

Transboundary Water Management as an International Public Good



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Transboundary Water Management as an International Public Good

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Foreword

The Swedish Ministry for Foreign Affairs initiated the project *Development Financing 2000* with the purpose of increasing awareness, knowledge and international commitment to a strong, effective and well-funded multilateral system for development. The project covers both the Multilateral Development Banks, the UN development agencies and Global Public Goods.

The need for increased international efforts for the provision and financing of global or international public goods has been widely recognised within the multilateral system and water management serves as a good example of such a global priority.

The purpose of this study is to look at transboundary water management through the lens of international public goods. In a series of water basin case studies the study analyses the interplay between institutional arrangements, financial development, participation of civil society and legal and policy dimensions in providing and financing transboundary water management.

With this study we want to contribute to the international discussion on international public goods as well as on the provision and financing of transboundary water management.

Gun-Britt Andersson

State Secretary for Development Cooperation, Migration and Asylum Policy

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Acronyms and abbreviations

ACDI/	Agricultural Co-operative Development International /
VOCA	Volunteers Overseas Cooperation Assistance
AfDB	African Development Bank
ADB	Asian Development Bank
AEC	Arcadis Euroconsult
AFESD	Arab Fund for Economic and Social Development
ASEAN	Association of South East Asian Nations
AWIRU	Africa Water Issues Research Unit
BCM	Billion Cubic Metres
BOO	Build, Operate and Own
BOT	Build, Operate and Transfer
CEO	Chief Executive Officer
CIS	Commonwealth of Independent States
DAC	Development Assistance Committee of the Organisation for Economic Co-operation and Development
DBSA	Development Bank of Southern Africa
DFID	Department for International Development (UK)
DRC	Democratic Republic of Congo
ECAFE	UN Economic Commission for Asia and the Far East
EIB	European Investment Bank
ESCAP	UN Economic and Social Commission for Asia and the Pacific
EU	European Union
FAO	Food and Agriculture Organisation of the United Nations
GEF	Global Environment Facility
GMS	Greater Mekong Sub-region
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
GWP	Global Water Partnership
HCA	Helsinki Citizens' Assembly
HIPC	Heavily Indebted Poor Countries
ICBL	International Campaign to Ban Landmines
ICJ	International Court of Justice
ICPDR	International Commission for the Protection of the Danube River
IDB	InterAmerican Development Bank
IDP	Internally-Displaced Person
IFI	International Financing Institution
ILC	International Law Commission
IMC	Interim Mekong Committee
IMF	International Monetary Fund
IPG	International Public Goods
ISWF	International Shared Waters Facility
JPWC	Joint Permanent Water Commission
JVA	Jordan Valley Authority
KfW	Kreditanstalt für Wiederaufbau
KOBWA	Komati Basin Authority

LDC	Less-Developed Countries
MCM	Million Cubic Metres
MDB	Multilateral Development Banks
MRC	Mekong River Commission
MW	Megawatt
NBI	Nile Basin Initiative
NMC	National Mekong Committee
NORAD	Norwegian Aid
NWC	National Water Carrier
ODA	Overseas Development Assistance
ODI	Overseas Development Institute
OECD	Organisation for Economic Cooperation and Development
OKACOM	Permanent Water Commission on the Okavango River
OSCE	Organisation for Security and Co-operation in Europe
pa	per annum
PWC	PricewaterhouseCoopers
SADC	Southern Africa Development Community
SIDA	Swedish International Development Co-operation Agency
SIWI	Stockholm International Water Institute
SOAS	School of Oriental and African Studies
SPF	Swaziland Pension Fund
TACIS	Technical Assistance to Commonwealth of Independent States
TOR	Terms of Reference
UN	United Nations
UNCSD	United Nations Commission for Sustainable Development
UNDP	United Nations Development Programme
UN/ECE	United Nations/ Economic Commission for Europe
UNEP	United National Environment Programme
UNESCO	United National Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WHO	World Health Organisation
WMO	World Meteorological Organisation
WRM	Water Resources Management
WTO	World Trade Organisation
WUA	Water Users Association
WWC	World Water Council

Executive summary

This study – ‘Transboundary Water Management as an International Public Good’¹ – has been carried out as part of Development Financing 2000, an initiative of the Swedish Ministry for Foreign Affairs. The initiative seeks to ‘help increase awareness, knowledge and international commitment to a strong, effective and well-funded multilateral system in the field of development’. Specifically, its goals are to:

- create political energy and momentum in issues concerning multilateral financing in the field of development
- seek to develop new perspectives in thinking about financing the United Nations system and the multilateral development banks
- seek to develop concrete mechanisms for financing UN programmes and funds in particular
- develop concepts concerning global public goods and their financing

The study was undertaken between October 2000 and March 2001 by a team brought together by the Overseas Development Institute and Arcadis Euroconsult. Research visits were undertaken to river basins in the Middle East, East Asia and southern Africa².

The views expressed in this Report are those of the authors and do not necessarily reflect the views of the Swedish Ministry for Foreign Affairs.

The starting point of this study was to ‘explore and to put in perspective whether, and to what extent, the concept of international/regional public goods is useful in describing, analysing and coming to terms with inter-state water management issues’ (see terms of reference, Annex 1). The second central question was, from a development co-operation perspective, to ‘analyse and elaborate on the roles of different financial flows and mechanisms in the provision of effective and international/regional water management’. For the purposes of this study international water management was understood as the management of transboundary freshwater resources.

The opportunities provided by current circumstances to address international water management as a public good are fourfold: 1) there is flexibility in international relations brought about by the post Cold War decade; 2) the industrialised economies have transformed their approach to managing water resources to include environmental and civil society concerns as well as those of government and the market; 3) agencies working in water resources are re-orientating themselves to adopt inclusive and transparent approaches to management and to prioritise environmentally considerate and economically efficient management approaches; and 4) the idea that

¹ Contract title ‘Effective International Water Management as a Public Good’

² The team comprised: Alan Nicol (ODI -Team Leader); Frank van Steenberg (AEC); Hilary Sunman (independent consultant); Tony Turton (AWIRU); Tom Slaymaker (ODI); Tony Allan (SOAS); Martin de Graaf (AEC); Marten van Harten (independent consultant).

institutions for managing water at all levels is a public good now has sufficient currency for it to be able to enthruse potential donors.

Divided into five sections, the first section of the report analyses relevant concepts surrounding the idea of public goods and the effective management of transboundary water resources³. It concludes that effective and balanced institutional arrangements for management are a regional public good, with particular characteristics. Transboundary water management is a club-type of good: its provision depends on the riparian countries that cooperate. It is also a means-type of international public good, because it facilitates the provision of important public goods, such as national water security, regional conflict mitigation and the protection of important international eco-systems. An estimated 40% of the world's population lives in internationally shared river basins⁴ and are dependent for their water security on effective transboundary water management.

The study recognises that results matter more than the means and that achievement of effective international water management has to take due regard of the technical, social and economic priorities of riparian countries. In other words, the provision of the regional good should be judged on its contribution to wider social development objectives.

Having established the public good characteristics of effective transboundary water management, in Section 2 the report analyses the framework of financing arrangements. Here the current record of financing is examined and in section 3 there is a discussion of possible financing options. Section 4 looks in detail at the five core basin studies – the Mekong, the Okavango, the Incomati, the Jordan and the Southern Caucasus basins. These river basins represent very different degrees of shared fresh water management – from over thirty years of co-operation among the lower Mekong riparians to a situation of water hostility in the Southern Caucasus. Section 5 draws conclusions and recommendations from the case study analysis and financial review.

Evidence from the analysis of development co-operation in Section 2 shows that currently some \$70-80bn is spent annually on water management and the development of water infrastructure, mostly in irrigation, drainage and water supply and sanitation. The main part of the financing is a mixture of domestic public and private sector funding. In 1996, as an indicator year, only 11–12% came from the donor community, and only 5% from the international private sector. Hence, national-level expenditure is far more significant than regional or international expenditure. Domestic financing is about 70% public sector (essentially reflecting national public good characteristics), and this includes the costs of water resource management institutions.

³ Though the report is concerned with the management of transboundary water resources, this does not diminish the importance of land-water linkages in achieving effective water management, not least because of the significance of varying land-use patterns between co-riparians and the differing demands this places on water use.

⁴ Moreover, in larger countries the need for effective water management between provinces or states is of a similar order of magnitude as in international basins.

Internationally, donor commitment to the water sector increased as a proportion of disbursement from 1990-1997. In 1997 the total was some \$3.7bn, of which the World Bank contributed \$2–3bn. However, disaggregating the macro-data to separate regional public good components is difficult. Within these donor disbursements there has been an apparent shift to capacity building, and overall spending on public goods within the total has risen from some 4% in 1980 to 10% in 2000. However, it appears that little is being spent on international or regional public goods. Transboundary financing in particular comprises a very small component of total donor funding. Major international donors like the World Bank recognise the importance of transboundary management, but still devote relatively few resources to this type of public good. At a regional level some MDBs are beginning to promote regional co-operation in water policy and management of transboundary waters. Yet the type of investment needed (either co-ordinated national investments or investments targeted in one country but bringing benefits to others) remains relatively under-financed. The picture that emerges is that international financial support to transboundary water management is rather piecemeal and scattered.

There appear to be significant barriers to the entry of the private sector in provisioning of regional public goods, not least due to the frequent lack of clear regional legal and regulatory frameworks, as identified in the study. Nevertheless, there is some potential for a greater private sector role in transboundary water management, for instance in the critical area of regional data development.

Overall, from the case studies, it is apparent that the costs of reaching agreements – such as setting in place politically feasible environments – are relatively high, compared to the costs of financing actual institutional arrangements.

Analysis of Sections 1–4 leads to a number of conclusions concerning ways forward for financing and facilitating the provision of effective international water resources management as a public good. The conclusions are grouped under:

- Institutional development: Building politically-feasible environments
- Financial development: Establishing new financing options
- Participation and civil society: Enhancing roles
- Legal and policy dimensions: Creating conditions for agreement

Conclusions

Institutional development:

Building politically-feasible environments

The case studies reveal the range and variation in institutional arrangements for managing transboundary water resources. All are closely linked to surrounding political environments, and are sensitive to changes in those environments.

The importance of *political feasibility* is a central conclusion reached. In many of the basins analysed the institutional arrangements have changed according to changes in political feasibility. Given the interlinkages apparent, not only is the wider environment likely to impact on institutional arrangements for transboundary water management, but also the arrangements themselves can become a part of that wider environment – thus for example effective management institutions can themselves promote peace building at a regional level⁵.

A key question is how to support the development of politically feasible environments. The case studies clearly indicate that communication between riparian parties at both technical and political levels in order to establish a dialogue and develop a joint vision or strategic plans is an essential starting point; where this does not exist – for example in some cases in the Southern Caucasus – little progress can be made. Dialogue will be enhanced if it is based on an established body of data for analysis and interpretation (although this does not all have to be ‘uncontested’). Where wider political conflicts have been overcome or are in the process of being overcome, i.e. their resolution is being managed, the dialogue is likely to be more stable and prolonged and address the substantive issues of joint management. Given the nature of these often protracted political processes, and their demands in terms of confidence building, the costs of establishing transboundary water management arrangements are in many cases substantial⁶.

The effective development of a process of engagement and discussion requires considerable third-party support and *process financing*. One suggestion is that region- and basin-specific Trust Funds may help to facilitate the process through creating long-term support structures suitable for funding incremental processes. This type of arrangement can also assist in the inclusion of a variety of voices from within the basin, ranging from private sector parties, civil society organisations (including NGOs), national and local government and other key actors, including regional economic groupings.

In the long-term, support for the process – once institutions have been established – needs to come from the riparians themselves. Where this has not been the case over-reliance on donor support can arise, undermining long-term ownership. In parallel with instituting processes for the development of transboundary institutions, there needs to be associated support to national institutions. In order to ensure long-term ownership from riparian countries one of the key process issues is promoting benefits of effective transboundary management within national states. This in itself is a political activity requiring sensitivity to the different upstream downstream perspectives of riparian countries, and their different perceptions of what constitutes a benefit – for instance the widely differing uses to which water may be put. The Jordan and Incomati, for example, show how widely different are the potential benefits of

⁵ Several transboundary arrangements, once established, have been resilient to political turmoil in the region. The Mekong and the Jordan case studies both provide examples of this.

⁶ The Nile Basin Initiative is estimated to have cost over \$10m to undertake; likewise the costs of the WCD process are estimated at some \$15m, personal communication. This may be compared to the cost of running a transboundary water management institution – that ranges from \$0.2m to \$2m annually.

flows to different countries, related again to their differing political economies. Careful consideration therefore has to be given to the meaning of 'equitable allocation of water', particularly in economically highly uneven river basins (of which the Mekong, Jordan, Incomati and Nile all provide examples) or in situations, where one country has already utilized all the flow and claims prior rights.

The international funding environment does not currently support an effective co-ordinated facility to act as a third party in enabling the development of shared water resources (either groundwater or surface water). This study shows that it is only in the last decade that there has been an international political environment conducive to the operationalisation of such ideas. Yet to do so requires concerted donor funding efforts and co-ordinated actions, neither of which are easy to achieve. Co-ordinated efforts on the environment during the 1990s yielded impressive results – including the establishment of the GEF – yet transboundary water issues have only recently received a comparable degree of attention.

The need for third-party support at an international level is clear from actions taken by institutions including the World Bank and the UNDP⁷. The diplomatic processes involved in assisting regional initiatives often seem open-ended, and in situations of tension over the use of the shared water resources, international institutional brokerage by organisations of sufficient strength is key – either MDB's or regional economic councils. Consideration 47 of the EU Water Framework Directive for instance points to a potential role for the European Union in supporting transboundary water management in regions outside the EU as well, even up to the Southern Caucasus.

A facility with a specific mandate to assist regional management of transboundary waters (including smaller basins) would provide a clear focus and the opportunity to consolidate international concerns, streamline initiatives, and direct them towards mobilising the idea of effective international water resources management as a regional public good. Such a facility would create a new thrust towards this important international public good and would provide a critical third-party support function to promote politically feasible environments.

Such an 'International Shared Waters Facility' (ISWF) should be conceived as a partnership between different key players in transboundary water management. MFC's such as the World Bank and GEF with agencies such as UNDP and UNEP in support would provide the necessary political clout and third-party appeal, whilst also providing seconded staff as technical advisors in specific areas. Above all, the intention would be to consolidate existing initiatives and organisations and to streamline their accumulated experience within specific, focused programmes of

⁷ Though UNDP still plays a role in supporting transboundary water management, in particular in the implementation of a large number of GEF-funded programmes, the effectiveness of the UN in brokering transboundary water management is affected by the decrease in funding levels and the fact that within the UN the different parts of the 'water' domain are handled by a very large number of UN agencies.

assistance. The Global Water Partnership, that has a mandate in building alliance and on the ground partnerships, could help facilitate the establishment of the ISWF.

Examples of process development from related initiatives such as The World Commission on Dams could be used to assist in stakeholder participation. Other examples might be derived from European or North American experiences of managing shared waters. These could include the international river commissions on the Rhine, Meuse and Danube (see Annex 2). The importance of incorporating Southern perspectives fully within the ISWF could be facilitated through the experience of river commissions on the Mekong and elsewhere.

The MRC as an established transboundary river commission would be an important source and centre of knowledge on issues such as regional-national institutional linkages. Furthermore, the ISWF could be helpful in supporting the development of shared norms on data, similar to the work of the UN/ECE. In the Mekong – after several decades – this process is only now starting under the Water Utilisation Plan, but could benefit from third-party guidance. The ISWF could also act as a second resort for arbitration on water allocation issues that could not be resolved between riparian countries. In addition the ISWF could play a role in developing financial modalities for regional water projects that go beyond national investments. Stages of institutional development in which the ISWF could engage are represented in the table below.

The roles of an ISWF during the institutional development process

Process stages	Possible role of ISWF
<i>A. Initiating process</i>	Promote, coordinate and support initiatives by other organisations as key stakeholders in the idea of regional water resources management; serving as a source of arbitration; promote awareness on UN Convention principles
<i>B. Institutional management</i>	Independent monitoring of process development; including key issues of accountability, participation, governance, stakeholder consultation; further develop agreed legal concepts on water quality and equitable distribution.
<i>C. Programme implementation</i>	Develop neutral standard and generic tools for data collection and dissemination; facilitate dialogue between parties over specific resource management issues
<i>D. Investment in water management works</i>	Leverage financing for weaker riparians, develop financing modalities for use in different basin institutional, social and economic contexts

Financial development:

Establishing new financing options

The study looked at four steps in financing transboundary water management: funding of the initiating process, the cost of institutional management and programme implementation and investments in regional water management facilities.

The case study areas provide sharp contrasts. Most notably between the Mekong with a longstanding river basin organisation, a funded secretariat and strong UN and bilateral donor support and the southern Africa case where there is fragmented river basin management, with OKACOM in clear need of support (suggesting an important role for SADC).

The crucial role that donor support can or does play is evident in all cases. It appears that the role of donors goes beyond funding and that they are often expected to act as honest brokers and to take debate beyond national interests, though in some cases this is constrained by diplomatic considerations⁸. Particularly in the initial process of creating new institutions this political role of donors is important and it appears from the case studies that multilateral organisations with their larger outreach have an important advantage over bilateral donors in this role.

An important question to ask, particularly when considering the merits and demerits of donor-led institution-building, is whether in the discussion on regional and international public goods these are likely to be *underprovided* as most funding is on a country to country basis with a relative absence of regional funding mechanisms. This has, however, not been a bottleneck for the Mekong River Commission. The Commission and its predecessors have managed to constantly attract considerable funding over the years. What this does suggest, however, is that the provision of regional public goods is as much a matter of ‘funding destination’ (the existence of a fundable well-programmed regional institution in this case) as a matter of ‘funding origin’ (the existence of regional funding mechanisms). The first may even overcome the absence of regional funding programmes, as the MRC has done. The regional Mekong Committee in fact for a long while was ‘used’ as a convenient channel for bilateral programmes to countries in the region at a time when no official bilateral programmes were in place.

A number of financing alternatives to grant-based donor support are examined in the report, ranging from water taxes to inter-riparian financing. Levying taxes or charges to support transboundary water management services is complicated and relevant to only a handful of transboundary river commissions. Whilst taxes have been proposed as a financing mechanism for a number of other international public goods, such as the Tobin Tax on international capital transactions or a ‘green planet contribution’ on car renewal their application to transboundary water management is more

⁸ An example is the Mekong, where bilateral donors (unlike MDBs) are reluctant to be engaged with Myanmar, though it would strengthen the Mekong River Commission, if this upper riparian country would become part of the MRC.

complicated. Their advantage is the link they would create between fund raising and the activities that cause the global problems, allowing, for instance, supporting public awareness-raising activities given that the direction of the tax could be clearly identified with the provision of a public good.

The role of private sector investments is also suggested by its increasingly active provision of infrastructure over the past decade, yet there are many issues which need to be addressed before over-estimating the potential for private sector finance. Firstly, most private sector investment has been in water supply. It is always easier to collect revenues to cover costs of water supply than for wastewater treatment or other water functions, where the benefits to the actual consumers are less direct and, indeed, often accrue downstream rather than to the consumers themselves.

Private sector investment most relevant to transboundary water management has been in hydropower where transboundary concerns frequently exist. Outside of hydropower development, however, there do not appear to be any instances of private sector involvement in transboundary water resources management.

The private sector needs a range of incentives and enabling conditions to participate actively, and this means potential profitability and return on capital, in addition to manageable risks. The latter may include risks concerning contract enforceability, regulatory changes, the rights of foreign investors and political security. These are difficult enough to find in single-country projects in many parts of the developing world, and the more so in a transboundary context. The private sector therefore needs a vehicle through which to channel its participation in project management structures essential to which is a clear enabling institutional structure.

Endowment or Trust Funds offer a plausible option for sustaining transboundary river institutions and longer term planning and programming. Because a Trust Fund must have a board of directors, it is in a strong position to encourage stakeholders to participate in the management of the resource – and the base for stakeholders can be quite wide, embracing NGOs, commercial enterprises and donors. Funds can provide a means for encouraging commercial and private sector participation either in kind, through providing management skills, or as direct financial contributions. They provide a means of diluting direct donor control in the administration of resources and for building capacity in financial and institutional management. One of their critical financing roles is in giving longer-term security to institutions and programmes, and smoothing out funding fluctuations which can arise where organisations are dependent on annually allocated resources, whether from government or donors.

