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NATIONAL SOVEREIGNTY AND INTERNATIONAL WATERCOURSES

PREPARED BY
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A 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, including 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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National Sovereignty and International Watercourses

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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 transboundary, 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 developing as more and more purely national supplies are exhausted. The absence of global 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. National sovereignty ideally describes 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 and made inviolable. This is also the only way in which the interests and entitlements of both present and future generations can be preserved. The permanent lowering of water-tables in many regions, caused by the over-exploitation of groundwater, effectively represents the irreplaceable 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 should encourage a more long-term, ecosystemic outlook to be adopted and that decisions be made 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 cause 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 that 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. 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 is essential.
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.

**Basin-wide cooperation**

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 are any number 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, mainly for water sharing purposes. Such agreements are often based solely on water allocation aspects, lacking a really 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 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 opening-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 incentives to financing projects. Fragmentation is as undesirable at this level as it is in 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 international 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 an acceptable 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 shortages. 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. 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.
- Acceptance of cultural diversity.
- Stakeholder participation is essential at all levels.
- Information sharing and transparency

- Water is a limited resource
- Efficient use of water
- User-pays; Polluter-pays.
- Water demand management.
- 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 strengthening of the role of international organisations.
- The role of international funding bodies to 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 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 genuine 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 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.
- Regional negotiations to address the best means of achieving 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:

- 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.

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 within a state.

At the Local Level:

- Water policy as an element in democracy building.
- Balancing 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 raises incompatible 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.
National Sovereignty and International Watercourses

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 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 of 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 lack of such solutions is a principal element of the reason why millions of people continue to live in dire poverty, facing disease and forced migration, owing to inadequate water supplies even for the maintenance of minimal standards of health and human dignity.

Over 40% of the world’s population resides in the just under 300 river basins shared by more than one country, which make up 50% of the earth’s land surface (not including Antarctica). Over 90% of the conventionally calculated water resources in the Middle East cross international borders as surface flows. Africa alone contains at least 54 international rivers, 11 of which drain 4 or more states. The basin of the River Danube is shared by 17 independent states. 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 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 further codification of the use and protection of this vital natural resource in international law, and most of these rivers lack any 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 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.
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. 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, and has proved to be a useful organising principle, but watercourses have no respect for political boundaries. There are other, ecological 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 can also be the source of international tension. 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 principles 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 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 duo-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 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 involving 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 to 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 “restricted sovereignty” than by effective interdependence.
2. Sovereignty Over 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 to which water is a factor. Water is a critical resource the possession of which confers power. It is 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 this 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. 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 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 it 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.
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 status 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. Increased power of public opinion and the media 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 corner-stone of international relations cannot 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
these methods 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
cooporation. 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. It is therefore
necessary to distinguish between them; but what is most interesting is that the conclusion is applicable
to cases both between and within states - that 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
deprecated aquifers and increased pollution levels. We therefore have to separate the idea of national
sovereignty between the people and the 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, internal sovereignty over 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 that 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, not only through
consultation, but 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 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 reinforcing the fact that the renewable and fluid nature of water is conducive to sharing rather 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.

The most important relationship between national sovereignty and the management of international watercourses is 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.

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 providing 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 for their people and for the people on the other side of the border.

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 groups of people.

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 affect surface runoff 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 distort 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 dictates the need for a change in our understanding of water and greater emphasis on protection and sustainable use. While water scarcity is a problem of 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. 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 really a perception, determined by cultural and geographical factors, as the same amount of water can constitute scarcity in one region and abundance in another. It 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 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. 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.

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 important 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 of national sovereignty.

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 increased salinisation and pollution and depletion of aquifers is practically irreversible. As with surface water use, prevention and precaution should be the key parameters.

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. Climate 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; 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 for the future, it entails a responsibility to nurture these resources to ensure the survival of future inhabitants.

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. 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, as it was believed in the era of the “big dams”, 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 hundreds 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 development, the benefits are often not shared with the actual people who bear the costs. A truly integrated approach would not necessarily 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 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 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 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.

