: secretariat@gci.ch - website: <http://www.gci.ch>