Inter-riparian financing in the form of permit, or allowance-based contributions, could help to support regional initiatives. Within a basin, wealthier countries might support investments in poorer countries although there are few precedents for such an approach. A mechanism could be developed within a river basin whereby – if certain investments are needed in both a rich and a poor country – the richer one could make the water-related investment in the poorer one if it was a lower-cost option, and realise a higher level of investment than would otherwise be possible. However, the

conceptual weakness with this approach is that, unlike emissions of greenhouse gases for example, the impact of water-related activities varies significantly by location. Where inter-riparian financing has taken place, notably in a number of West European rivers, it has consisted of negotiated deals between riparian countries under the aegis of a transboundary water management commission or agreement. This potential again underlines the importance of sequencing of activities in developing effective management arrangements, and most notably the need to create the right enabling environments in which suitable institutional arrangements for financing can develop. As with private sector financing, the key is the presence or absence of a transboundary management structure.

The problems with many of these financing mechanisms are the complex institutional arrangements necessary to ensure their success. The discussion of the case studies bears this analysis out where there is at present no pattern of raising revenues for transboundary management from other sources (apart from donor grants or national public budgets). And yet a major lesson from the case studies and, indeed, from the European experience (see Appendices) is that financing institutional development at a basin level is *relatively inexpensive*. The costs of running a transboundary water management arrangement – once it is in place – are relatively small compared to the interests at stake, particularly in large rivers⁹. The preference is national riparian funding, which is the key to sustainability and local control over the institutions. However, the transfer of these costs to national-regional level financing has only recently (after thirty years) started in the Mekong. National capacities to finance are severely constrained, not least because collection of water tariffs in many countries such as Jordan, but also Cambodia and Laos is not very effectively developed and hence limited national public budgets have to be utilised.

In the implementation of river basin management programmes (such as the development of an uncontested database and monitoring), current funding in many river basins is provided by bilateral donors, UN agencies and GEF. Particularly with the current increased interest in transboundary water management the risk is that these programmes become supply-driven. The recent history of the Mekong River Commission shows the importance of a programmatic rather than a project approach, with the formulation in the hands of the river commission. Greater autonomy is further possible through the establishment of trust funds.

With respect to investments in regional water management infrastructure the current pattern is that of national investments, that to a limited degree are co-ordinated between riparian countries. If the institutions established are sufficiently robust, regional investments are possible. The Mekong River Commission holds greatest promise in this respect, however, more work is still required on reducing risks in such investments. One possibility is funding or co-funding by regional development banks which generally have the leverage to recover loans.

⁹ Another issue is the funding of transboundary water management arrangements on smaller rivers, where scale considerations do not allow the more elaborate arrangements that are in place on some of the larger rivers – but where still considerable transboundary sensitivities have to be negotiated.

Longer-term financing of regional public goods remains the most difficult enterprise, not least because the longer term positive and negative externalities are harder to gauge and project to important constituencies of interest such as civil society, local government, state institutions and regional groupings. Building political momentum through the incremental engagement of all parties is therefore vital to maintaining the sustainability of long-term provision.

Initially whilst it will be donors who support the diplomacy, politics and fact-finding involved in establishing viable institutions, additional mechanisms such as direct charges and tariffs, and wider financial participation, can evolve at later stages of the process. There is also scope as the structures of management mature for raising funds through government taxation and through direct involvement of other bodies – particularly the private sector – in, for instance, the provision of infrastructure and investments on river basins.

Current and recommended financing arrangements for process financing

Cost category	Explanation	Current financing arrangements (case studies)	Recommended financing arrangement
<i>Initiating process</i>	Cost of establishing and adjusting transboundary institutions	Mixed and patchy	By international or regional organisations with sufficient strength
<i>Institutional management</i>	Management costs of the transboundary institutions	By riparian countries and externally	By riparian countries solely
<i>Programme implementation</i>	Cost of river basin management – development of uncontested data bases, monitoring, etc	By bilateral donors and UN agencies	On the basis of formulated programme Trust Fund financing by bilateral, multilateral and private donors
<i>Investment in water management works</i>	Cost of investment in water-related infrastructure	(Uncoordinated) National investments (public and private sector)	Co-ordinated national investments and regional investments Risk financing (co-financing regional development banks and private sector) New financing modalities <ul style="list-style-type: none"> • Inter-riparian financing • Cost recovery

At stages in the financing of institutional development there will be difficult trade-offs between donor willingness to maintain long-term commitments and riparian capacity to finance from domestic sources. Whilst the costs of management arrangements described are not high (particularly from a donor perspective), as they become domestically sourced their real cost will become increasingly apparent,

particularly where there are perhaps significant trade-offs with other poverty reduction processes. There is therefore a need to understand the differential rates of progress in this financing sequence with the careful weighting of costs by different riparian capacities, level of socio-economic development and opportunity costs of financing such arrangements. Maintaining a balance between the inputs of different riparians to avoid dominance of the process may also require third-party support. Possible funding arrangements at different stages in the process are shown in the table below.

Long-term third-party support could be facilitated through the proposed ISWF. Funding for this facility could be based on a number of sources, reflecting a range of systems. These could include direct grant funding from international bilateral donors (or GEF is a possibility, tied, perhaps to particular projects), and regional loan funding from the main regional banks for other activities. Different forms of funding could be used for different aspects of the sequencing of actions. The vision of donors would have to be long-term, and include some form of long-term commitment to the core costs of the facility.

Participation and civil society:

Enhancing roles

The role of civil society whether at a regional or national level varies greatly across the case studies examined. On balance however the role of civil society in transboundary water management is limited. Whilst integration and participation in regional structures at a state level is well-developed in some countries, the involvement of civil society as a participant in development policy and programmes is limited. Some nascent indigenous NGOs looking in particular at issues surrounding the environment and dam-building are emerging. In southern Africa there are some internationally important examples of civil society involvement in water management issues on the Okavango, but where the focus is not on internationally protected sites – on the Incomati for instance - the focus is less sharp.

In the Jordan basin, perhaps significantly given the level of political conflict, there is still an important level of civil society participation in management issues, including the critical area of water allocations to agriculture. The political-civil society links are important and exert influence on wider management processes given their level of embeddedness in national political discourse. Given that the provision of the regional public good is ultimately to benefit the populations of a region – and specifically to address the key issue of poverty reduction through sustainable development – substantial support to developing the civil society-government interface is required. Civil society groups are not just stakeholders in the provision of the public goods in terms of deriving benefits. As the Southern Caucasus example shows their skills are sometimes required in helping to provide the good: in particular there is a large potential role for civil society organisations in so-called second track diplomacy and confidence building.

In many cases donors are advocating an increased role for civil society in developing water delivery systems in agricultural and domestic sectors, for instance in the much-vaunted irrigation management transfer process. Enhancing civil society roles in wider regional level processes as well as supporting local-level development is a part of the development of effective international water management as a public good.

To be effective, transboundary water management has to include the balancing of priorities between user groups, essential to which is more effective partnering of government and private sector with civil society. However, substantial barriers to extending the role of civil society at a regional level need to be overcome, problems surround existing capacity, national political cultures which hinder the activities of civil society, and the larger technical complexities of transboundary activity itself. The relatively modest use that non governmental organisations have made of the special window for implementing transboundary water programmes under GEF highlights the latter problem in particular. A particular focus should therefore be to facilitate the entry of civil society (and local government) at a regional level of management. In the specific realm of effective transboundary water management this role would be facilitated by greater support to global water networks concerned with policy development and their relationship to states and society, including the World Water Council, the Global Water Partnership and the Green Cross initiative.

A structured role for civil society

Stages of process	Possible role of civil society
<i>Initiating process</i>	Civil diplomacy between neighbouring groups; construction of dialogue through networks of civil society groups at a regional level
<i>Institutional management</i>	Observers to the main meetings; Development of networks to feed into policy development and data collection
<i>Programme implementation</i>	Capacity building, independent monitoring of process; assistance in feedback of ideas and impacts from local communities
<i>Investment in water management works</i>	Implementation and co-funding, where appropriate; provision of technical expertise in development of management works including social and environmental impact assessment

Legal and policy dimensions:
Creating conditions for agreement

Some of the regional organisations covered in the case studies have used international norms and principles as the basis for agreements, but rarely are these principles capable of enforcement. The SADC protocols are a case in point. In other basins, for instance the Jordan, the question of riparian rights is deliberately avoided in favour of a sharing formula agreed on a bilateral basis (the rights of other riparians are *de facto* ignored).

The development of effective institutions of management is identified in this study as the key regional public good to which donor financing should be targeted. An important part of this process is agreement on principles for participation (who should participate and at what level), for decision-making (how to make these processes transparent and who to include), and on the principles by which benefits (or water shares) should be apportioned. Hence, establishing the principles and norms involved is an essential step towards the provision of the regional public good. Given the experience on the Mekong – there, enforcement is an issue – or on the Jordan where rights issues are bound up closely with contested territorial sovereignty, the problems of reaching agreement are considerable, and of monitoring and enforcement greater. The incremental process of seeking agreement in the Nile basin shows how much caution may have to be involved, particularly when there are a large number of parties involved. Similarly, the legal process itself is slow, including at a national level where verification and agreement has to begin; hence, revisions to the SADC protocol have only recently been completed.

Nevertheless, as described in this study and demonstrated in the case studies, substantial work on the development of legal conventions on transboundary water management (which resulted in the UN Convention on the Law on Non Navigational Uses of International Watercourses) is gathering international support. The Convention was ready for ratification in May 2000, but has failed to-date to attract the required number of country endorsements. The ratification process remains open-ended. Evidence from the case studies supports the principles of the Convention and has shown how it has still served as a model for several transboundary water agreements, in particular the Mekong River Agreement and the SADC Water Protocol¹⁰. It remains an important international document, having achieved a degree of international consensus on best practice.

The principles established by the convention are equitable and reasonable utilisation, obligation not to cause significant harm, prior notification, and co-operation on the basis of sovereign equality and mutual benefit. Beyond the agreement of these broad principles still substantial further work needs to be done to operationalise them. There still leave many politically complicated issues un-resolved in river basins where water use between riparians is unbalanced and contentious, such as the Incomati and the Jordan basins.

The case studies and other international river basin examples show that where water allocations are agreed, they will affect decisions on major investments at a national level. In rivers such as the Incomati considerable investments in water abstraction for strictly national purposes were made prior to agreements on water sharing. However, it is only when transboundary agreements are in place that it is possible to invest in water resource management that serves co-riparian objectives.

¹⁰ Although Wolf (1999) has established that many of the provisions of the UN Convention are missing from existing (often earlier) transboundary agreements.

Other river basin examples support the case for alternative forms of financing (such as inter-riparian financing and water taxes) being based on legal agreement. Private sector flows for use in transboundary water resource management are now heavily tilted towards hydro-power exploitation. In the case studies, the flow of private sector funds appears to depend primarily on a stable political climate, which may be ensured either nationally or by power-purchase agreements, but not necessarily by transboundary water agreements. Private sector concessions on transboundary water services (such as navigation) are a future possibility, and exploiting such investments on a cost recovery plus basis would require co-riparian legal agreement.

Recommendations

The study has drawn together 12 recommendations relating to the above four sections, which are presented below.

1. The study recommends the establishment of an International Shared Waters Facility (ISWF), under a partnership model and drawing on the established roles of multilateral organisations presently engaged in the sector, including the World Bank, UNDP and the GEF, whilst liaising closely with related international initiatives such as the GWP and the World Water Council. Its charter would highlight the importance of transboundary water management as an international public good and would promote the principle of subsidiarity in the provisioning of such a good. As well as serving as an international source of arbitration between riparians, the ISWF would help to develop modalities between financing institutions in order to facilitate financing arrangements for new and existing initiatives, and would support institutional development in water resources management within regional multilateral organisations. As an international advocate of common legal norms and principles, the ISWF would seek to develop practical awareness of the UN Convention on the Law for Non- Navigational Uses of International Water Courses.
2. Regional economic groupings actively promoting regional public goods (such as SADC) should be encouraged and supported through the development of financing initiatives for basin-specific activities within these groupings. To support the roles that economic groupings can play in promoting transboundary water management institutions, a partnership between different regional councils should be considered, including the SADC and ASEAN. The EU could take the lead in organizing such an initiative within which the experience of the various councils could be exchanged and expanded upon.
3. The study also recommends that Consideration 47 in the recently adopted EU Water Framework Directive should be used to establish a more pro-active role for the EU in shared river basins internationally; and specifically, those immediately outside the European Union. A brokerage role for the EU should be made more explicit and streamlined with EU development programmes in critical transboundary river basin regions. Member states such as Sweden could support this role under the umbrella of the ISWF.

4. This study recommends the increased apportionment of funds to process financing of sufficient duration to ensure continuity of institutional development, rather than piecemeal project financing (whether or not institutional arrangements are executive or co-ordinating in nature).
5. Funding of transboundary institutions should be combined, where appropriate, with parallel national-level institutional strengthening in order to ensure that the future input of riparian countries into regional arrangements can be assisted and the dominance of particular riparians be minimised at a regional level.
6. The development of funds to implement technical programmes under river basin organisations that lack independent or adequate resources should be pursued, recognising that transboundary Trust Funds represent a new venture, but that their feasibility will be dependent on robust institutional and legal structures.
7. Within mature river basin organisations new financing mechanisms such as cost recovery on transboundary water services, including areas such as navigation and hydro-power, or inter-riparian financing should be actively explored and promoted. An essential part of establishing these mechanisms would involve looking at legal requirements and the need to cover risks associated with new developments, particularly where inclusion of the private sector is considered.
8. Programmes to encourage private sector participation in transboundary water management should be specifically developed, recognising both the potential of the private sector but also the specific institutional framework in which it operates.
9. It is recommended that greater support is given to civil society organisations engaged in building effective management capacity between co-riparians. This support should be in the form of initiatives to assist civil society organisations to network around common river basin management themes and support second-track diplomacy.
10. The second stage of assistance should focus on assisting civil society organisations to achieve coherence on confidence-building and conflict prevention surrounding transboundary water management. Financial support should be provided to encourage the development of civil society networks that include local government and can help to both support regional institution-building processes and represent the views of these local institutions. A starting point should be the establishment of transboundary networks of civil society groups in a number of pilot river basin organisations (the Nile basin or the Jordan could provide early examples).
11. The study recommends that internationally-agreed principles as covered in the various international Conventions need to be more widely disseminated to turn them into effective shared norms at an international level. Their agreement in

principal needs to be established amongst the community of donor organisations, at a minimum. This function could be facilitated by the proposed ISWF (see above).

12. Work should be financed to assess the institutional demands (in cost and manpower) of operationalising these principles, and especially issues raised about enforcing compliance between co-riparians.

The case study material and analysis of financing issues included in this report both show that there have been important efforts undertaken to develop transboundary management of shared river basins. However, there clearly remains much to be done in order to provide more effective institutions of water management. The implementation of these recommendations would provide a starting point towards achieving this important goal.

1 Introduction

1.1 Public Goods and international water management

This report presents the findings of research undertaken on the project ‘Effective International Water Management as a Public Good’. The study is commissioned by the Swedish Ministry for Foreign Affairs as part of the Development Financing 2000 initiative. This initiative seeks to promote knowledge and international commitment to a strong and well-financed multi-lateral system. In particular it revisits the role and operation of the UN system and multi-lateral banks, and investigates the utility of the concept of global public goods in international finance initiatives.

Divided into five sections, the first section of the report addresses the question of whether effective transboundary water resource management is a public good and, if so, what is the nature of this particular public good (i.e. whether it is national, regional or international/global, etc). This was the topic of the inception workshop for this study¹¹ and Section 1 reflects the *communis opinio* reached at this discussion.

Section 2 analyses the current framework for development co-operation, focusing on the opportunities and constraints provided by these frameworks, including how water investments are funded and, specifically, how transboundary water management is funded. Key aspects of the financing of public goods are illuminated in this section. Section 3 then explores possible innovative options for financing international water resources management.

Section 4 describes five case study areas of shared waters and analyses the interplay between institutional and legal arrangements in transboundary water management and the funding of transboundary water management. It also looks at the role of the different stakeholders in water resource management in terms of the wider participation of civil society and the private sector.

Section 5 draws conclusions based on the findings from case studies and research into financing arrangements undertaken within the previous sections¹².

The case studies explored in this report represent extremes within a spectrum of different arrangements. At one end is the Southern Caucasus case, where transboundary water resource management is altogether absent and where water blockades are used in the conflict between the three countries in this region. Near to this end is also the Jordan river, equally highly contested and the source of considerable regional tension, but where there have been some successful initiatives at building up transboundary management albeit at a bilateral level only. Towards the

¹¹ Convened at the School of Oriental and African Studies, University of London on 17th November 2000.

¹² The final conclusions and recommendations of the report were also shaped by feedback received from a seminar convened in Stockholm by the Ministry for Foreign Affairs in order to discuss the Draft Report. The seminar was held on 27th March 2001.

opposite end of the extreme are found the case studies of the Okavango and the Incomati in Southern Africa, both of which have seen the beginnings of joint management – with the pace of change in the Okavango basin higher than in the Incomati. Finally, the Mekong River, is at the opposite end, displaying a long history of co-operation. The activities of the Mekong Committee and now the Mekong River Commission have been well-funded over the years, offering useful insights into the financing of effective water resources management as a regional public good, although the process of development has not always been trouble-free.

Increased openness of borders and more systemic risks to the global ecosystem and to international markets challenge traditional patterns of resource management. There therefore exist important new dimensions to the production and management of public goods. Furthermore, it has been argued that the failure of existing international institutions to provide public goods is directly responsible for many of the world's recurrent crises, including volatile financial markets, disease, and environmental degradation – including the pollution and depletion of water resources.

The 1990s was a decade of unprecedented constructive progress in some regions of long-standing conflict. With respect to water, major agreements were achieved on the Ganges between India and Bangladesh in 1996 and between Jordan and Israel in 1994. Transboundary water management institutions were revitalised in the Mekong Basin in 1995 and in the Nile Basin in 1992. In Southern Africa protocols on transboundary water management were drafted and discussed in SADC meetings. At the UN the protracted process taken up by the International Law Commission (ILC) on shared international waters unexpectedly achieved an enabling vote from those attending a February 1997 ILC meeting. Whilst ratification has not yet materialised, the existence of articles of the draft convention is another important product of the facilitating international political climate of the 1990s. Nevertheless, the relationship between funding inputs and institutional outcomes in transboundary water management has never been systematically reviewed. There is a pressing need to understand more about the modalities of financing institutional arrangements for effective transboundary water resources management and this study hopes to contribute to this.

The opportunity provided by current circumstances to address international water management as a public good are fourfold: 1) there is flexibility in international relations brought about by the post Cold War decade; 2) the industrialised economies have transformed their approach to managing water resources to include environmental and civil society concerns as well as those of government and the market; 3) Northern professionals and agencies working in water resources are re-orientating themselves to adopt inclusive and transparent approaches to management and to prioritise environmentally considerable and economically efficient management approaches; and 4) the idea that institutions for managing water at all levels as a public good now has sufficient currency for it to be able to enthuse potential donors. This enthusiasm is likely to be mobilised despite the numerous uncertainties and risks associated with the absence of global governance, the absence

of well co-ordinated and well-funded UN agencies, and the uncertainty of the commitment of the United States to such a project.

Recent work by ODI suggests that international public goods still only account for a minor proportion of official ODA, although this proportion is increasing. In correcting this under supply, other researchers, Kanbur & Sandler (1999), make the case for the 'principle of subsidiarity'. They argue that under supply should be handled closest to the point where the problem occurs, but that this should be balanced against 'considerations of economies of scale and scope'. Subsidiarity should be the first principle for allocating institutional responsibility. As the focus on international public goods increases, they argue, the institutional implications of the subsidiarity principle will be to cause a gradual shift of capacity and staff from global to regional institutions in order to address particular spill-over effects. Given that transboundary water management as an international public good is generally provided regionally, this point is of particular importance for the study.

The concept of public goods (see, for example, Kaul, I., Grunberg, I. & Stern, M., 1999) is that they are non-rivalrous in consumption and non-excludable. The classic analogy is with a lighthouse. The use of a lighthouse by one ship does not prevent use by other ships (hence the good – the warning of danger – is non-rivalrous in consumption). Further this is non-excludable in that *no-one* can be effectively denied the use of a lighthouse. Because of the latter characteristic public goods are less likely to be provided by individuals or by market mechanisms.

A category of 'global public' goods is further distinguished in which the benefits are quasi-universal. Examples frequently cited include international justice, global financial stability, international vaccination programmes, protection of key environmental resources, biodiversity conservation, and world cultural heritage. Peace and security and universal knowledge and information are additionally, though less-frequently, cited examples¹³.