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 hydroelectric 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 hydroelectric 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 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. International solidarity towards developing economies must consider 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 the particular region.

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 would allow the reasoning behind the pricing of water services in order to reduce unnecessary losses. Water services can be priced and financed through taxation 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, such as the Ganges has signified for the Hindu civilisation which has developed in its basin. Water is also universally known as the source of all life, a doctrine that is felt most acutely 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 reflection 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 become 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 many wetlands and deltas. This would emulate 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.
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 developments. 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, but 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 no longer be confined to mechanisms and principles to resolve disputes, 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 hydroelectric 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 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.

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 occurs 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 fabrics of society, 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.

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 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 - A 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 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.

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, 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.

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) do 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 the chapter on “Water and Security” in 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 is the absolute priority of all joint projects on the River, with the environment and considerations of long-term sustainability not receiving adequate attention.

See Annex IV

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.

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, affecting 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 to 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 Union.

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, but in such a complex and heavily populated basin a more wide-reaching programme is urgently needed.

See Annex V

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 cooperation. 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 who live lives 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 around 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.
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.

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.

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 underdeveloped field is the provision of incentives for cooperation; a function which could be fulfilled by any or a combination of 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

**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. 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*
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 1960s 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 regions literal “power-struggle”. 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. An understanding and appreciation of the needs of other sectors is therefore essential.

Stakeholders in water includes everyone in a basin from the individual to the corporate to the government level. Creating the means for communication and awareness raising amongst such a variant 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 Arhus 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.

Any 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 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-Nagymaros 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 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, the 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 great deal 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.

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 fortification and 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) are equitable, representative and empowered, but that they work together for the truly integrated and sustainable management of water for all sectors.
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 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 people who are truly representative of communities or interest groups, but this is easier in democratic countries. 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 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.
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 should both improve stability internally 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.

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 these changes 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.
11. A Human Right to Water?

Without water life is impossible, but does this mean 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 was considered a human right, does that mean that states have 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 is evident 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 require 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.

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.
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 are not 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 for 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

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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 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.
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 or 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.

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

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<th>Box 14. Gabčíkovo-Nagymaros Dam Dispute (Hungary-Slovakia)</th>
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<td>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 resolved 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.</td>
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See Map 4, Annex V

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 are 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 Himla 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 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 loopholes 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 infallible; 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 a 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 as, if not more, 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 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 it 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 undermine the moral authority of the state over its people and therefore question its capacity and authority to govern. This could feasibly lead to a breakdown of the fabric of a poor society, causing wide-spread unrest and inevitably violence. The potential for violence in situations of water deprivation have already been seen in communities across the developing world. Internal conflicts have the tendency to cross borders and cause instability 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 can also often be seen as transboundary when they occur across federal or any type of administrative boundaries within a single state.

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.

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 should 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 antagonism. 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 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 solve any 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.

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 dispute 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 becomes an option. An example of such a case is the festering antagonism and dispute between the three riparian states of the Tigris-Euphrates Rivers (see Box 15.). Where solutions cannot be amicably 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.

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 flow 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 arbitration 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 is a good 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 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 Fleurie Sénégal) 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.

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 between 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.
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 Congo 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 drinking water-source, 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 - often 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 a 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 owing to the fact that differences over water itself are irreconcilable. 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” 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 greatly limited 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.
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 management involves ethical and social as well as technical questions.
- User-pays; Polluter-pays.
- Water demand management.
- There must always be an acceptance of and respect for cultural diversity.
- Stake-holder participation in water management decisions and actions is essential.
- Information sharing and transparency.
- Water is a limited resource.
- Water must always be used efficiently.
- Irreversible contamination, depletion and destruction of watercourses, particularly groundwaters, must be absolutely avoided.

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 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.
- The role of 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 information is already a form of dispute settlement and conflict prevention.
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 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 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.