Effective transboundary water resource management would appear not to fit into this category of 'global' public goods unless the benefits accruing to a single shared river basin can be said to be quasi-universal in nature. The only argument to support this contention is if a particularly conflict-prone basin can have global repercussions if the waters are highly contentious and poor management can increase the risk of conflict. The Jordan is arguably a case in point, although the relative impacts of providing more or less effective management are still likely to be felt differentially, rather than quasi-universally.

In the last few years there has also been a growing acknowledgement of the importance of managing water resources effectively. Concerns raised have included the dwindling nature and deteriorating quality of supplies in some parts of the world,

¹³ Increasingly, effective water resources management is being regarded by the international community (and, in particular, institutions concerned with security), as part of wider 'environmental security' concerns. Many of these concerns relate to the potential for conflict caused by scarcity and maldistribution of resources.

the increased human pressure on the resource, and the need to understand effective environmental demands. The potential for conflict that poor management, pollution and inadequate attention to allocative issues may cause has also been raised. The discussion on ‘water security’ is relevant in this respect, and has recently been the focus of international fora. The thrust of the water security debate is that there are other securities than national securities and that they relate to the effective and sustainable use of shared resources. Approximately 40% of the world population live in international river basins and their water security is to a large degree affected by transboundary water management.

Increasing global awareness of the importance of effective international management of the resource exists – but this does not automatically translate into effective management at an international level. Indeed, it is doubtful that there can be effective international management of the resource even though its hydrological cycle is truly global in nature. There is, therefore, little to commend the idea of effective international water resources management to the ‘global’ public good basket. Nevertheless, in providing water security for all – an oft-stated global concern, and increasingly so post Second World Water Forum – there is clearly a global need, but it is realised that this can only be achieved through national and regional actions, supported by global and international institutions (the UN system, multilateral development banks, and other international agencies). A global effort is therefore required to ensure the provision of what is in effect a regional public good. This effort has to address both the limits to national sovereignty over a resource such as water, and also the political constraints that national sovereignty places on transboundary management institutions. In short, for the purpose of this study we therefore define the institutional aspect of *effective* and *balanced* transboundary water management as a regional, but not global, public good (but with international characteristics).

Following the overview by Stålgren (2000), as public goods, we can define effective transboundary water management institutions as:

- *regional* public goods rather than truly international public goods, as they affect a limited set of riparian countries;
- ‘*club*’ type of public goods rather than pure public goods where the benefits depend on the countries that commit themselves to the institutional arrangements (and effective transboundary water management is, in effect, produced by the weighted sum of individual contributions (Kanbur, Sandler and Morrison, 1999)). The ‘club good’ nature of transboundary water management is further apparent in the fact that the large majority of international river basin agreements are bilateral rather than multilateral (see Section 3). While some shared rivers only concern two countries, in other cases bilateral ‘club type’ arrangements are caused either by exclusion or by ‘opting out’ by some of the riparians;
- ‘*means*’ type of public goods – the output of ‘effective and balanced transboundary water management institutions’ may be other goods, such as regional peace and security.

With respect to the ‘means’ character of transboundary water management institutions, examples of other type of goods facilitated by effective transboundary water management institutions are:

- international public goods – such as the protection of earmarked (and non-earmarked) global biospheres. UNESCO has for instance identified 47 riverine-based international biospheres, that are located on shared rivers – some of the biospheres themselves being transboundary. Similarly the list of International Wetlands under the Ramsar convention includes a large number of international wetlands, that depend on transboundary rivers¹⁴;
- other regional public goods include regional security, where much has been made of increased water scarcity leading to ‘water wars’. Wolf (2000) has tried to put this in perspective by illustrating how, in past decades, there have been only seven known cases of armies mobilising over a water dispute and in which none has resulted in open hostilities. Even though overt water conflicts may be exceptional, the protection of national water resources is intricately linked to a number of international flash-points, such as Kashmir, Tibet, and the Golan Heights;
- national public goods, a very important category: several national public goods are closely dependent on effective regional water management. Prime examples are the reliability of water supply and water quality, the protection of national riverine fisheries, national flood management and the possibility of navigation. It is in fact threats to such national public goods – often most serious in downstream countries – that have often been the driving force behind establishing transboundary water management arrangements;
- private goods – development of hydro-power in particular is a private good, and for its sustainable provision depends on effective transboundary water management.

1.2 Issues of institutional equity, balance and comparison

A lighthouse that does not work is clearly not a public good. Likewise, transboundary water management institutions need to be *effective* and *balanced* to be able to produce the international public good that is water resources management.

The first main dimension of effectiveness is the range of water management functions covered under the institutions: these will include water quality, water distribution, navigation, timber transport, fisheries, aquatic ecology, hydropower and flood management. Currently dominating the international discourse, integrated water resources management outlines the need for a comprehensive approach to management in order for water management institutions to be *effective*.

The second dimension of effectiveness concerns the type of institution in place – perhaps ranging between a ‘paper’ protocol, a binding agreement, co-ordinating committee or an empowered commission on the one hand, and basic data sharing, the

¹⁴ Includes one in the Okavango Basin and one on the Mekong (see case studies).

development of a joint action plans, national investments or regional investments in water management improvements on the other¹⁵. As transboundary water management is produced by the weighted sum of riparian contributions, it is important to recognise that effectiveness not only reflects the degree of co-operation between riparian countries, but also to a large extent the *national capacity* to manage water resources.

In the past decade a number of programmes have started that intend to improve water management on shared waters, often funded by bilateral donors or GEF. In many cases transboundary committees have been established to co-ordinate the programmes. One example is the GEF-funded programme on the transboundary lakes between Macedonia and Albania. The mandate of such co-ordination committees always risks being limited and short-lived, however. When the Government of Macedonia recently negotiated additional water releases for hydropower generation in Albania, for instance, it did not involve the committee on the transboundary lakes, even though the concomitant lowering of water tables in Lake Ochrid was expected to effect the ecological balance of this World Heritage site.

Effectiveness is clearly also related therefore to the size and complexity of the shared freshwater resource requiring management. Hence, a degree of relativism is important. While it appears that for many major international rivers, transboundary water management institutions are being established, the degree of management on minor international rivers is far less pronounced. The stakes involved may not be big enough to justify an intense degree of management – but the consequence is that many minor rivers are not managed at all. The public bad that can result can be cumulatively equal to not managing a major basin, if not more damaging to riparian countries themselves.

The idea of *balanced* institutions is also central. In many instances effective management has to imply effective *allocation* of water, raising issues of riparian rights and, therefore, placing transboundary water issues firmly in the realm of politics and international relations. As a result, whereas the universal provision of some public goods may be fairly free of controversy and dispute, international water resources management is often not, and, by extension, this affects the involvement of bilateral and multilateral donors in financing developments.

The issue of balance is one of degrees and gradations. An agreement that is negotiated between unequal parties and leaves much to interpretation – as some have argued is the case with the Ganges Treaty between India and Bangladesh – is less of a regional public good than an agreement negotiated by all riparians on a level playing field. Extensive international legislation has evolved that helps define the nature of ‘balance’, such as the Helsinki and Arhus Conventions and, most importantly, the UN Convention on the Law on Non- Navigational Uses of International Watercourses. Although signed by only a minority of countries, the latter was objected to by only a few and now represents important international social capital. As such it is the most

¹⁵ It has been argued that even ‘paper’ agreements are valuable, as they reduce international tension.

widely accepted definition of 'balanced' transboundary water management institutions. At its core are a set of general principles, against which different transboundary water management arrangements may be judged, namely:

- equitable and reasonable utilisation and participation
- obligation not to cause significant harm and prior notification concerning planned measures
- general obligation to cooperate on the basis of sovereign equality, territorial integrity, mutual benefit and good faith.

At the level of promoting such general legal principles and those concerned with integrated management processes, there are a large number of global initiatives both within and outside the UN and IFI's. The organisations that concern themselves explicitly with transboundary water management are relatively few, however and there is a need to establish institutional coherence around this issue at an international level. (This point is referred to in the following sections of the report and is highlighted in the conclusions).

Within the UN body alone more than 15 organisations include one aspect or other of water management as part of their mandate. These include WHO (water and health), FAO (agriculture), UNDP (development, capacity building), WMO (meteorology and hydrology), UNICEF (water supply and sanitation), UNEP (environment), and UNESCO (water resources data). A co-ordinating mechanism is in place in the shape of the ACC-Sub Committee on Water. Even so, there is persistent criticism that with so many organisations in existence the attention to 'water' is fragmented and critical mass is lost in terms of solutions to pressing management problems, including those surrounding shared river basins.

A new initiative that may bundle together the UN's different activities in the field of water resources management is the development of a biannual 'Water Development Report', the first issue of which is due in 2002, ahead of the Rio +10 conference in Johannesburg. This conference is meant to take stock of the progress on Agenda 21, including Chapter 18 on water management (within which transboundary water management is included). The expectation is that in this second meeting freshwater management will receive considerably more attention than at the original Rio Conference.

However, at the level of transboundary management, none of the UN agencies has an explicit mandate, though UNDP and UNEP have supported strategic planning, capacity building and data collection on shared waters within their programmes. Some regional UN bodies have also actively supported transboundary water management. For instance the Mekong River Commission had its roots in an initiative of ECAFE, the predecessor of UN-ESCAP (see Section 4). More recently, the relatively small UN Economic Commission on Europe (UN-ECE) has actively supported transboundary water management in Europe by providing some generic tools, such as guidelines on monitoring transboundary waters and monitoring of the Helsinki Agreement. The pattern seems to be for UN agencies to support programmes

in shared water management, but less so the establishment and creation of new transboundary institutions.

In this first area IFI's have been more active. The World Bank in particular has been an important force behind the Nile Basin Initiative (see Section 2, Box 3) and water negotiations in the Middle East, using both its weight and contacts with the various governments. This is indicative of the increasing 'political agency' role of the World Bank, besides its financing agenda, though it is keen not to be understood as such. Regional development banks have also been active in promoting regional public goods, but it appears they have not, to date, played any substantial role in the process of initiating transboundary water management institutions.

Among bilateral donors there is a growing interest in transboundary water management¹⁶. As the case studies show there has been support from many European and North American donors for transboundary water management, particularly in establishing studies, generic tools and capacity building in major river basins. The German Government also organised a number of dialogues aimed at establishing best practice in transboundary water management (which led to the Petersburg Declaration of 1998).

This type of support has been similar to the activities from UN agencies, as described earlier. A hazard in some of these programmes has been that they have taken place without reasonably effective transboundary water management institutions being in place, and thus have not contributed to the regional public good as much as they could have. There is a parallel at a national level with the external support provided to national water resource planning in some countries, where there has frequently been duplication of initiatives without any effective co-ordination. Currently steps are being undertaken to co-ordinate the different donor initiatives in transboundary water management, revolving around the follow-up to the Petersburg Discussions and the Transboundary River Basin Initiative (TRIB), initiated by the US State Department and hosted by the UNDP and World Bank (for more on the success of this initiative see next section).

Three more initiatives promoting improved water management are important for the purpose of this study. First is the World Water Council (WWC) established six years ago. The WWC aims to act as a think tank on water management and to stimulate policy dialogue and has organised the World Water Forums – the most recent one in The Hague (2000) and the next one planned in Kyoto, Tokyo (2003). A sister organisation to the WWC is the Global Water Partnership (GWP) which intends to promote integrated water resource management at a country level. For this purpose it has a programme of building water partnerships, developing service providing alliances to the water sector, synthesising practical knowledge and promoting action programmes in water. The focus of neither the WWC nor the GWP is, however, explicitly on transboundary water management. Yet both can have an important

¹⁶ See, for instance, the UK DFID Strategy Paper 'Addressing the Water Crisis – Better Health and More Productive Lives for Poor People', launched in March 2001.

facilitating role, in bringing together the disperse initiatives.. Finally, 'Green Cross', an international NGO headed by former world statesmen has as its objective conflict mitigation – including support to the resolution of international water disputes.

Understanding river basin development inevitably involves comparing the experiences of different regions and the types of institutional arrangements that have been entered into to achieve transboundary management. The University of Alabama's '*Transboundary Freshwater Dispute Database*' is based upon full or partial texts of 145 treaties dealing with non-navigational issues of water management, flood control, hydropower projects or allocations for consumptive or non-consumptive uses in international basins and provides an instructive lesson in comparison. Wolf & Hanmer's (2000) analysis of this database reveals that:

- One hundred and twenty-four of the 145 treaties (86%) are bilateral and just twenty-one (14%) are multilateral (two of which are unsigned agreements or drafts).
- Of the twenty-one multilateral treaties/agreements, developing nations account for 13. Whether this is because a majority of international watersheds are shared by just two states or whether this reflects the increased complexity of multilateral negotiations is unclear.
- Most treaties focus on hydropower and water supplies. More than half include no monitoring provisions whatsoever and, perhaps as a consequence, two-thirds do not delineate specific allocations and four-fifths have no enforcement mechanism.

Wolf (1999) also explored the generalised principles for delineating water allocations, as manifested in customary water law and the efficiency-based context of economic theory, as well as how allocations are delineated in practice, as exhibited in 49 different treaties. With respect to the 1997 UN Convention he notes that it has important components to fostering peaceful relations, but is somewhat vague and even contradictory in its guidelines for the process of allocating transboundary water resources. Wolf found little explicit influence of the generalised principles in those 49 treaties examined and noted instead that treaties tended to reflect the often unique setting and needs of each basin. This again reflects the significance of subsidiarity as a guiding principle in achieving effective International Water Management Institutions and reveals the limits to translating comparative analysis into generalised principles for action in particular river basins.

Wolf identified the following trends:

- A shift in positions often occurs during negotiations from "rights-based" criteria, whether hydrography or chronology, in favour of "needs-based" values, based on irrigable land or population, for example.
- In the inherent disputes between upstream and downstream riparians and existing and future uses, the needs of the down-stream riparian are more often delineated – upstream needs are mentioned only in boundary waters accords in humid regions – and that existing uses are generally protected.

- Economic benefits have not been explicitly used in allocating water, although economic principles have helped guide definitions of "beneficial" uses and have suggested "baskets" of benefits, including both water and non-water resources, for positive-sum solutions.

The uniqueness of each basin is repeatedly suggested, both implicitly and explicitly, in the treaty texts. The generalised guidelines offered for allocations, whether based on legal or economic equity, have difficulties capturing the geographic uniqueness of each of the world's international waterways, whether hydrological, political, or cultural aspects. As Gilbert White argued for many years, "if there is any conclusion that springs from a comparative study of river systems, it is that no two rivers are the same" (White, 1957, 160). These are important considerations for the comparative analysis of river basins within this study and speak to the final conclusions of the study which focuses on a process view of achieving more effective transboundary water resource management.

1.3 Surmounting barriers to the provision of transboundary management

While it has been shown that transboundary water resource management is a regional public good, to date this good has not been well-developed. It is important to ask why. In terms of global public goods, climate change and the Montreal Protocol on ozone depleting substances have received greater prominence and political commitment than transboundary water resources. The case studies in Section 4 provide the key to understanding the under-provision of this public good through highlighting in detail the barriers that exist to effective institutional management. Many of the ways forward to improving financing to this area are also highlighted and explored further in Section 5.

Cook and Sachs (1999) observed that in general regional public goods often have characteristics which make the transaction costs of setting up viable institutions and ensuring their funding very high. He notes three specific concerns:

- Neighbouring states are often in direct military conflict
- Neighbouring states may be in 'diplomatic competition' if not outright conflict, for example during the Cold War period;
- Regional bodies, where they exist, are often weak and under-resourced; even the EU, after 40 years of successful operation has resources of only about 1% of the GDP of the member states.

As will be seen, many of the case study examples bear out these concerns. They also suggest that to improve financial resources for the provision of the regional public good both greater international facilitation and a wider range of funding instruments are required. In the next two sections the report sets out the existing financial framework in which transboundary public goods are situated, identifying current financing arrangements, their limitations, and possible alternative financing options.

The following section is concerned with analysing the three key aspects of water resources management: namely *processes* of initiation, confidence building, negotiation and renegotiation (i.e. the establishment of institutions); the effective *operation* of transboundary water management including both institutional overhead costs and water management programmes (technical programmes, training, studies, capacity building); and lastly issues surrounding *investments* in shared water infrastructure (infrastructure with transboundary benefits located in a single riparian).

2 Development financing – the current framework

2.1 The current financial framework for water management

This section begins with a broad overview of financial resources for water resource management and development in developing countries, before breaking this down into the component that at present is allocated to the provision of public goods. We discuss the level of resources allocated globally to international projects, some of the barriers and issues affecting the financing of transboundary water resource management. We look in turn at the role of multilateral development banks in financing international public goods, at the specific activities of the Global Environment Fund and at bilateral and multilateral donor activity in transboundary water resources management. Data are fragmented and put together from many sources, so the picture is inevitably incomplete. Following a review of the current framework alternative financing arrangements are addressed in chapter 3. The broad lessons emerging are returned too in chapter 5, following the analysis of case studies.

Over recent years, some broad-brush estimates of the total financial flow of funds to the water sector in developing countries have been developed, as summarised below¹⁷. Broadly speaking it seems that annual investment in water infrastructure in developing countries is in the order of \$70-80¹⁸bn per year. Most of this is investment in irrigation and drainage and in water supply and sanitation.

In developing countries, where our analysis is focused, the bulk of the funds are a mix of domestic investment by both governments and the private sector – both formal and informal. There is also the flow of aid from international bilateral and multilateral donors as well as international private flows. Investments may be made at a number of levels – by central governments, local governments and at community level, by large-scale private enterprises – internal or external to the individual countries – and by farmers, householders, and industrial establishments within countries.

The following table sets out an estimate of the total annual investment flows to water management, broken down by sector and source of funds. This picture has been built up through analysis of OECD records of donor flows, analysis of the international private sector and estimates of the contribution of domestic governments, private companies, individuals and communities¹⁹. It shows that in 1996 around 11 or 12% of financial flows came from donors, and overall the international private sector accounted for about 5%. The balance came from domestically generated sources, both public and private. In the water supply and sanitation sector international private flows are more or less similar to donor flows, at around \$3.5bn pa.

¹⁷ The data and analysis presented here draws heavily on work carried out by Hilary Sunman under the auspices of the Global Water Partnership in preparation for the World Water Forum of March 2000, and the Framework for Action which was presented at the Forum.

¹⁸ Dollars sign denotes US\$ for the rest of the report.

¹⁹ The assumptions and analysis underlying these figures are set out more fully in GWP-FAU Background Paper on Financial Flows for Water produced for GWP in 1999.

Table 1. Broad estimates of investments in water in developing countries, \$bn 1996

	\$bn pa	% of total
<i>International flows</i>		
<i>Multilateral and donor aid</i>	9.1	11-13
<i>Private investments</i>	4.1	5-6
	13.2	
<i>Domestic flows</i>		
<i>Government, public sector</i>	51-55	70-74
<i>Domestic private and community</i>	12-15	15-21
	63-70	
Total	76-83	

Source: Sunman, 2000 (Global Water Partnership)

Within developing countries, some 70% of investment is generated in the public sector, although the relative contributions of public and private sector vary by type of investment and place. Private sector investment in irrigation is high in some countries, but, almost universally, investment in water supply and sanitation has traditionally fallen into the domain of public finance because of the public good nature of these services. While investment in infrastructure – the provision of goods and services – has been generated from both public and private sectors, the costs of *water resources management* normally lie within the public sector, the ministries of water or irrigation, or, increasingly, the environment. Thus, water resource management falls within the public good element of public sector activity. However, the pattern is changing.

The past decade has seen a strong shift towards private sector financing of water infrastructure in a move which has seen the private sector take on ‘public good’ functions as well as traditional fee earning private good provision. Very visibly, the past decade has seen a major increase in the share of international private sector investment in all infrastructure in developing countries. In some sectors the increase has been dramatic, notably telecommunications and to a lesser extent the power sector. Water has not seen such a significant growth but the change is significant. Between 1984-90, there were just eight private sector contracts in the developing world in the area of water and sanitation, to a value of \$297m. The next seven years saw investment in 97 projects, to a total value of \$25bn, equivalent on average to about \$3.6bn per year, very similar to the level of donor support, as noted above. The private sector seeks a return on investment through revenues earned and – essentially – has little concern for public good aspects of water. However, if these are demanded of the private sector in order, for example, to meet government social objectives or other aspects of a regulatory framework then the private sector can deliver private goods quite effectively. The policy shift in the UK for example with regulatory reform accompanying privatisation of water services achieved substantial investment in environmental improvements²⁰.

²⁰ In the UK, following the 1990 Water Act, privatisation of water supply and sanitation required substantial investments from the private owners in environmental clean up and improvement of

In addition to large, formal international private financial flows, private sector investors are playing an increasingly important role. The scale and type of private sector involvement ranges from the formal use of private sector investments, through contracts and full privatisation of corporate structures, to the development of corporate structures within the public sector and informal community water supply programmes. The latter ranges from the ubiquitous water vendors to locally-funded water networks. Domestic private sector resources have become increasingly important, in response to the failure of public services to deliver water supplies in many parts of the developing world.

Thus, there is a changing global environment for supplying public goods. While this is not the natural habitat for the private sector it is possible to access private sector resources either through regulatory requirements or through public-private partnerships, or even through mechanisms such as trust funds (see chapter 3).

2.2 The role of development aid in public goods provision

2.2.1 Overview

Overall official development aid saw a decline during the period 1990 to 1997. Net concessional flows in 1997 were one third below the 1990 level in real terms. This is partly due to the depreciation in value of the currencies of the major donors with respect to the US dollar, and indeed, since 1997, the total aid flow has increased and has now recovered to the 1990 level. In the case of water, the share of aid actually increased. The total flow to water infrastructure in 1997 was \$3.7bn. Table 2 below, shows the value of contributions to water activities by selected major donors. The World Bank is the major player with disbursements of between \$1-2 bn per year.

Unfortunately, among these data, there is insufficient detail on how much of this is for 'public goods' or 'water resource management' as opposed to investment in infrastructure (e.g. water supply and sanitation). The classification of data in the OECD database does not allow for clear identification of the public good component of donor flows either. It does seem, from discussion with various donors, that there is a shift away from revenue earning sectors, including water supply and sanitation, towards 'softer' activities, such as capacity building, and building an enabling environment for other direct investors.

According to recent work by ODI, the total spending on public goods as a share of ODA has risen from about 4% in 1980 to almost 10% today, while the share allocated to national (as opposed to international) public goods has risen to about 40% of ODA. However the pattern of spending on both national and international public goods varies considerably between donors. The Nordic countries (plus Australia and

environmental quality. User charges ensure profitability and a return on private sector capital. Nevertheless, responsibility for water resources management – policy formulation and regulation remain firmly with the public sector through the Environment Agency.

Switzerland) allocate the largest share of aid to international public goods. Whether this applies to public goods in the water resources domain is not clear from the analysis, but it is reasonable to assume that the pattern for water follows the general pattern.

Table 2. Flow of funds to all water activities by selected major donors

	Contribution	Comments
Total ODA from DAC members	\$3.7 bn, 1997	Water and sanitation – 6.6% of total in 1996
World Bank	\$14bn between 1991-97 (declining from \$2bn in 1991 to \$1.2bn, 1998)	Share of total declining from 9% to 4% of total over the period
Asian Development Bank	\$5.6bn between 1991 and 1996 – average \$800m per year	As share of total lending and TA, averaged around 15%
EU	\$249m (1995)	Includes all water activities, see table below for shares.
InterAmerican Development Bank	\$820m in 1998, \$8.5bn between 1961-98, sanitation only	Sanitation is 8.1% of total loans and guarantees (8.8% over the whole period)
UNDP	\$192m	121 ongoing projects in 60 developing countries
Global Environment Facility (GEF)	\$39.6m	1996
UNICEF	\$220m	Between 1994-96

Source: Various donor reports.

Transboundary activity seems to be a very small component of the total. These financial flows from all sources are mainly at the level of individual nations. International private investors require clear legal structures and these are typically set up at the national level. Donor contributions are normally agreed with country governments, at the request of the latter. Public finances for individual countries are not normally used for transboundary issues. The level of financial flows allocated to ‘international’ or ‘regional public goods’ is small, as the discussion in the following section demonstrates.

2.2.2 Multilateral development institutions and their approach to regional public goods

The development and financing of regional public goods – of particular importance to this study, as identified in Section 1 – is not well documented. The difficulty in analysing OECD data on official development assistance has been noted above – the distinction between public and non-public goods is not well drawn. Furthermore, there is no analysis as to whether aid flows are directed at national or local projects versus regional or international projects.

The review of international funding for ‘regional’ and ‘international’ public goods therefore has to be built up on a piece by piece basis, from the experience of individual donors. The following table summarises main regional activities of multilateral development banks, and demonstrates clearly that regional activities form only a modest proportion of total lending. Even the World Bank with its huge portfolio (\$15bn of loans in 2000) allocates very few resources to international or regional public goods.

Table 3. The main regional activities of multilateral development banks

Organisation	Total lending	Regional lending	Regional lending as % of total	Types of regional projects
World Bank	\$15,276.3m (FY 00)	None listed Lending through GEF - \$260m	2% (GEF as % of total)	Environmental partnerships, e.g. Global Water Partnership, Africa Land and Water Initiative, Clean Air Initiative in Latin America; Global initiatives as implementing agency of GEF
Inter American Development Bank (IDB)	\$9,486m (1999) \$104,615m (1961-99)	Zero (1999) \$2,889.3m (1961-1999)	Zero (1999) 3% overall (1961 – 99)	Approvals in 1999 for 18 projects mainly in environmental management, disaster and business development or investment funds
African Development Bank	\$777.2m (approvals)	None identified	N/A	N/A
Asian Development Banks	Not available	N/A	N/A	a) Greater Mekong Sub-region – all sectors, nothing specifically on water resources management b) Trade improvement in central Asia

The World Bank, in formulating a special Operational Directive 7.50, (see box 2) to guide investments in shared waters, has nevertheless explicitly recognised the significance of shared waterways. The Bank, moreover, does contribute to a number of Trust Funds some of which support transboundary or international activities (see box 1), yet the value of the Bank’s disbursement to the GEF was only 1.4% of total lending. Sachs and Cook (1999) do point out that it is difficult to draw firm conclusions from the data on World Bank funding available in the annual reports – even where projects or programmes do cross boundaries, they show up in the statistics as loans to the individual countries involved, rather than as regional loans. Indeed our review of the new loans from the World Bank in FY 2000 confirms this,

showing only four projects which appear from their titles to have a regional dimension although they are listed under individual countries²¹.

Box 1. World Bank Trust Fund Disbursements FY 2000

Total disbursement \$1,607m of which related to international public goods:

- Global Environment Fund (GEF) \$217m
- Central America Emergency \$82.5m
- Montreal Protocol/Ozone \$58m
- Consultative Group for International Agricultural Research (CGIAR) \$39.2m
- Onchocerciasis Control \$24.6m
- Partnership for capacity Building in Africa \$9.5m
- Brazilian Rain Forest \$7.4m

Box 2. Operational Directive 7.50 of the World Bank

The World Bank issued Operational Directive 7.50 to guide investments on international waterways. The main elements are:

- No appreciable harm to be caused by bank-funded projects on international waterways
- Obligation on the borrower to notify other riparians for all projects on international waterways – with the exception of rehabilitation projects and water resource surveys
- Other riparians given a maximum time to respond of six months from dispatch of project details
- Independent expert opinion to be sought in case of negative response from other riparians

The *Inter-American Development Bank* has a separate category for regional loans, which over the past 30 years have averaged about 3% of total lending. The projects approved in 1999 (but not yet disbursed) focus on natural resources management (with no particular emphasis on water), on disaster mitigation, education programmes and on regional financing instruments such as the Central America Small Enterprise Investment Fund or the Tiona Investment Fund covering 16 Caribbean countries.

The *Asian Development Bank* supports two major regional programmes, the Greater Mekong Sub-region, and a trade programme in Central Asia. The total commitment to the Greater Mekong Sub-region is \$265m in loans and \$60m in technical assistance grants. Of these commitments so far \$67m in loans has been committed to road development between Laos and Vietnam, with \$260m in bilateral co-financing. The ADB, however, is beginning to focus more strongly on the promotion of regional

²¹ Chad/Cameroon Petroleum development and pipeline project, listed under both countries; Public-Private partnership and Information Management for Regional Development Project, listed under Madagascar; Trade and Transport facilitation in South East Europe project, listed under Bulgaria; and an International Road Corridor Rehabilitation Project, listed under Djibouti.

cooperation in water policy²². In their policy document the bank devotes a section to ‘promoting regional cooperation’, and states that ‘based on joint requests from riparian countries, the ADB will support joint projects for the planning, development and management of shared water resources, including the mapping of physical and institutional resources, information sharing and the establishment of a regional legal regime encompassing dispute resolution mechanisms’. The role of riparian governments in initiating such activities is stressed by the bank, which goes on to note that, while it will strategically work towards optimisation of existing (major shared river basins), this is ‘subject to joint requests made by the governments concerned’. As the focus of support to the wider sector is shifting away from physical investments in favour of support for projects to improve efficiency in water resource management and networking organisations (regional water partnerships are an example), so the focus for international waters is on building institutional arrangements.

Multilateral agencies like the ADB see themselves as having a comparative advantage in providing frameworks for building cooperation between riparians, due to their neutrality and technical abilities. It is clear though that financial support from multilateral agencies for regional infrastructure is still a relatively small portion of their portfolios. Most of the investments under the regional programmes are either grants (for studies, harmonisation of rules and capacity building for instance) or co-ordinated national country loans. This leaves an important category of regional public goods unserved – namely investments in infrastructure located in one country but mainly bringing benefits to neighbouring countries. The dredging of a river for navigation is an example. There are no examples of such major regional investments being funded and the only mechanism to fund them appears to be through direct cost recovery (for instance through navigation charges). The very limited portfolio of loans for regional infrastructure in ADB at this stage concentrates on co-ordinating national loans and supporting it with harmonised regulation – which in itself is difficult enough.

2.2.3 Experience and lessons from international public goods: the case of the Global Environment Facility

It is interesting to examine the performance and lessons from the GEF, the single largest facility explicitly supporting ‘global’ public goods. Established post-Rio 1992 GEF aimed to provide support for international environmental public goods with a particular focus on biodiversity and climate change. The role as a support for international public goods which would not benefit from other sources of funds is emphasised through the concept of ‘incremental costs’ – the GEF only funds an additional portion of programmes or projects to complement that which would have been financed in the absence of the fund.

The GEF has three implementing agencies: the United Nations Development Programme (UNDP); the United Nations Environment Programme (UNEP) and the

²² Water for All: The Water Policy of the Asian Development Bank, 2000.

World Bank. By 1998, a total of 267 projects had been allocated more than \$1.9bn of GEF funding. Cumulative disbursements were \$612m, and in 1998 \$133m was disbursed, spread between ozone depletion, international waters, biodiversity, and climate change.

Funds for international waters make up about 10% of total allocation, a relatively small share. Freshwater related international water projects received an allocation of \$187m, spread over four continents and covering 28 projects. Coastal and marine ecosystems accounted for a further \$236m (26 projects).

Table 4. GEF support to international waters

1992 to 2000		\$m	\$m
<i>Location</i>	<i>Number of projects</i>	<i>GEF allocation</i>	<i>Total costs</i>
International freshwater related			
Africa	4	60.71	108.86
Asia Pacific	2	16.30	28.62
CE Europe/FSU	8	45.64	159.96
Latin America, Caribbean	5	27.31	45.91
Brazil	2	11.39	36.61
Egypt	1	4.50	4.50
Georgia	1	2.50	8.25
Poland	1	3.00	14.40
Global	4	15.74	35.59
Total	28	187.09	442.697
Coastal and Marine Ecosystems			
Africa	4	25.37	50.91
Asia Pacific	3	36.51	60.30
Asia	2	31.49	56.90
CE Europe/FSU	2	11.09	41.35
Latin America, Caribbean	3	27.41	91.26
Middle East, N Africa	3	43.89	75.47
Argentina	1	8.70	29.20
China	1	30.00	64.80
Jordan	1	2.7	12.67
Russia	1	0.75	2.76
Yemen	1	2.80	2.80
Global	4	15.69	27.02
	26	236.4	515.44
Wetland, Coastal and Marine biodiversity projects ⁽¹⁾			
	45	222.11	644.32
Total	99	645.60	1,602.46

Source: GEF

⁽¹⁾ Note that these are all single country projects

Most of the projects are concerned with management in a general sense, with the preparation of plans, strategies for water utilisation or knowledge development (e.g. the Global International Waters Assessment, GIWA) although it is difficult to pick out how much of the investment is actually for infrastructure or hardware. The Okavango project (see Section 3) is typical of this.

2.2.4 Focusing on water resource management: donor projects

In Table 5 a broad overview of support by some donors to transboundary water management initiatives is given.

Table 5. Multilateral and donor projects in regional water resources management

Agency	Programme	Comments
Sida	<ul style="list-style-type: none"> - Initiative for sustainable use of shared water in southern Africa, \$2-3m a year - GWP \$1m a year - MRC \$3m - NBI, \$1.2-2m a year - Lake Victoria Development Programme - Co-operation on the Baltic Sea 	<ul style="list-style-type: none"> - Zambezi, Okavango, Pungue and Nkomati catchment targeted and different capacity-building activities - also supporting the southern Africa Partnership - three-year agreement with MRC - NBI includes secondment of one water expert - recently-initiated broad programme in a partnership with other donors in east Africa
DFID	<ul style="list-style-type: none"> - Africa Water Resources Initiative - Global Water Partnership - SADC round table process - Will support Nile basin Initiative 	<ul style="list-style-type: none"> - Growing pattern of regional activity linked to aims for policy influence. - Total value around \$7m (6% of funds in water programme)
NEDA	<ul style="list-style-type: none"> - Will support Nile Basin Initiative, possibly also Mekong. - support to global initiatives such as GWP and World Water Council 	<ul style="list-style-type: none"> - Nile Basin Initiative attractive because very thoroughly prepared, and also NEDA also supports some of the riparians.
US	<ul style="list-style-type: none"> - Global Alliance for Water Security and Transboundary River basin Initiative (TRIB), \$1.64m for TRIB to be administered by UNDP - Southern Caucasus: Sustainable Water Management Project, \$4m for facilitating cooperation on water resources management in Kur-Aras basin, administered by Development Alternatives Incorporated (DAI)²³. 	<ul style="list-style-type: none"> - Supporting traditional river basin initiatives. - Linkages to on going initiatives and new approaches still unclear, but large initiative (Water IQC) started at the end of 2000
EU	<ul style="list-style-type: none"> - Africa: support for EGAT and HYCOS through SADC. - May support Nile Basin Initiative. - Some activity in West Africa (Senegal river) - Central Asia: Regional programme for water resource management established 1996 in TACIS framework, value \$2.75m pa. - Southern Caucasus: Funding of Regional Environment Centre in Tbilisi (REC), mandated for addressing water problems. 	<ul style="list-style-type: none"> - Little support to regional groupings – lack of institutions to support (except e.g. SADC) - Major problems as riparians do not look for regional policies, preferring bilateral agreements.

²³ Part of the larger Initiative for Water and Coastal Resources Management (total budget ceiling US \$ 120 m for five years)

KfW / GTZ	<ul style="list-style-type: none"> - Finances one person in Nile basin Initiative and will provide \$1.41m - New project with Okavango and Orange/Senqu River Commissions in SADC, \$1.64m (for 2001) - Middle East Study – on transboundary water in Jordan river – \$2.25m – now completed 	<ul style="list-style-type: none"> - Focus on advice in for example establishing transboundary water commissions
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The only programme in the table explicitly focused on broad-based transboundary river issues is TRIB (Transboundary River Basin Initiative), which aims to support riparian countries of shared river basins in their efforts towards achieving integrated water resources management. Initially, the project will concentrate on seven international basins²⁴.

TRIB was established in the context of an initiative led by the US State Department, and in response to the 2nd World Water Forum in March 2000, where a ‘Global Alliance for Water Security’ was proposed. The focus of both the Alliance and TRIB is on the coordination of diplomatic and technical efforts to address transboundary issues. To date, however, the application of funds has been somewhat ‘traditional’, in that they are used to supplement funding of ongoing projects in the seven basins. TRIB is unique in that it is derived from a single country initiative – the US – which might lead to future uncertainties surrounding its role, particularly from a political dimension given the heavy US involvement. To try to overcome this risk, the UNDP is being used as the executing and administrative body. However, there is additional uncertainty surrounding TRIB in terms of future financial support. The initial US

Box. 3 The Nile Basin Initiative

The most prominent transboundary initiative at present is probably the Nile Basin Initiative. The programme anticipates projects and programmes – management, training, capacity building, development of action plans – to the value of \$120m. Donor support is being actively sought at present and many donors are expected to make commitments to the Initiative through a Trust Fund (see discussion below).

Two characteristics of the Nile Basin Initiative deserve note. Firstly, that it has taken several years to develop the shared vision and commitment of all the riparians. Now that that vision is more or less in place (Eritrea has not yet fully taken its place in the team) there is a secretariat in Uganda and a body capable of managing the process, yet strongly linked to the individual countries. Also, the World Bank had played a very important role in facilitating and supporting this institutional development (though being careful to ensure ownership by riparians states), such that donors can feel greater confidence in the sustainability and effectiveness of the Initiative. The riparians themselves have led the process with support from World Bank and UNDP, with each country being represented by three people in developing the policy framework and vision approach.

²⁴ The Nile, the Niger and the Okavango in Africa; the San Juan and Upper Paraguay basins in Latin America; the Mekong in south-east Asia; and the combined Amu Darya and Syr Darya basin in Central Asia.

disbursement of \$1.64m (net of UNDP overhead costs) was seen as seed money to attract other donor finance. To date, however, uncertainties surrounding even longer-term US commitment (particularly given the recent change in US domestic politics) mean that participation has not been overly forthcoming. If the US/UNDP partnership does not succeed in getting other donors involved there is little prospect of the TRIB's survival²⁵.

Earlier in this section it was indicated that total funds for water from international donors and multilateral development banks were of the order of \$3.5bn per year, while the sums allocated to regional or 'public good' water developments were minimal, probably less than 1% of total. It is also clear that donor interest is in programmes which are relatively well established – the Mekong, the Jordan, and the Okavango. The case of the Nile is different in that there is also considerable interest from donors because the political groundwork has been well done (see Box 3), but as yet little actual commitment. However, it is important to analyse in detail some of the innovative financing options open to donor support before proceeding to the analysis of basin case studies.

²⁵ There remains, however, some scope for collaboration between GEF and TRIB. If early uncertainties can be overcome – including the political issues – then it could become a basis for institutional support and capacity building in river management and might usefully be involved in providing support to the ISWF proposed in this report.

3 Towards new financing options

3.1 Innovative funding mechanisms

As noted in the previous section, donors contribute only a relatively small proportion of total financial flows in water resources. The aim, therefore of a study such as this, is to identify ways of encouraging the entry of additional sources of finance – domestic governments, private sector and communities – into the process of transboundary water management.

Domestic governments in developing countries are typically short of funds and fund diversion from politically more urgent concerns at home to transnational activities is often politically sensitive. One mechanism to achieve greater funding may be specific earmarked taxes. These could either be levied by governments and earmarked for specific transboundary activities, or levied by the institutions themselves. Direct private sector investment is another option and also, for obtaining longer term more secure financing, Endowment or Trust Funds which can draw in both government, private sector and donor funds. The several possible new financing mechanisms, such as direct funding, water taxes, private sector investments, endowments or trust funds or interriparian financing are discussed below.

3.1.1 Direct funding from taxes and charges

Taxes and charges to fund environmental services have become widespread in the past 15 years, both in developed and developing countries. Charges and taxes have been used to finance both institutional structures and to support programmes and projects. One of the most frequently quoted examples is the French *Agences de Bassin* which levy charges on pollutant load discharges to surface water, the revenues from which both support the *Agences* themselves and are used to subsidise industry and municipalities in river clean-up programmes. In Russia, there is a complex structure of environmental charges for water use, including for transport and hydropower, as well as pollutant discharges which can support conservation programmes at river basin level. Within the OECD a number of countries levy taxes to support water resource management activities.

Levying taxes or charges to support transboundary water management services is far more complicated and, moreover, there are only a handful of transboundary river commissions, for which this would apply. Taxes have been proposed as a financing mechanism for a number of other international public goods, such as the Tobin Tax on international capital transactions or a 'green planet contribution' on car renewal or CO₂/energy tax to finance measures to reduce greenhouse effects (Cléménçon 2000). Some have even argued that such taxes are in the long run the only viable option to fund international public goods (IDS 2001). The advantage of such taxes moreover is that they would create a link between fund raising and the activities that cause the global problems, allowing, for instance, supporting public awareness-raising activities

given that the direction of the tax could be clearly identified with the provision of a public good.

The discussion on such global taxation has been ongoing for a number of years, yet implementation seems far away. For transboundary water management no comparable proposal is on the table yet. This is largely because of the enormous institutional difficulties involved. Initiatives such as the Clean Development Mechanism have run into problems in measuring and assessment of emissions, establishing baselines for taxes and in building agreement about allocation of taxes and revenues (see below).

3.1.2 Private sector investments

The role of the private sector – domestic or international – has been limited to revenue-generating projects and does not normally deal with public good investments such as environmental protection or transboundary water resources management. However, it can be argued that there is a role for the private sector in supporting international and regional public goods. As noted in chapter 2, the GEF analysis goes further than simply seeking co-operation, and argues that the private sector is centrally involved anyway in the manner in which natural resources are used. Hence changing its behaviour and harnessing its resources and energy are essential to achieving the major changes which the GEF was established to facilitate. A shift from ‘co-financing’ to ‘leveraging’ of other resources is implied.

In section 2.1 it was noted that the private sector has become increasingly active in the provision of infrastructure over the past decade, and has made significant investments, particularly in the provision of water supply and sanitation. Between 1984-90, there were just eight private sector contracts in the developing world in the area of water and sanitation, to a value of \$297m. The next seven years saw investment in 97 projects, to a total value of \$25bn, equivalent on average to about \$3.6bn per year, very similar to the level of donor support. These global figures suggest a large number of successful investments by the international private sector. However there are many issues which need to be addressed before over-estimating the potential for private sector finance. Firstly, of the \$26bn, 80% is in the form of concessions and management contracts (50% of the projects), while greenfield BOT or BOO projects accounted for 31% of projects but only 16% of investment. Thus the actual extent of investment by the private sector in plant and equipment was less than might appear (although the value of investment obviously reflects a transfer of resources to the public utility/recipient country).

In terms of types of investment, most has been in water supply and sewerage, much less so in sewage treatment. This is partly because governments give higher priority to water supply than to treatment of wastewater. Also, it is always easier to collect revenues to cover costs of water supply than for wastewater treatment, where the benefits to the actual consumers are less direct and, indeed, often accrue downstream rather than to the consumers themselves (nevertheless in public health terms sewerage and sanitation can have very high benefits to society).

The private sector investment most relevant to transboundary water management has been in hydropower where transboundary concerns frequently exist. Outside of hydropower development, however, there do not appear to be any instances of private sector involvement in transboundary water resources management²⁶. Following the trend in the water supply and sanitation sector, the development of hydropower generation is increasingly financed or co-financed with private investment under BOO or BOT contracts. This formula was followed in the recent dam development on the Mekong in Laos and a similar policy is proposed in Nepal. Both countries have a surplus of hydro-power potential and have entered power-purchase contracts with other neighbouring countries that have a larger power demand (e.g. Thailand and India). Where new dams were constructed with private capital, and from national budgets, there has been a tendency for less sensitivity to resettlement and environmental requirements, as formulated in guidelines of multilateral financing institutions.

Outside the water sector, co-financing schemes producing international public goods have involved public-private partnerships (e.g. pharmaceutical companies providing drugs for health projects or making the genetic code for rice publicly available). However the private sector very rarely contributes hard cash; rather it contributes something that it produces. The private sector remains an important actor in issues with which the project is concerned including its own use of water resources (and, by implication, potential stake in effective international water resources management). Based on a case study of private sector participation in a demonstration project for integrated coastal zone management in the Philippines, the GEF drew three broad conclusions:

- Projects need to create a forum to bring the private sector into the management structure, enabling dialogue with other stakeholders and, particularly, with different layers of government.
- The fundamental importance of institutional structure affects the private sector equally, whether in the supply of goods and services or in terms of direct investments.
- Increasing donor funds to transboundary water resource management must focus clearly on the mechanisms for establishing the enabling – institutional and political – conditions.

However, providing a forum alone is not enough. The private sector also needs a range of incentives and enabling conditions to participate actively, and this means potential profitability and return on capital, in addition to manageable risks. The latter may include risks concerning contract enforceability, regulatory changes, the rights of foreign investors and political security. These are difficult enough to find in single-country projects in many parts of the developing world, and the more so in a transboundary context. The private sector therefore needs a vehicle through which to channel its participation in project management structures essential to which is a clear

²⁶ According to the World Business Council for Sustainable Development

enabling institutional structure. The role of an International Shared Water Facility (ISWF) as proposed in this study could include helping to establish the right conditions for private sector entry into transboundary water resources management.

3.1.3 Endowment or trust funds

As noted above Trust Funds offer a plausible option for sustaining transboundary river institutions and longer term planning and programming²⁷. Trust Funds have been used in the past 15 years for providing security and longer-term resources for environmental projects or research programmes, that is activities where there is a significant public good component. Because a Trust Fund must have a board of directors, it is in a strong position to encourage stakeholders to participate in the management of the resource – and the base for stakeholders can be quite wide, embracing NGOs, commercial enterprises and donors.

Funds can provide a means for encouraging commercial and private sector participation either in kind, through providing management skills, or as direct financial contributions. They provide a means of diluting direct donor control in the administration of resources and for building capacity in financial and institutional management. Although a wide range of trust funds exists at present (dealing with environmental and natural resource issues) they have a broadly similar approach in that they are a means to provide a flow of resources to a set of programmes or projects. As such they can give longer-term security to institutions and programmes, and can smooth out funding fluctuations which can arise where organisations are dependent on annually allocated resources, whether from government or donors. Trust funds are often appropriate instruments under conditions where:

- The management challenge is long-term.
- Funding needs are spread over many years.
- Recipients prefer to manage relatively modest amounts.
- There is a critical mass of people with common vision.
- There is a need to create autonomy and be independent of bureaucracy and changes in funding priorities.
- A legal basis to operate trust funds exists.
- There is a desire to create a vehicle for Government – NGO collaboration and NGO groups have the capacity to contribute to transboundary water management.

There is a growing literature on endowments and trust funds which recognises their strengths of empowering stakeholders in the operation of trust funds, providing more stable financing and offering considerable scope for capacity building. But the difficulties can be substantial in developing the endowed institution or institutional

²⁷ A Trust Fund is a fund which has been set aside for a specific purpose – also known as an endowment fund. Most often, the capital in the fund is invested and the earnings from the investment used to fund the desired programme. A *sinking fund* is one where the entire principal is designed to be disbursed over a fixed period, and a *revolving fund* is one which is replenished or augmented as funds are spent. Clearly a fund can be a mix of all three approaches.

structure at single country level. Needless to say, such difficulties would be compounded at a transnational level, not least because managing a financial entity requires high levels of transparency and legitimacy.

In this respect there is a clear parallel with the needs identified by donors before they become involved in transboundary projects. The institutional (and by extension political) framework is crucial for developing coherent delivery of regionally based public goods through ensuring that mechanisms of transparency and accountability are established as part of the enabling environment.

The Mexican Nature Conservation Fund has been quoted as a successful mechanism for channelling resources at an individual country level to nature conservation while allowing professional staff to concentrate on conservation activities with security of funding behind them. Trust funds can hence provide security of funding over a number of years and allow – in case of river basin management – the regional body a degree of autonomy in developing its own programme. Nevertheless, with the exception of the NBI, there are few examples of trust funds being used in transboundary water management: in the Mekong (see Chapter 4) trust funds have been considered.

The GEF has recently completed a survey of Trust Funds in which it has been a major capitalising partner. They conclude that Trust Funds have leveraged substantial additional funds for conservation, both through contributions to the fund from outside and from projects financed directly from the Fund and which typically require substantial counterpart contributions from the partners. The sources of funding for funds vary. In some cases, environmental tariffs have gone to the fund (the charges discussed above could be earmarked through a Transboundary Trust). Funds from debt swaps of HIPC released funds could be managed and disbursed through a fund. Operating costs for Trust Funds must also be recognised – in the GEF survey most funds kept their operating costs within 20-25% which seems to allow the required return on investment.

However, there is no experience of Environment Funds operating on a transboundary basis. Although they deal with issues which may be of a transboundary nature – or have impacts in another country – the funds are located within a single-country institutional structure. The Mexican Nature Conservation Fund is typical. While the biodiversity protected under the Fund's activities may have international or regional implications, the Fund itself is based in Mexico and supports only national conservation activities.

3.1.4 Inter-riparian financing

A fourth innovative financing mechanism concern investments, made by some riparians in activities that are implemented in the territory of other countries. A form of permit, or allowance-based contribution for riparians could help to such inter-riparian investments. Within a basin, wealthier countries might support investments in poorer countries although there are few precedents for such an approach. The closest

parallel is perhaps the Clean Development Mechanism (CDM) mentioned earlier, proposed as a means to encourage reduction in greenhouse gas emissions. The concept of the CDM is relatively straightforward. An industrialised country with greenhouse gas (GHG) emission targets may choose to carry out emission reduction projects where the cost is lower, for example in a developing country. This allows the same level of reduction of emissions to be achieved (from a global perspective) at a lower cost than if the reduction were made in the industrialised country. The theory is that the investor receives credits for emission reductions achieved, while the developing country receives investments.

Such a mechanism could be developed within a river basin whereby – if certain investments are needed in both a rich and a poor country – the richer one could make the water-related investment in the poorer one if it was a lower-cost option, and realise a higher level of investment than would otherwise be possible. The CDM can be used where the GHG emissions are reduced further than they would otherwise be; i.e. there must be additionality, which parallels the incremental criterion of GEF.

However, the conceptual weakness with this is that, unlike emissions of greenhouse gases, the impact of water-related activities varies significantly by location. For the emission of GHG the geographical location is immaterial, which makes the procedure conceptually more straightforward. Even so, the implementation of CDM is proving very difficult, given that the means for calculating GHG emission reductions and the implications for sustainable development (a core element of CDM) have yet to be adequately resolved. The position of such a ‘trade’ in a river basin is considerably more complex and would require some means of measuring equivalence between investments and their impacts on different stretches of a river basin system.

A further stumbling block in the way of the CDM approach is that changes must logically be measured against some form of baseline, but this in itself is difficult to measure. Given the existing difficulty in contested basins of achieving accepted data sets (see, for example, the southern Africa case studies), the potential for CDM-type approaches may be some way off. Nevertheless, this potential again underlines the importance of sequencing of activities in developing effective management arrangements, and most notably the need to create the right enabling environments in which suitable institutional arrangements for financing can develop. As with private sector financing, the key is the presence or absence of a transboundary management structure.

Even where such international structures are effectively in place there are relatively few examples of inter-riparian financing. One case is the water quality programme on the Rhine (see Annex 2) under the International Commission for the Protection of the Rhine. Under the water quality programme pollution abatement measures from the French salt mines were paid for by the lower riparians. For the Netherlands, for instance, at that time it was considered cheaper to invest in pollution abatement in France than in water purification in the Netherlands. Such examples are still exceptional, but transboundary water management institutions may provide the mechanism for their replication in other contexts.

Another example of application of this idea comes from the Dutch part of the Schelde River, and an attempt to improve access to the harbour of Antwerp in Belgium. An agreement was concluded between the Province of Flanders in Belgium and the Netherlands Government under which dredging works would be carried out by the Dutch Government, but be paid for by the Province of Flanders, to a total of \$240m. The Dutch Government would foot the bill for minor components including additional flood protection, environmental measures and the removal of debris. During implementation, however, there were substantial cost overruns, particularly in the dredging works, which were implemented by the Netherlands but paid by Belgium, creating considerable sensitivity²⁸.

3.2 Financing issues

In the conclusion to Section 1 it was noted that there are three areas of financial flows in the context of transboundary water resource management. Firstly, the setting up of institutions – which is examined below in relation to the case studies. Second is the operation of the institutions as well as the operation of the programme for transboundary water management (including surveys, joint planning and monitoring). The third area is investment in infrastructure for shared river management. This area hardly features in the regional funding allocations of donors.

The flows which have been identified are in the initial establishment of the institutions or in the ‘technical support’ area. There is very little information about investments in infrastructure in the context of transboundary river basin management. It is not clear at all how strong the guiding activities of regional institutions can be in ensuring that infrastructure investments are consistent with an overall transboundary policy framework, which may have been established by the regional institution.

It is likely that infrastructure investments are made at the level of the individual country or nation. Certainly, the financial flows discussed in this section are mainly at the level of individual nations. Donor contributions are normally agreed with country governments, at the request of the latter. In-country public finances are not normally used for transboundary issues.

It has also been shown that the private sector has played a very modest role in transboundary or public good issues. International private investors require clear legal structures and these are typically set up at the national level, where the bulk of investments are in physical infrastructure. This limited role of the private sector was highlighted by recent evaluation studies by the GEF. While the review, carried out in 1997, focuses mainly on biodiversity programmes, the lessons are relevant to the

²⁸ In fact, the preparation and implementation of the Agreement on the Dutch Schelde Works was investigated by the Dutch Auditor-General in 1999/2000. The Auditor-General recommended that in transboundary investments of this kind reimbursement claims would need to be approved by an independent auditor; that one central project unit would manage the project, which would report equally to all participating governments, and that particular in intertribarian financing precise cost estimates are a must.

debate on transboundary water resource management. The three broad lessons to emerge were that:

- There had been little involvement by the private sector, and the report concluded that while effective engagement of the private sector was essential it had proved difficult to achieve in practice.
- The global benefits sought by GEF projects would only be achieved and sustained if the projects themselves were consistent with national policies and priorities.
- Projects to ensure the conservation and sustainable use of biological diversity could only succeed in most places in co-operation with the communities who inhabited the areas with high levels of biodiversity.

These conclusions about the private sector are important in the context of transboundary water resource management. The growing role of the private sector in water investments was noted above, and if donor policies are to have an impact they need to harness or complement the dynamic of private sector investments. Yet the barriers to direct private sector investment in transboundary projects and programmes are significant, not least because of the need for a framework within which to earn profits and, more importantly, to manage risks. In individual countries this implies a clear regulatory and legal framework. Establishing such a framework across national boundaries tends to require the intervention of multilateral bodies such as the World Bank as an anchor for private sector funds.

Public-private partnerships to support public goods have been successful in the health sector. For example the new ‘medicines for Malaria venture’, a programme under the umbrella of WHO has brought together private sector and traditional public sector resources for research and medicine development for Malaria. The aim of the venture is to find new drugs on a regular basis, the key aspect of which is that they are both appropriate and affordable. The focus is particularly on research and development involving public (donor) funds to support research while the drugs should eventually become commercially viable, albeit at affordable prices. Whether this model can be translated to the water resources management field is questionable. Drug development is a clear goal, whereas integrated water resource management is more multifaceted, and region-specific. The role of donors in supporting areas where commercial success is uncertain may offer some lessons, but the emphasis should still probably lie in creating the right preconditions for cooperation.

There is also a changing regulatory role in managing private sector investments in developing countries, and this must be understood and addressed in order to bring these resources into play. The need for policy consistency seems self evident but if transboundary or regional activities demand compromises at individual country level, then the political will at country level is likely to be stronger than that at regional level. The structure and nature of the institutions through which resources for transboundary public goods are channelled is critical for ensuring their success.

Donors and banks need a counterpart agency with whom they can work at a regional level. For example the EU operates in response to demands for support from individual institutions within the ACP/Lome framework, and if there is not a regional body then there is no counterpart organisation. Thus, for example, EU can support regional programmes in Southern Africa through SADC, but there is no equivalent organisation in, say, East Africa. This is fundamental from the point of view of the EU in Africa, where support must be requested by recipient states. In the absence of a counterpart institution no such request can be made.

A similar barrier to regional funding of programmes is that when regional public goods concern considerable investments, they cannot be broken down into national components. Loan funding is then extremely difficult as the legal framework for borrowings tends to be at the national level, as noted above.

Conflict between riparians further increases the difficulty of establishing regional programmes. Within the NBI, for instance, there have been many conflicts between neighbours and indeed Eritrea has only just begun to participate in the development of the Initiative. These issues are echoed in the case of the EU Central Asia water resources management programme. The aim had been, within TACIS, to build institutional capacity and knowledge sharing between the five countries of the Aral Sea. The programme was initiated in 1996, but has effectively become grounded for a number of reasons including the difficulty in establishing regional decision making, because the member countries prefer separate bilateral agreements, the smaller countries fear domination by Uzbekistan or Kazakhstan, and Turkmenistan talks of dismantling all of the regional initiatives and creating a new 'Aral Sea' in Turkmenistan.

3.3 Donor opportunities and roles

There is, therefore, a strong role for donors to play in providing resources to build the political enabling environments in which cooperation over transboundary management becomes a possibility. There is considerable potential support among donors for the Nile Basin Initiative (see Box 3), precisely because effort has gone into overcoming these problems. The thoroughness of the groundwork and the commitment of the riparians themselves encourage donor support, which in turn provides an environment for other sources of funding. Another option for donors is to support structures that in turn build capacity – such as support from several donors for the Global Water Partnership. However, developing new transboundary water management institutions and bringing divergent parties together is an open process, difficult to plan and predict, and therefore often difficult to fit in funding formats.

The role of the private sector has emerged in international water policy debates in recent years. However, in practice, at either domestic or international levels this has been limited to revenue-generating projects. The private sector does not normally deal with public good investments such as environmental protection or transboundary water management. The GEF argues that the activities of the private sector are directly implicated in the way in which natural resources are used. Their involvement

is therefore not simply a question of seeking financial cooperation, but in stimulating changes in practices within the sector itself. One of the main lessons to emerge was that donors needed to focus on leveraging rather than seeking co-financing for transboundary water resource management.

Other tools to raise private sector involvement might be through co-financing and sponsorship of specific areas such as building up uncontested data sets. Sponsorship of data collection with rights to publish might be a mechanism for overcoming sectarian perceptions, if the publishing organisation is perceived to be sufficiently external to the problem.

Nevertheless, experience in other fields where private sector resources have been effectively mobilised – for example energy – demonstrates again the need for strong regulatory and institutional structures. The World Bank is working to build capacity among countries seeking public-private partnerships, reflecting the importance of donor roles in this area. These can be developed equally by multilateral and bilateral agencies; in the latter case it is helpful if the bilateral agencies themselves communicate and cooperate to build a coherent set of practices and processes.

The GEF review also concluded that programmes would be more successful where the socio economic context is explicitly recognised. If establishing projects to deliver public goods, the need to understand and educate on all sides through civil diplomacy becomes more intense with the transboundary situation. However, in many regions civil society has developed along national lines, which hampers its potential (regional) role in transboundary water management.

It seems therefore that while transboundary water resources management clearly meets the conceptual criteria of being considered as a public good, this alone will not stimulate additional resources. There are a number of practical problems in the way of generating additional financing, many of which are exemplified in the following case studies. The barriers to regional resource mobilisation lie less in the nature of the good itself, but rather in the difficulties in establishing coherent transboundary actions.

4 River basin case studies

The analysis of five key basin areas in this section is grouped under: *Institutional development*; *Financial development*; *Participation and civil society*, and *Legal and policy dimensions*. To conduct the analysis visits were undertaken to most of the regions and interviews held with key informants. Secondary materials were also collected and desk-based studies conducted. The conclusions reached from these studies are summarised in Section 4.

4.1 Institutional development

4.1.1 The Mekong

The Mekong displays greater multilateral institutional development than any of the four other basin areas studied. Since 1957 there has been co-operation, to differing degrees, between the riparian countries on the Lower Mekong, surviving even periods of severe political turmoil in the region.

Box 4. The Mekong

By and large a virgin river, the Mekong flows some 4,200 kilometres, and ranks as the twelfth longest river in the world. Arising in the Tibetan region of China it crosses six countries of one of the poorest regions in Asia (the Yunnan Region of China, Myanmar, Laos, Thailand, Cambodia and Vietnam). This region also has the potential to become the new economic frontier in Southeast Asia. For 1,000kms the river marks the border between countries in the region, in particular Laos and Myanmar and Laos and Thailand.

A remarkable feature of the Mekong is the extent to which the riparian countries are dependent on it. The Mekong basin represents almost the entire water resource potential of Laos and Cambodia, as well as North East Thailand, and includes the highly productive delta region of Vietnam. It serves as the major artery in a region with underdeveloped road and rail infrastructure, being navigable from the South China Sea to the Khone Falls at the Laos-Cambodia border.

Recently China has established a programme to exploit the hydropower potential of the Upper Mekong and is completing a second dam in this section of the river. China's other main interest relates to navigation. At the moment the focus is on short-distance navigation and following the Quadripartite Economic Cooperation Plan of 1996 an Agreement on Commercial Navigation Along the Lancang and Mekong was signed in April 2000 between the Upper Mekong Countries (China, Laos, Myanmar and Thailand).

From 1957-1975 the Mekong Committee supported by the Mekong Secretariat had the status of a regional UN body. China, the key upstream state, was not a UN member at the time and was not asked to join. Neither did the other upper riparian country, Myanmar, join. The mandate of the committee²⁹ was technical and oriented towards the planned development of the considerable hydroelectric potential of the Mekong.

²⁹ Defined in the 'Statute of the Committee for Co-ordination and Investigations of the Lower Mekong Basin'

The focus of the committee in the first twenty years was on ambitious basin-wide development. One source described this period as ‘too large (over ambitious single projects) and too little (regional integration)’, leading to a ‘situation where not much was achieved besides institutional strengthening and preparations for grand plans’ (Öjendal, 1995).

In 1975 the signing of the far-reaching ‘Joint Declaration of Principles for the Utilisation of the Water of the Lower Mekong Basin’ enabled the Mekong Committee to make arrangements for the implementation of joint mainstream projects. It also prescribed the unanimous agreement of all riparian countries for projects, either on the mainstream Mekong, its tributaries or in inter-basin transfer. This arrangement was stalled when the Khmer Rouge took power in Cambodia. The work of the Mekong Committee came to a standstill until 1978, when it was re-established as the Interim Mekong Committee³⁰. However, the exclusion of Cambodia and the tension between riparian countries on the Lower Mekong relegated the work of the Interim Mekong Committee to studies and a number of minor projects on tributaries³¹. Over time the Interim Mekong Committee departed from its original mission and it became more and more involved in bilateral projects in the region rather than in providing a regional public good.

With the signing of the Cambodian Peace Agreement in 1991 a new phase was entered into. The negotiation process led to the 1995 ‘Agreement on Co-operation for the Sustainable Development of the Mekong River Basin’, supplemented by a Protocol that lay the foundation for a new Committee, the Mekong River Committee (MRC), currently consisting of three permanent bodies:

- *Council*: A political decision making body consisting of one member from each state at the Ministerial and Cabinet level who is empowered to make policy decisions on behalf of his/her government. Chairmanship of the Council rotates ever year.
- *Joint Committee*: A technical decision-making and management body, it consists of one member from each country at department head level. The Joint Committee takes care of the implementation of decisions and of the Council and supervises the Secretariat. Chairmanship of the Joint Committee also rotates every year.
- *The Secretariat*: Provides technical and administrative services to the Council and Joint Committee. The Secretariat is headed by a CEO, who is not from one of the riparian countries and is appointed for a term of three years at the time.

In February 2000 the Secretariat employed a staff of 40 riparian professionals (equally divided between the four countries), eight international professionals and 49

³⁰ Cambodia was excluded from the Interim Committee, as the Vietnam-supported regime that had been put in place in 1979 was not considered legitimate by other countries, particularly Thailand

³¹ The Cambodian National Mekong Committee was re-established though in 1980 and even before 1995 kept informal contact with the national committees of Vietnam and Laos.

general service staff. Many of the staff have joined very recently, following the shift of the Secretariat from Bangkok to Phnom Penh in 1998.

In origin and current operation, the Mekong River Commission and its predecessors have been largely 'intergovernmental'. The Mekong Commission in 1957 derived from a plan for the development of the Mekong prepared by UNCAFE (a regional UN body and predecessor to UN-ESCAP). The UN played host to the transboundary institution until 1995 and played an active role in the negotiations that led to the new Mekong River Commission.

This supranational body is accompanied by National Mekong Committees (NMC's) which comprise the official entry points for the MRC in each country. The Committees are expected to formulate national policies and to provide co-ordination between and among national line agencies and MRC Projects. Their structure and strength varies by country, but the general arrangement is to have an inter-ministerial policy-making body, a management group of key governmental departments and a secretariat to support the National Mekong Committees.

4.1.2 The Incomati and Okavango

Within the SADC region, where there are 15 international river basins, the importance of water as a potential unifying factor is self-evident. The Okavango and Incomati river basins also reveal the extent to which water is a contested resource, and in high demand along portions of the rivers. At present the fairly loose regional institutional arrangements for management indicate a need for further functional development of transboundary management in this region.

Bilateral talks between Namibia and Botswana held in November 1990 led to the establishment of the Joint Permanent Water Commission (JPWC) on the Okavango, the focus of which is bilateral management of the Okavango River and the Kwando-Chobe-Linyati reach of the Zambezi River, respectively the only water-rich areas of Namibia and Botswana. Subsequent discussions begun in 1992 between Namibia, Botswana and Angola led to the formation in 1994 of the tripartite Permanent Water Commission on the Okavango River. Known as OKACOM this institution has continued to function in spite of hostile public exchanges between the two countries following the development of Namibian plans to build the Rundu to Grootfontein Phase 4 of the National Water Carrier. These plans were announced at a time of drought in the region which coincided roughly with Namibian independence.

OKACOM declared its commitment in 1995 to the implementation of an Environmental Assessment and Integrated Management Plan for the whole basin, a process being supported through the GEF. However, many barriers to transboundary management remain, reflected in the lack of co-ordination of national policies and institutional arrangements. The GEF argues that the primacy of national interests results in the imposition of transboundary externalities; but the costs of co-operation are high due to persistent communications barriers and poor understanding between countries.

As an endoreic system without any opening to the sea, the Okavango represents the only water that flows on Namibian and Botswana soil³². To date, conflict in Angola (the upstream riparian), has prevented nearly all development from taking place in the upper reaches. The two countries with highest demands on the resource (Namibia and Botswana) are both downstream riparians contributing negligible streamflow.

Further complicating the effective management of the resource is that the aquatic ecosystems associated with the Delta and Makgadikgadi Salt Pan are protected international wetlands under the Ramsar Convention³³. Hence, any development upstream will impact negatively on this sensitive aquatic ecosystem. Whilst Botswana may have the privilege of hosting such a unique environment, it also has to live within the constraints this sets on developing its water resources.

Following years of good rainfall since the mid-1990s the potential for immediate conflict over water sharing between Botswana and Namibia has reduced. In addition, the International Court of Justice ruling on the Kasikili/Sedudu Island Dispute has indicated to the riparian governments the benefits of negotiated solutions over heated conflict. Nevertheless, if another drought occurs, this will again highlight the need to secure a strategic supply of water for Namibia's important economic hub area surrounding Windhoek.

Box 5. The Okavango

The Okavango River Basin is the largest endoreic river system in Southern Africa, discharging into the Kalahari Desert rather than to the ocean. Annual streamflow of around 11 bcm enters the Okavango Delta where 96% of the water evaporates. The remainder flows into the Makgadikgadi Salt Pans during periods of high flood via the Thamalakane and Boteti Rivers where it also evaporates. This leaves behind a deposit of soda and drives a unique aquatic ecosystem.

Rising in the Angolan highlands, close to the source of the Kunene and Cuvelai Rivers (the latter is also endoreic), the Okavango flows for more than 600-km from the upper catchment in a southerly direction until it reaches the border between Angola and Namibia. From that point it forms the joint border between the two countries for a distance of some 400-km. Further south it enters Namibia (all other perennial rivers, with the exception only of the Okavango, are found on the borders of both Namibia and Botswana) for a short reach before crossing into Botswana where it enters the Delta and subsequent Makgadikgadi Pans. The total basin area is approximately 120 000 km², mostly found in Angola, which is a water-abundant country.

The Delta area is some 5 000 km², and has a high evaporative demand. A portion of the basin, notably that feeding into the Makgadikgadi complex originates in Zimbabwe and is fed via the Nata River. The flooding of the Delta is unique given the fact that two main tributaries exist, each of which derives its water from a fundamentally different source of precipitation.

³² Both of these countries being the two driest in the SADC region.

³³ Convention on Wetlands signed in Ramsar, Iran, in 1971. Significant in that it was the first of the modern intergovernmental treaties on conservation and use of natural resources. It entered into force in 1975.

The Incomati river shared between South Africa, Swaziland and Mozambique is a more highly utilised resource and presents a complex challenge to effective transboundary management. The lack of effective national capacity, particularly in downstream Mozambique, hinders the capacity for effective management and for negotiating new management arrangements. The existing allocation of water to Mozambique³⁴ is considered by the government to be too low, raising the sensitive issue of international equity, a difficult issue in spite of improved relations between South Africa and Mozambique since the latter's elections in 1994.

A closed basin, demands for water in the upper and middle reaches of the Incomati are likely to increase in the near future in response to population increase in this portion of the basin. Any additional allocation to Mozambique would mean a

Box 6. The Incomati

The Incomati River Basin is relatively small, but extremely complex. Rising some 2000 m above sea level in South Africa, in an area that is rich in coal deposits, part of the river then flows into Swaziland, where the Maguga Dam is currently under construction. It subsequently flows back into South Africa, where it is heavily used for agricultural purposes before finally flowing into Mozambique where it discharges into the Indian Ocean just north of Maputo.

The total basin area is some 50 000 km², comprising 63% in South Africa, 5% in Swaziland and 32% in Mozambique. Unlike the Mekong there are a large number of dams in the basin, 22 of which can be classified as large, with a combined storage capacity of 400 mcm. Two further dams are under construction - Driekoppies in South Africa, and Maguga in Swaziland. Mozambique only has one large dam, the Corumana Dam that was completed in 1988 and serves mainly as the storage component of an irrigation system.

The upper basin is strategically important for South Africa due to large coal deposits and the need for water to serve as coolant in power generation systems in or near the basin (approximately 60% of all of the electricity that is generated in South Africa (amounting to some 50% of the entire African continent) takes place in the neighbouring Olifants River Basin). This impacts heavily on the Incomati because of large, strategically important Inter-basin Water Transfers (IBTs) that take water out of the Incomati and discharge into other basins. The lower basin mainly forms an alluvial floodplain in Mozambique, with only one existing dam - Corumana - for irrigation purposes. There is heavy reliance on the water for subsistence purposes however, with the last 30-km being essentially a tidal estuary that supports a local fishery, maintained by the freshwater/saltwater interface. During periods of low flow, this estuary is prone to salinisation, with detrimental effects on the ecosystem.

reduction in use elsewhere and is likely to be highly contested by South Africa. Particularly important are issues of data and data sharing. Uncontested data is hard to come by and South African estimates of streamflow contribution tend to be higher than Mozambican estimates in relation to basin area.

The complexity of managing transboundary institutions in an environment where water is in already high demand and national data sets are in contention highlights the need for more effective transboundary co-operation, but also underline the political and institutional difficulties involved. In this case, agreement as to data on the river's flow characteristics would appear to be one initially important step to building consensus and a shared vision on the river's future development. This incremental

³⁴ 2 cumecs (cubic metres per second).

step towards more effective management and provision of the public good might itself take a number of years to establish, but would be an important part of building confidence and trust between riparians.

4.1.3 The Jordan

The Jordan river has witnessed a history of attempts at developing effective transboundary management, underlining the importance of the river's waters in this dry region, but also indicating the politically significant role played by the river between its co-riparian states. Management efforts preceded the creation of the State of Israel in 1948, but were given renewed impetus following this event as US foreign policy firmly focused on the region during the 1950s. During this decade the US government led an attempt at reaching a comprehensive transboundary agreement - finally coined the 'Johnston Plan' (after the ambassador who led negotiations), but with little eventual success.

Box 7. The Jordan

The Jordan basin, covering an area of some 17,663 km², includes parts of Lebanon, Syria, Jordan, Israel and the Palestinian territories. The river itself is fed by tributaries and springs along its length and flows roughly due north-south, finally discharging into the Dead Sea. Small by comparison with nearly all other internationally contentious river basins the Jordan's annual average discharge – including that of the Yarmouk – is only in the region of some 1.3 to 1.5 bcm.

The Yarmouk river (which feeds into the Jordan south of Lake Tiberias/Sea of Galilee/Kinneret) is its most important tributary. Lying mostly in Syria, the river covers just under a third of the Jordan basin's area, and has an average annual discharge of some 475 mcm. One of the key management challenges is precisely the ability to capture excess flows on this river in years of high rainfall. Lake Tiberias itself receives some 800-910 mcm of flow each year (of which about 600 mcm comes from the Jordan and its tributaries). After evaporation this is reduced to only 610 mcm and its low operating capacity (in spite of a carrying capacity of some 4 bcm) means that Tiberias cannot act as a useful international reservoir even were it to be politically feasible to do so.

South of Tiberias the flow of the Jordan is substantially reduced by the Israeli National Water Carrier offtake and irrigation in and around the lake itself. The southern drainage basin of the Jordan-Yarmouk supplies about 749 mcm of water.

In the 1956 Second Version of the plan equitable water allocations for the co-riparian states were reached, based on separate national-level development of water resources. Of a total estimated annual water availability of 1.29 bcm Syria would receive 10.3% (132mcm), Jordan 56% (720mcm), Israel 31% (400mcm) and Lebanon 2.7% (35mcm). The plan included a 400mcm dam and storage facility on the Yarmouk tributary for irrigating Jordan Valley lands (repeated in recent proposals, below), a diversions weir at Addassiyah from the Yarmouk to the East Ghor Canal, the use of Lake Tiberias for storage of Jordan and Yarmouk (flood) waters, a feeder canal from Lake Tiberias to the East Ghor canal and a siphon to carry water from the East Ghor Canal to a canal west of the Jordan River (Kliot, 1994)³⁵.

³⁵ See map in appendices for description of these structures.

However, the primacy of regional international relations overcame the logic of the plan although it came close to agreement. The exhaustive data collection and negotiation processes led to the generation of volumes of data, some of it still contested. Following the plan's failure national-level development went ahead during the late 1950s and 1960s, dominated by Israeli technological and institutional strength. This led to the unilateral development of the National Water Carrier (NWC) which supplied the dry south of Israel³⁶, surrounding which there was intermittent conflict with its neighbours. This was also the period in which the Eastern Ghor canal was constructed, supplying irrigation water to Transjordan, as it was then known. Following Israel's military victory in the June 1967 war and subsequent occupation of the West Bank and the Golan Heights in Syria, Israeli dominance of water management extended over a greater part of the river basin including, critically, the whole of Lake Tiberias.

Today, the Jordan basin includes some of the most water-stressed countries in the world, with current per capita use in Jordan already exceeding renewable supply. The potential for drought to increase the water stress suffered by riparians became explicit between 1987 and 1990 when flows of the river dropped by some 50%. Currently the levels of Lake Tiberias are reaching an all-time low. Co-operation in transboundary management to achieve benefits for all riparian is now an imperative, but one still subordinated to higher political factors and the hegemonic position of Israel within the basin.

Co-operation over water management received a boost in 1994 when Israel and Jordan signed a Peace Treaty. For Jordan this represented an improvement on its water situation. For Israel, whilst amounting to a slight worsening in terms of water supply, its political benefits were huge through normalising relations between the two states³⁷. Clause 6 (and Annex II) of the Treaty includes a recognition of the rights of both sides to the waters of the river, agreement on the principle of no harm, and recognition that water sources for both sides are inadequate for the needs of both states; hence, there is a need to create additional supplies of water, where possible.

Practical issues covered included water sharing, the timing of allocations and water quality issues. Under the Treaty's provisions Israel has agreed to provide Jordan with *de facto* storage services for 20 mcm and both parties have agreed to desalinate saline water diverted from Lake Tiberias (although this body of water is deliberately not mentioned by name), of which Jordan is to receive some 50%. Problems with the agreement remain unresolved. These are both its bilateral nature (it fails to address Lebanese, Palestinian and Syrian claims in any way) and that it does not address years of very low rainfall, there is a danger of serious shortage in the future leading to more drastic unilateral action to ensure supply availability.

³⁶ In the pre-1948 period there were plans at comprehensive management of the river, including the Rutenberg plan (1920) that foundered on difficulties in relations between the French and British mandatory powers at the time.

³⁷ Shapland, 1997, 29.

Many issues that arise on a day-to-day basis are covered by a Joint Water Committee established between the two countries. This committee covers the Treaty's provisions including discussions on future planning, and the management and implementation of current arrangements, but its functioning has not been very smooth and the worsening political climate between the two countries since 1996 has hindered areas such as the sharing of data. On the Jordanian side there is a feeling that all relevant data has not been shared by the Israelis, whilst the Israelis maintain that data is publicly available and simply requires translation from the Hebrew. Jordan also has another joint technical committee with Syria looking, in particular at the development of bilateral projects. The extreme demands placed on water in the basin and the close relationship between surface and groundwater resources ensure that management takes place within a highly complex environment. On both Jordan and Israel's side demand management is a key policy issue – as it is within the Palestinian territories. However, shifting use from agriculture to other lower consumption, higher value areas is extremely difficult, and politically contentious.

4.1.4 The Southern Caucasus

River basin issues in the Southern Caucasus raise internationally significant concerns of security and conflict. The absence of virtually any effective joint management institutions has allowed water resources themselves to become a target in inter-state disputes. Protracted water blockades in the Southern Caucasus can be considered a regional 'public bad', and the cutting of civilian water supplies and irrigation works in the Kura-Aras Basin, in particular, within the Nagorno-Karabagh conflict, may even constitute a war crime under international humanitarian law (Zemmali, 1995).

As a result of this conflict, the Kur-Aras basin remains divided by hundreds of kilometres of fortified trenches, minefields and artillery positions, from the Georgian border, through Azerbaijan and Armenia to the Iranian border. The resulting situation has caused the loss of 20% of Azerbaijan's arable land, and prevents any agreement on water distribution with Armenia. In spite of border tensions between Azerbaijan and Iran, however, the two countries continue to adhere to previous agreements concluded by the USSR, covering provisions on water distribution that include a joint reservoir for irrigation. Recent Azerbaijani-Georgian talks on water distribution have been impeded by disputes over border demarcation and talks on Georgian-Armenian water distribution agreements are still unlikely given the tense situation in some parts of southern Georgia.

As a riparian of the Black Sea basin, Georgia takes part in various co-operative projects on the prevention of water pollution and protection of the wetlands. However, there are no transboundary management arrangements on the Rioni, Enguri and other rivers. The basin is crossed by the lines of the Abchasia conflict which is patrolled by Russian peacekeepers. Downstream water courses are affected by anti-personnel landmines, spread in and around the Abchasia zone.

Old institutional arrangements for managing resources in the Southern Caucasus were destroyed by the Soviet system, which remained in place until the separatist wars of 1990-1994. To some extent, the Karabagh, Abchasia and South-Ossetia conflicts can be

considered renewed economic water disputes and, in particular, over control of the strategically important catchment of the Karabagh mountains which is vital to both Azerbaijan and Armenia. In both the Azerbaijani-Armenian talks over the Nagorno-Karabagh conflict, led by the OSCE, and in the Georgian-Abchasian talks, led by the UN, discussion on rehabilitation of water resources is confined to the zones where the return of Internally Displaced Persons (IDPs) is envisaged, and is linked to the question of the future legal and political status of the separated regions. An assistance program, aimed at rehabilitation of infrastructure in Gali for returning Abchasian IDPs, was disrupted after violent clashes in 1998. In addition, a reconstruction program for irrigation in the sole Azerbaijani controlled district in the Karabagh zone, has been hampered by regular cease-fire incidents.

Since the failure of the OSCE Istanbul Summit in 1999, peace negotiations have stagnated, including the OSCE proposal, on giving the Armenian bank of the Aras river to Azerbaijan as part of a complex 'land swap'. Extension of Turkish/Azerbaijani control over the entire North bank of the Aras would aggravate tensions with Iran, however, and jeopardise the current water distribution agreement between the two countries.

Box 8. The Southern Caucasus

The mountain ranges of Caucasus form natural watersheds, separating the wide Russian plains of the Wolga-Don delta from the arid highlands of the Near East. Located in between the Black Sea and Caspian Basins, the Southern Caucasus region can be considered as a unique ecosystem which includes globally important wetland areas such as the Black Sea wetlands of Western Georgia and Lake Sevan in Armenia, the world's second largest high altitude lake.

Traditions of WRM are rooted in ancient cultures, with sophisticated systems of irrigated agriculture and highly urbanised societies. The water economy is shaped by thousands of small rivers, both surface flows and subterranean waters. The main artery is the Kur (Kura), a 1,550km-long, mostly non-navigable river, entering into the Caspian Sea. The water resources of the Kur basin, shared by Georgia, Armenia and Azerbaijan, are estimated at 30.5 bcm per annum, of which 3.2 is subterranean.

The largest tributary of the Kur is the Aras (Araks) river, which originates in Turkey, as part of the upper Euphrates-Tigris basin, crosses Armenia and marks the border between Azerbaijan and Iran. The Aras basin is rich in high quality drinking water resources, and has the potential to become a main supplier to Iran, Syria and other Middle East countries. However, the surface waters of both the Kur and Aras are polluted by municipal, industrial and agricultural waste.

4.2 Financial development

4.2.1 The Mekong

Since its inception international financial grants have played a crucial and dominant role in transboundary water management on the Mekong. The ‘contracting’ costs of establishing the first Committee were to a large part borne by the UN – coming out of the river planning studies initiated by ECAFE. The UN also explicitly recognised the original Mekong Committee as a means to promote regional security in a diverse and conflict-prone region. This supportive role of the UN continued during the process of reaching the 1995 agreement, highlighting the important link between financing and institutional development³⁸. Since the establishment of the new Commission in 1995 (independent of the UN), the role of the UNDP has declined, although it assisted in the development of the MRC’s first Strategic Plan and still supports capacity building of the Secretariat, as well as the NMCs and national line agencies.

The Mekong River Commission, and the bodies that preceded it, have benefited principally from bilateral grants, particularly from Japan and Korea, the Nordics, Switzerland, the Netherlands, Belgium, Australia, and New Zealand. The MRC has an annual core budget of approximately \$2m derived from three main sources:

- contributions from the four member countries (paying \$195,000 each in 2000)
- donor grants – some of it ‘in kind’, i.e. through deputation of international staff (four at present) – from a subgroup of the donors funding programme activities (Sweden, Denmark and Switzerland). To keep this mechanism manageable the preference has been to maintain a small group of donors for the core budget.
- an 8% surcharge on the donor-funded projects implemented by MRC.

The international contribution to the MRC goes beyond funding issues and is also an attempt to deliver neutrality. However, donors have indicated that they would like to see greater ownership by the riparian countries. Recently riparians have decided to raise their contribution in order to phase out donor inputs over a 15-year period. The contribution formula has also been changed from an equal share to a weighted share (on the basis of catchment area, average flow, irrigated area, population and GDP per capita). Under this formula Thailand, Laos, Cambodia and Vietnam will contribute 34%, 18%, 18%, and 30% respectively of the riparian contribution. Another change is

³⁸ The UN stepped in as an honest broker after negotiation between the four riparian countries entered stalemate early in 1992 over the re-admittance of Cambodia, which Thailand insisted should be connected to the admittance of Myanmar and China. The background to Thailand’s position was its uneasiness about a clearly defined role for the Commission and its objections to the veto provisions, leading to a fear that downstream countries might block its plans, for instance in developing the Korat Plateau in Northeast Thailand. The negotiations became unstuck after an informal summit hosted by UNDP at the end of 1992 in neutral territory (Kuala Lumpur). Apart from UNDP the Commission’s other donors exerted considerable pressure, fearing that otherwise the very considerable amounts invested in transboundary water management in the Mekong over the years would be lost – an example of a facilitating role transformed into that of a direct stakeholder.

the proposal to raise the surcharge on programmes from 8% to 11% and to utilise this only for non-core MRC staff.

In contrast to the MRC, the national committees are financed entirely from national budgets. These budgets are fairly low; annual expenditure of the Cambodian National Mekong Committee, for instance, (seven professional and 16 support staff), does not exceed \$50,000. However, this committee suffers from an insufficient operational budget and has difficulty in retaining high-calibre staff, common throughout government departments in the country. The Committee does not have a programme budget of its own. Some, but not all, of the MRC programme funding national components is channelled through the National Committee.

The MRC Programme Budget – \$15-20m annually – is funded almost exclusively by a donor support group of international and bilateral grant sources; the nominal contribution of the countries being expressed in staff time. Various programmes are presented every year to the Donor Support Group with the weight of grant financing reflecting the low-income levels of Vietnam, Cambodia and Lao Peoples Democratic Republic. The strong grant component also reflects the inherent difficulty of giving loans to regional international bodies which have no source of income of their own³⁹.

The MRC programme traditionally reflects the strong donor environment in which the MRC has been nurtured. At one time the MRC also considered alternative and more innovative funding mechanisms, i.e. a Mekong Trust Fund. The Trust Fund initiative however ran into a dead end. It was going to be handled by the UNDP, which implied that a 13% overhead would be charged. This was not acceptable to the potential donors to the Trust Fund. The Interim Mekong Committee and the new Mekong River Commission engaged in a large number of bilateral and sectoral projects, many of them studies, producing background information but little translation into action or policy. Over time the IMC and then the MRC became increasingly ‘donor driven’, serving as a conduit for bilateral projects, with the fact that the MRC budget derived in part from a surcharge on projects undertaken in fact reinforcing a tendency to depend on donor funding. As a consequence, the MRC was diverted from its key mission of transboundary water management as formulated in the 1995 Agreement.

In 1998 the MRC produced a strategic plan that singled out four ‘key result areas’ – natural resource planning and development, environmental management and social considerations, improved data and information bases, and human resource development and capacity building – in the MRC as well as in the national committees and line agencies. Since 2000 the MRC has been developing a programme approach centred on core activities in inter-sectoral transboundary water management, i.e. the basin development plan, the water utilisation programme and the environmental programme. Of these three core programmes the Water Utilisation Programme is funded by World Bank/GEF, whereas the other programmes are funded

³⁹ The magnitude of the MRC core and program budget may also be compared to the value of the import of conventional weapons of the four countries in the region. In 1999 this was US \$ 341m, more than ten times the core and programme budget of the MRC. The weapons import was almost exclusively by Thailand and Vietnam.

from bilateral sources. As the Water Utilisation Programme will require considerable political manoeuvring, the engagement of a solid third party such as the World Bank may help in the difficult process of reaching agreement on low flows and a common water balance model.

The main financing issues arising in the Mekong do not therefore relate to the regional public good as such: i.e. the establishment or running of the river basin organisation itself, rather to investments on the shared river. Investments in hydraulic works on the Mekong have been limited – compared to the size of the river and its potential. Until 1995 an estimated \$400m was invested in infrastructure, much of it for dams on tributaries of the Mekong. This investment is of a similar order of magnitude to the costs of the studies and plans developed in the four preceding decades. Plans for a cascade of dams on the main Mekong were made at one stage, but never materialised because of the conflicts in the region and the shift in international opinion away from large dam building projects.

Little regional investment in the lower Mekong has taken place, though an exception is the Mukhadan-Savannakhet Bridge connecting Laos and Thailand. Initially the Japanese Government offered a loan in Yen to Thailand and a grant to Laos, reflecting Japan's different policies towards middle and low-income countries. The financial package was renegotiated and, in the end, a loan in Yen was offered to both countries, with a lower interest rate applying to Laos. This triggered calls for a regional window in Japan's ODA. Other bilateral donors are contemplating a similar approach and Australia has now started to formulate a regional Mekong programme rather than a set of national programmes. Other examples of regional investments are dredging (funded by a Belgian grant) and the construction of ferries (a Danish grant).

For most of the last 40 years private sector investment in water management and utilisation on the Mekong has been limited. However, two of the major dam investments in recent years have involved private sector funding. Both concerned hydropower projects and were funded as national projects on international waters. The Nam Leuk Dam (\$130m) and the Nam-Theun Hinboun Dam (\$260m) in Laos were developed after 1995, when relations in the region had normalised. The dams were developed under a BOT formula and were underwritten by a Power Purchase Agreement with the Thai power utility. Funding came from the Asian Development Bank⁴⁰, as well as from private sources – in particular Scandinavian power utilities⁴¹ and Thai real estate developers. This co-funding formula between the multilateral

⁴⁰ Not long after deforestation, resettlement problems and poor implementation caused hydro-power dams to become surrounded by controversy. The hydropower agenda in the Mekong is now lower profile, although it is still a main priority for the riparian countries. Hydropower funding has since lost popularity with the ADB, in the past a main sponsor for such investments.

⁴¹ With respect to the hydro-power concessions, donor grant funding to the MRC and its predecessors has been something of a double-edged sword. When plans for the construction of hydraulic structures were revealed, there was intense lobbying on the negative environmental effects from organisations in countries that had long supported the MRC (such as Sweden, Australia, Japan, Canada). On the other hand there was also intense lobbying for construction contracts and power concessions, originating from the same countries, though from different institutions to those concerned with aid to the MRC.

financing agency and private interests served to reduce the political risk of the private investments. Providing 'leverage' of this kind appears to have been at least as important as the new era of stability, exemplified by the new Agreement and the re-established Mekong River Commission. Beyond these investments private sector funding in the Mekong has been limited.

4.2.2 The Incomati and Okavango

In contrast to the Mekong there is no permanent secretariat for either the Incomati or the Okavango, although the latter has its own commission. Funding for the institutional arrangements on these two rivers derives from national ministries in the respective riparian countries. This makes it difficult to quantify contributions to transboundary water resource management over other water management activities in-country. In no single case has there been a stand-alone budget for the creation and management of the various commissions. Each country sends a delegation to attend commission meetings, which typically occur on a rotational basis in the respective riparian states and costs involved are therefore associated with the delegations' subsistence, travel and communications costs. Whilst the respective governments concerned pay in most cases, for Mozambique some financial assistance is provided by international agencies such as the European Union, NORAD and Sida.

Recurrent costs for delegation attendance at the commissions varies by country. Most officials find it difficult pinpointing these costs, though in Botswana they are estimated at some \$20,000 and in South Africa approximately \$63,000. Given these cost estimates regional costs of maintaining the arrangements are some \$200,000.

The lack of a transboundary Secretariat to store and manage data means that there is no effective mechanism for collection or planning. As a result each country spends money on issues that they consider to be of greatest individual priority. Furthermore, available data is patchy, and nowhere is there a comprehensive set of basic uncontested basin – a common feature of the study area.

The lack of common management priorities within each of the two basins means that each state allocates money according to specific national priorities, and information gathered in support these activities is not shared with other co-basin states. Nearly all basin officials interviewed said that their respective governments were financing new water management activities. In the case of South Africa, however, the National Water Act (36/98) is in the process of being implemented, part of which requires the establishment of Water User Associations (WUAs). Once legally implemented, these WUAs may be in a position to generate funding in their own right and a portion of this funding will be allocated to the management of International River Basin Commissions, where relevant. A common feeling is that current levels of finance are insufficient with even the wealthier regional riparians reporting shortfalls in funding arrangements, leading to poor basin management.

These weaknesses are recognised clearly in the three core objectives of the GEF programme for the Okavango basin: to complete a transboundary analysis to underpin

co-ordination in the basin; to facilitate the formation and implementation of a programme of joint management; and – probably hardest but most important – to overcome ‘current policy, institutional, human resource and information barriers and constraints to co-ordination and joint management of the basin’.

The direct project costs were estimated at \$8.2m, of which GEF contributes \$5.8m; \$29m of capital and recurrent water sector investment in the three countries would be reallocated through the effects of the project. The project, in supporting development of transboundary diagnostic analysis and the preparation of strategic action plans for integration into national development plans, builds on commitments already expressed through OKACOM, but which foundered earlier due to conflicting national interests. Again, the role of donors as external agents for change seems crucial in enabling transboundary institutions to flourish (although it is too early yet to assess the success of the OKACOM-GEF project).

In short, critical financing problems on the Okavango relate to the lack of baseline data hindering consensus-building. Many of the data-collection difficulties arise from lack of funding and the civil war in Angola hindering access to large parts of the basin. In addition, all of the riparian states tend to be poor, so ongoing financing for institutional development at a national level is also a key issue.

In the case of the Incomati, data unevenness between the riparians is a further major challenge to funding. Whilst South Africa is relatively prosperous and able to afford the institutional costs of data collection, neither Swaziland nor Mozambique are in a position to do so. Financing development have tended to focus on specific infrastructural projects. The financing of the Incomati River basin project, consisting of the Driekoppies and Maguga Dams, was undertaken by a number of institutions. The Driekoppies Dam, situated in South Africa, was constructed at a total cost of \$62.4m, funded entirely by the Development Bank of Southern Africa (DBSA). The Maguga Dam, situated in Swaziland, cost \$39.1m, with 95% of the construction costs coming from the DBSA. The environmental and social impact assessment studies were also entirely funded by the DBSA. In total the Maguga Dam was constructed at a cost \$56.1m and the total cost of the entire Incomati project was some \$141m.

In both cases (construction of the Driekoppies and Maguga Dams) the Komati Basin Water Authority (KOBWA) was the recipient of funds (i.e. the client), though PricewaterhouseCoopers (PWC), was to manage the \$141m finance package for the construction of the two dams and related infrastructure. In both the Driekoppies and Maguga Dams the DBSA financed the bulk of the costs, although other institutions were also involved. The funding of the project came entirely from internal sources, derived from both South Africa and Swaziland.

With respect to the sharing of the cost between South Africa and Swaziland, South Africa, in the case of the Maguga Dam, funded 60% of the construction costs and will receive, in proportion to funding, 60% of the water from the dam. The finance for the dam was structured in such a way so that local construction contractors and engineering firms in South Africa and Swaziland undertook most of the project. The

reason for this was that conditional contracting provisions are not attached to the funding of the project, because it was financed domestically. Other private banks from within South Africa and the Swaziland Pension Fund (SPF) have been involved in the funding. The South African and Swaziland governments are guarantors of the loans.

The private sector is therefore becoming more involved in the Incomati River Basin Project, although they are playing at present a minimal role, with only a small number of private banks involved. Recently KOBWA has begun negotiating with a private bank in South Africa for cheaper loans to replace those of the DBSA⁴².

A number of anticipated benefits will flow from the construction of Driekoppies and Maguga Dams, including higher output of sugar cane and related sugar production in South Africa and Swaziland, the production of hydro-electricity from the Maguga Dam for use by Swaziland, stabilising the flow of the Incomati River and provision of water for expected increases in demand from industry, agriculture (irrigation) and domestic users. Irrigated agriculture is likely to be the largest beneficiary.

Less certain is how Mozambique, the downstream riparian on the Incomati, will benefit reflecting an inherent problem of lack of comprehensive planning through a single basin organisation. The reduction of flood risks could assist Mozambique in establishing irrigated agriculture along the banks of the river, but this facility is not assured and some observers regard the dams as contributing to, rather than preventing, the devastating flooding in Mozambique in recent years.

4.2.3 The Jordan

The Jordan has no single transboundary institutional arrangement for water resources management, yet a significant number of donors provide bilateral assistance to the Kingdom of Jordan in the form of soft loans and direct grants. Many of these loans and grants cover projects on water supply and wastewater treatment, reflecting concern both within countries and within the region surrounding the increasing scarcity of water in Jordan, and the impact on the environment of poor water treatment. For this reason, most of the loans are to national-level projects, including from KfW⁴³ and USAID. Other major donors funding the sector include the EC, the EIB, the World Bank and the IDB. Increasingly, Sweden and Denmark have also become involved.

In addition to the national-level projects there are also a number of the key projects under the title 'Peace Projects', arising directly from the Treaty between Israel and Jordan. These projects include regulation of the Yarmouk river, a desalination conveyor to Urban Jordan, storage on the Jordan river and in side wadis and the

⁴² Personal Communication, DWAF, March 8, 2001.

⁴³ Germany funding for Jordan's water sector in particular reflects an awareness of the acute water shortage in the country and the capacity for this to hinder long-term development. KfW, for instance, spends about 90% of its total financing to Jordan on water-related activities (amounting to some \$106-\$128m).

Addasiyah Diversion Weir. The total estimated cost is some \$582m. Many of these projects are related to earlier proposals made under the Johnston Plan. Between Jordan and Syria one of the most important projects is the construction of the al-Wahda (Unity) Dam. Following the signing of an agreement in 1987 agreement between the two countries this plan has advanced significantly⁴⁴ in spite of problems between the countries following the outbreak of the Gulf War in 1991.

For Jordan, the dam's importance is its ability to capture and regulate seasonal flows on the Yarmouk. The 1987 agreement envisaged a yield of about between 80-150 mcm a year for Jordan and a total construction cost of some \$150m. The project would also include a 15 MW hydroelectric generating unit, with three quarters of the output provided for Syrian use. Problems of water quality and polluted return flows from Syrian agriculture within the basin are not addressed in the agreement and many observers question the actual viability of the project. Nevertheless, in May 1999 the two countries agreed to proceed with construction and an agreement for \$115m (at current rates) was signed with the AFESD in December. The Islamic Development Bank is due to donate a further \$44m and the Abu Dhabi Fund \$10m.

Several donors have also been supporting studies in the region, aware of the need for clear and agreed upon data for future negotiations between parties and for effectively managing the resources as scarcity further increases. The EU and GTZ have been involved in studies on the Jordan River, including feasibility studies (one for a water pipeline along the Yarmouk River financed by the EU for \$0.3m). In addition a Regional Water Data Banks Project was initiated in 1995 supported by the United States, the EU, Canada and France. The project aimed to improve the availability and applicability of water data information, including establishing a water data bank for the Palestinians. A study completed by GTZ in 1998 looked at the long-term strategic development of water resources in the region, including the creation of a concept for 'co-ordinated future management of all regional water resources'. The data produced underscored the fact that significant supply-demand gaps are inevitable in the future even based on conservative estimates of population growth, and identified desalination as one important option to explore.

However, future co-operation on water resources is jeopardised by the increasingly conflictual political environment, emphasising that although at a technical level co-operation can continue (for instance between Israeli and Palestinians water authorities in spite of the recent *intifada*), future scope for agreement on major water sharing issues has been narrowed considerably. Projects such as the Al-Addasiyah Diversion Weir are unlikely to take place⁴⁵, and a joint desalination plant for brackish spring water between Israel and Jordan expected to provide 50 mcm to Jordan for drinking water (under the Peace Treaty) and costing some \$150m, is held up by financing and siting issues (whoever hosts the plant has to deal with its substantial environmental implications).

⁴⁴ It had earlier been proposed under the Johnston Plan as the 'Maqarin' Dam.

⁴⁵ The project would divert some 20 mcm of incremental water into the King Abdallah Canal with a total capital cost in 1996 prices of some \$30m and recurrent costs of some \$0.3m.

At the level of regional water resources development one of the most important issues is national capacity, echoing issues found in southern Africa and within Mekong riparians. Of particular note is national capacity to manage donor funds and to develop effective projects. For USAID, a key donor, much of the finance for the water sector comes under the USAID Water Program, which focuses on stronger water sector institutions, increased efficiency in use of water resources and the improved quality of wastewater. This includes a new financial accounting system for the JVA, a programme to conduct public education on water issues and selected skills enhancement for technical staff, including a USAID contribution to the multi-donor effort to restructure and rehabilitate 18 zones of the Amman water system. However, in private donors question the capacity at a national level to spend money available – rather than capacity to repay the terms of soft loans.

4.2.4 The Southern Caucasus

Most of the multi-billion dollar aid effort in the region focuses on the refugee and IDP situation, rather than water resources management, and comes from the US and European governments. In each of the three countries (Georgia, Armenia, and Azerbaijan), some 60 agencies and Western NGOs are operational, with extremely restricted mandates that preclude co-ordinated regional action.

A rough indicator of the costs of the water blockades, and lack of transboundary water management, is crop damage during the recent drought crisis. According to governmental estimates this amounted to some \$200m in Georgia, over \$100m in Armenia and \$100m in Azerbaijan. The latter's request for \$100m for drought-affected districts was declined by the FAO, however; whereas for Armenia, maintenance and restoration of irrigation was one of the stated objectives of an FAO appeal. Donor investments in sustainable national irrigation are considerable, including capacity building for water user organisations. According to the FAO, programmes are effective on some 220,000 out of 288,000 ha of irrigated land. However, the mandates of aid agencies remain restricted, preventing work in the Armenian controlled rural districts in the Karabagh zone, which the government is trying to repopulate with refugees and IDP's.

The direct costs of the recent drought crisis indicate the basic dilemma that international donors, humanitarian agencies and NGOs face. They are effective providers of national public goods of water supply and irrigation systems, and of emergency food aid, but their mandates – as restricted by the national governments of the region – preclude assistance to the institutional development of transboundary management, including basic early warning and monitoring arrangements for disaster prevention.

Present EU and US funding of sustainable development programmes is narrowly oriented to perceived vital economic interests, in particular Western access to the Caspian oil and gas resources, and intercontinental transport (what has been dubbed the 'Eurasian Corridor'). Proposed macro projects, that would require multi-billion investments, have remained in a preliminary phase, due to political and military stalemate. Sustainable agriculture has received a relatively low priority. An EU program

to promote a Common Agricultural Market (CAM), aimed at abolishing tariffs between CIS member states, has been stagnating because of the failure of the CIS to establish a functional legal-political framework.

Nevertheless, the private sector is expressing an interest in investing in transboundary arrangements in the region. The major oil companies that take part in the Baku-based International Consortium, are sponsoring low-key civil society activities in order to contribute to regional stabilisation. Since 2000, the World Bank has been trying to shape the investment climate by undertaking pilot studies to assess the economic impact of lifting the blockades. Although no attention has been given to agriculture and transboundary water resources management, the agribusiness sector is starting to discover the potential fertility of the Southern Caucasus. The ACIDI/VOCA programme in Eastern Georgia consists of in-kind contributions of quality seeds by US companies, and small credits of up to \$1,000 to assist start-up farmers on privatised lands. The programme aims to reduce donor dependency and to provide incentives for private initiative in local-level water resources management. During the drought crisis, this programme significantly reduced the vulnerability of the emerging farms sector.

4.3 Participation and civil society

4.3.1 The Mekong

Since its establishment, the key regional vehicle for greater integration, ASEAN, has become an increasingly important forum for regional co-operation and has established the Fund for Mekong Region Development. ASEAN's plans closely overlap with the Greater Mekong Sub-region plan (GMS), initiated by the Asian Development Bank in 1992, the mandate of which is to promote regional co-operation⁴⁶. However, unlike ASEAN the GMS also includes the Yunnan region in China.

At present, the focus of the GMS programme is on transboundary roads, railways, telecommunications infrastructure and HIV/AIDS prevention. The funding of these regional public goods are usually packaged in complementary national loans, co-ordinated through the ADB offices⁴⁷. The GMS is steered by a Ministerial Level Conference with forums and working groups, that relate to national Co-ordinating Committees. The costs of the plans were estimated at \$40bn – an enormous increase on investment to date initiated by the MRC, although the Asian economic crisis later caused a reduction in these plans.

⁴⁶ The Asian Development Bank has in this respect identified three functions: provision of relevant information; acting as honest broker and mobilising public and private resources for regional programmes.

⁴⁷ In the investment components included so far in the GMS programmes (roads, railways, telecommunications) it has been possible to use the modality of co-ordinated national loans. This would be different for instance in case of navigation improvements, where investments undertaken in the territory of one country could significantly and predominantly benefit another country. The provision of such regional public goods is of a different level of complexity and depends even more than in roads, railways and telecommunication on far reaching agreement between the countries concerned.

These developments increasingly make the MRC a regional player within a larger and expanding regional framework. Nevertheless, there has been a tendency for the two regional initiatives (GMS and MRC) to move in different directions and at different speeds, with ADB funding water investments outside the MRC framework. The scaling down of hydropower financing has reduced the overlap to some degree, however. To avoid future mismatches, a 'Partnership Agreement' was signed in April 2000 between ADB and MRC, including a stated willingness to exchange information and to co-ordinate activities.

The role of the non-government sector has been comparatively small in the Mekong Region, and sets limits to the greater integration of civil society within the shared river basin and within the above initiatives. For instance in contrast to other basins 'second track' diplomacy by civil society has not played much of a role in Mekong co-operation, which has remained a predominantly UN-led process. The political climate in mainland Southeast Asia for a long time has not been conducive to the development of a strong regional NGO sector and only recently have NGOs started operating regionally, though there are some national NGOs in Thailand⁴⁸ and Cambodia, particularly through European funding of environmental groups. Resistance against the construction of dams has developed in the Lower Mekong Basin in recent years – mounted by regional and international NGOs – and the criticism of the MRC as being a 'closed shop' is creating conditions for more active engagement with – and challenges from – civil society. The MRC and the national committees have embraced the principle of participation in a policy paper, but the question now is how to translate principle into practice, in particular within the preparation of the Basin Development Plan.

4.3.2 The Incomati and Okavango

In southern Africa civil society has a very important role to play in influencing public and international decision making and policy on water management, but this role has been largely subordinated to greater political concerns in recent years, with some important exceptions. Certainly the role of international civil society has perhaps been more significant in some countries than that of indigenous civil society.

In the case of the Okavango River basin, interest groups (from both the national political domain and the international community) played a crucial role during the early 1990s when the government of Botswana started planning the Southern Okavango Integrated Water Development Project which was subsequently shelved. The International Union for the Conservation of Nature (IUCN) and Greenpeace International (GI) played significant roles with respect to this decision, the former producing a report that warned of the negative environmental and social consequences of the project on the Okavango Delta. Nevertheless, the formal

⁴⁸ In Thailand's recently changed Constitution participation has been made obligatory. As with the MRC the challenge is to operationalise it. A good example are the Power Purchase Agreements with neighbouring countries, that though they have major budget implications have not been subject to public scrutiny.

participation of non-governmental organisations in decision-making processes within the region remains rather poorly developed.

In the Incomati River basin, civil society can play an important role in redressing the balance between different interests within the basin, for example, the Sugar Industry and commercial farming interests are both well organised and represent significant proponents of dam-building on the river, but may not have a full appreciation of possible negative social and economic effects of dam construction. There is certainly a role for civil society to play in assisting the process of effective water resources development in such a basin, not least through helping to provide a channel of data on economic and social effects of changing water management and allocative practices.

4.3.3 The Jordan

The structures of government in the Jordan basin vary considerably, and so do the relative strengths and weaknesses of civil society groups. There are few regional-level civil society groups of significance looking at water resources, given the political complexities involved, though some regional environmental watchdog groups do exist⁴⁹.

In Israel civil society is an integral – and powerful – part of the political scene, and creates an enormous impact on policy decision in an area such as water resources. The strengths of various lobbies on particular politicians and political parties can have major repercussions for water use. In Jordan, the process is less transparent but no less important. The type of political system ensures that political control through powerful civil society groups is similarly powerful (for instance the Jordan Valley farmers), but the process of control is less transparent. Given the links between farming interests in the valley and political elites in Jordan conflict with national institutions is highly significant in affecting overall national water management. Similar influence extends to controlling the abstraction of water from aquifers and to ensuring less water consumptive crops are grown. Whilst civil society organisations, per se, may be fairly limited in number, the links between civil society and political power remain significant. Unregulated use of surface and groundwater is a particular problem in Jordan⁵⁰ and continued collusion of interests that prevents more effective management of the resources will have serious long-term impacts on national water resource availability. The longer-term spillover effects on transboundary issues are certainly present, but difficult to quantify at present.

The willingness to increase participation of civil society is stated in Jordan's Water Strategy (1997), though in a managed form: 'the public shall be educated through various means about the value of water for them and the well being of the country'. The Water Strategy also anticipates a 'public awareness campaign' on groundwater whilst the Water Authority of Jordan and the Ministry is to establish a programme to

⁴⁹ Friends of the Earth Middle East, a consortium of Middle East environmental non-governmental organisations, is one exception.

⁵⁰ This is in spite of the fact that the government has laws regulating abstraction and the cultivation of highly water consumptive crops.

‘educate farmers’ on the importance of groundwater protection and the promotion of wastewater reuse.

4.3.4 The Southern Caucasus

In the southern Caucasus the potential for lower level, informal diplomacy to assist in the development of transboundary water sharing arrangements exists, indicating how ‘twin-track’ diplomacy may in fact be a substantial and important role for civil society to play. An example of such lower-level diplomacy – often referred to as ‘citizens’ diplomacy – is Helsinki Citizens’ Assembly (HCA) ‘Transcaucasia Dialogue’, started 1992 with public cross-border action on cease-fires, release of hostages and prisoners of war, and media ‘bridges’ in Georgian, Armenian and Azerbaijani societies.

During an international HCA conference in Baku, October 2000, the unprecedented participation of over 40 Armenian participants, including Karabagh-Armenians, was a signal of goodwill of the governments to lift the barriers to ‘low key’ regional cooperation. One of the current actions is a ‘Trust Zone’ initiative, that includes the restoration of irrigation channels between Tavoush in Armenia and Gazagh in Azerbaijan.

At the governmental level, a positive starting point for transboundary WRM in the Southern Caucasus is the policy of Azerbaijan to conclude bilateral water distribution agreements which provide for joint irrigation reservoirs. The government has also requested the World Water Council to assist in establishing a permanent co-ordinating council for water distribution among the Southern Caucasus countries, in the spirit of the Helsinki rules and within the framework of the Global Water Partnership.

The legal basis of the Azerbaijani-Iranian WRM regime in the lower Aras basin could serve as a model for parallel agreements between all riparians. As a next step, the initial Georgian-Azerbaijani agreement for the upper Kur basin could be tailored to the needs of the drought crisis in Kakheti and Kvemo Kartli; simultaneously, a Georgian-Armenian agreement could be prepared for the upper Kur basin, including Georgia’s Javakheti district, and Armenia’s Tavoush and Gori districts.

‘Multi-track’ diplomacy is particularly promising at the ‘lower’ political level of district and municipal authorities, with the engagement of overseas counterparts in both the public and private sector. An example is the initial cooperation agreement between Georgia’s Kvemo Kartli district and the Dutch province of North-Holland, which assists in targeting investments in priority fields of mutual interest. Joint projects, proposed by the Provincial Water Supply Company and the regional branch of the Dutch Farmers’ Union, in cooperation with local counterparts, may help facilitate effective WRM through changing deep-seated attitudes of donor dependency. Although initial financial contributions by the EU and other donors are necessary, ultimately the projects intend to encourage Georgian municipal authorities to collect water taxes, and Georgian farmers to dig out their own channels.

4.4 Legal and policy dimensions

4.4.1 The Mekong

Agreement on legal principles – whether or not enforceable at an international level – can be an essential part of the confidence-building necessary to install transboundary institutions. The Mekong Basin provides such an example and reflects many of the principles being developed internationally.

The new Mekong Agreement was signed in 1995 after a relatively short period of negotiation and benefited from a shared data base, the long-established relationships and the familiarity of the key players with the provisions of relevant international jurisprudence. The Agreement closely followed the provision of customary international law on transboundary water management, as given in subsequent conventions, in particular the Helsinki Rules on the Uses of International Rivers (prepared by the International Law Association in 1966) and the UN Convention on the Law of the Non-Navigational Uses of International Watercourses, prepared by the International Law Commission and adopted for ratification by the United Nations General Assembly in 1997.

The close relation is not surprising, given that several of the members of the Working Group that prepared the Mekong Agreement were also members of the International Law Commission working group, working on the UN Convention. In some respects the Mekong Agreement has even gone beyond provisions of the UN Convention.

The Agreement elaborated on the key elements of the UN Conventions:

Principle of reasonable and equitable utilisation

Rather than detailed rules on the division of water, as in other transboundary agreements, the Mekong Agreement sets out the process for the allocation of water over time. The Mekong Agreement spells out that for inter-basin use of dry season flows, which on the grounds of ecological balance and competition for scarce resource is the most critical period, specific agreements have to be reached. On use of dry season flows within the Mekong Basin there has to be prior consultation between the countries, working towards agreement. The same applies for inter-basin transfers in the wet season. For the use of wet seasons flows within the basins or for the use of waters from the tributaries (in either season) only other countries in the MRC have to be notified.

Obligation not to cause significant harm

This important provision has been adopted in the Mekong Agreement and has been explicitly extended to concern aquatic eco-systems and ecological balance in terms of water quality and quantity.

Principle of prior notification and negotiation on planned measures

The scope for prior notification and negotiation is described above. The Agreement also imposes an obligation on the riparian countries to develop a Water Utilisation Plan. This Water Utilisation Plan should work towards the development of rules for water utilisation (especially on in-stream flows on mainstream Mekong and water quality) and protocols for monitoring, the exchange of information, notification and consultation.

Duty to co-operate

The Mekong Agreement clearly states the mutual commitment to co-operate – well beyond the minimum provisions in customary international law. It established the Mekong River Commission as the international body that implements the Agreement and seeks co-operation on all aspects of water management (irrigation, hydropower, navigation, flood management, fisheries, tourism and timber transport). The Agreement mandates the Commission to prepare a Basin Development Plan.

The new Agreement has been criticised by some as it no longer includes the provision of a riparian veto, established under the 1975 Joint Declaration of Principles for the Utilisation of the Waters of the Lower Mekong Basin. The new Agreement nevertheless gives a certain degree of freedom to the countries to develop water resources in the wet season and on the tributaries. The absence of China and Myanmar as co-signatories is a major problem. An open invitation was extended to both upstream countries to participate, but has yet to be accepted. Instead both China and Myanmar are engaged as ‘dialogue partners’, attending meetings of the Joint Committee as observers (but not attending the political meetings of the Council). Although relations are now being fostered, the low-intensity involvement of China – which has started implementation of a programme of dam-building in Yunnan – still concerns the lower riparians. These concerns are over the impact on low-flows in the Mekong (which depend on the Tibetan snowmelt), and the need for co-ordinated dam-operating procedures. However, China does not consider itself bound by the provisions of the Mekong Agreement and moreover has explicitly refused to ratify the UN Convention on the Law on Non-Navigational Uses of Watercourses.

Although the Mekong Agreement is acknowledged to represent ‘best practice’, its true effectiveness will only be proven through application and enforcement. In the absence of detailed water utilisation and notification rules, the implementation of the provisions on prior notice and consent has been incomplete. Laos, for instance, has notified other riparian countries of the plans to develop hydro-power dams, but has provided only limited information. Even more serious have been Thailand’s plans for the Kok-Ing-Non schemes, which will eventually divert Mekong waters to other basins. According to the 1995 Agreement Thailand should have sought permission from other riparians, but has not done so, arguing that the preparation of these projects started prior to the 1995 Agreement⁵¹.

⁵¹ Though, prior to 1995, even more stringent procedures for approval were in place.

4.4.2 The Incomati and Okavango

The first protocol to be agreed upon under the newly formed SADC⁵² was the Protocol on Shared Watercourse Systems, which was signed in South Africa in August 1995. This protocol was the product of one of the elements of the Zambezi River Action Plan (ZACPLAN), and is one of the few elements of ZACPLAN that has actually borne any fruit. The adoption of the United Nations Convention on the Non-navigational Uses of International Watercourses in April 1997, accompanied by minor disagreement on the meaning of the term 'watercourse', resulted in an amendment to the SADC Water Protocol which has now been signed by Member States and is awaiting ratification by the respective national governments (expected in 2001). The Amended Protocol is the first legal instrument to be embraced by SADC, and was greatly influenced by various international water law instruments such as the Helsinki Rules, the Dublin Principles and Agenda 21. It covers the use of all forms of surface water in the entire Southern African region and aims to achieve close co-operation between Member States in the water sector.

The legal basis for inter-state co-operation on the Incomati river dates back far earlier, with its origins in a 1964 document entitled, 'Agreement between the Government of the Republic of South Africa and the Government of the Republic of Portugal in regard to rivers of mutual interest and the Cunene River Scheme'. This was a generalised form of treaty between the former colonial power in Mozambique and the minority South African government covering both Angola and Mozambique. Swaziland acceded to this treaty in 1967. However, the practicality of utilising this treaty was affected by subsequent civil war in Mozambique and political unrest in South Africa.

A Tripartite Permanent Technical Commission (TPTC) was established between Mozambique, South Africa and Swaziland in February 1983, which envisaged amongst other things, a division of the water between the respective riparian states and the management of joint water projects. Relations between Mozambique and South Africa remained strained and the TPTC generally never functioned properly. The Joint Water Commission (JWC) was subsequently established between South Africa and Swaziland in March 1992. Because this was driven by national interest, and the number of participating states was kept to a minimum (typical of a 'club' type of public good), co-operation was generally good; an example being the establishment of the Komati Basin Water Authority (KOBWA) in 1992, which oversaw the design, construction and management of the Komati River Basin

⁵² The Southern African Development Community (SADC) is a regional grouping formalised by the signing of the SADC Treaty on 27 August 1992 in Windhoek, Namibia by the then 10 member states of the Southern African Development Coordinating Conference (SADCC). These states were Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, Tanzania, Zambia and Zimbabwe. SADCC was essentially an anti-apartheid structure and the transition to SADC as a development community coincided with the demise of apartheid and subsequent democratisation of South Africa. This became an important juncture in regional integration, with Mauritius, the Democratic Republic of the Congo (DRC), Seychelles and South Africa joining SADC by accession.

Development Project, consisting of Driekoppies and Maguga Dams plus related infrastructure. In 1996 a JWC between South Africa and Mozambique was created to deal with bilateral issues because the Tripartite Agreement was incapable of functioning effectively.

4.4.3 The Jordan

No legal agreements bind all Jordan basin riparians. The Johnston Plan in the 1950s was, according to Kliot (1994), more or less considered 'binding' by Israel and Jordan, but subsequently failed to win the approval of the other Arab riparian states. The current Israel-Jordan Peace Treaty does include entitlements to portions of the Jordan's water, but few international principles are included in the document. The Interim Agreement signed between Israel and the Palestinian National Authority of 1995 extended Palestinian control to civil affairs in the West bank and Gaza to most areas inhabited by the Palestinians (excluding East Jerusalem).

The agreement entailed recognition by Israel of the existence of 'Palestinian water rights in the West Bank', but the postponement of negotiations on these rights until final status talks. It is unlikely that either Jordan or Israel will allow this right to be extended as a co-riparian on the River Jordan, however. Under the Interim Agreement Israel agreed to provide an additional 28.6 mcm of water a year to the Palestinians of the West bank and Gaza Strip and to the establishment of a Joint Water Committee to co-ordinate management of water and waste water in the West Bank during the interim period (Shapland, 1997). These agreements are still being honoured even under the current *intifada*.

Jordan's policy is to review institutional arrangements and update legislation as needed. It also notes that 'Due respect will be given to the provisions of international law as applicable to water sharing, protection, and conservation, and those applicable to territorial waters'⁵³, providing some level of support to the UN Convention. The Strategy document (1997) makes a clear pledge towards furthering multilateral and bilateral 'contacts, negotiations and agreements' and states that 'Bilateral and multilateral co-operation with neighbouring states shall be pursued, and regional co-operation shall be advocated, preferably within the provision of a Regional Water Charter' (1997, 5). There is no further elaboration on the meaning of such a charter, however.

With respect to groundwater Jordan states that 'legal research shall be made on the sharing of groundwater aquifers and their protection'. The establishment of Jordan's rights to shared groundwater resources will also be encouraged and the exchange of data on shared groundwater resources and the monitoring, assessment and development of shared resources is emphasised⁵⁴. The legal issues surrounding groundwater resources within the basin are likely to be the most intractable in the

⁵³ Jordan's Water Strategy, 1997, 5.

⁵⁴ Jordan's Groundwater Management Policy, 1998, 7

future, but have the least support in terms of international legal provision to assist in their resolution.

The basis for claims to water resources within the Jordan basin (including groundwater) is likely to remain the idea of 'prior rights'. Israel is keen to pursue this line for waters falling on the West Bank hills and flowing into the western aquifer, largely because it has heavily exploited this resource since 1967. The application of general rules of international shared water resources such as the Helsinki or ILC rules is largely inappropriate in a region in deep conflict at many levels and over a series of different issues according to some observers (Kliot, 1994). Hence, whilst the Jordanian Water Sector Strategy states that, "Due respect will be given to the provision of international law as applicable to water sharing, protection and conservation, and those applicable to territorial waters", the reality is likely that international law will not play a significant role in future water negotiation strategies.

4.4.4 The Southern Caucasus

Given the present political instability, the legal framework for developing transboundary water resources management in basins of the Southern Caucasus is all but absent. In particular, the unresolved legal status of the separated Nagorno-Karabagh region and adjacent territories, defined by military lines and ruled by local martial law, precludes institutional arrangements being arrived at for the Kura-Aras basin.

However, the recent severe drought may prompt policy makers to recognise the destruction of irrigated agriculture, freshwater supplies and biodiversity in the basin as public bads that pose a danger to the international security of the region and surrounding regions. There are, therefore, two important ways forward: first, an initial legal framework, shaped by the international community for developing the public good of water resources management; second, the establishment of customary legal practice in order to limit the military water blockade. The EU and US, and committed donors like Sweden, are in a position to foster this development, through innovative use of current legal mechanisms, and as mediators in the peace negotiations.

An innovative instrument to promote compliance with the standards of the UN Convention, is offered by the EU Framework Directive, and its relevant provisions dealing with armed conflicts, political obstacles, national security, transboundary harm and settlement of disputes (Art. 29-33). Explicitly, the Directive mandates the Commission and member states to address obstacles to WRM on territory outside the scope of Community water legislation (Consideration 47). Possible measures include administrative co-ordination arrangements, identification missions and monitoring networks for distinct eco-regions. Within the process of bilateralisation of legal relations between CIS states, one of the most promising results of EU policy is the conclusion of parallel Partnership and Cooperation Agreements (PCAs) with the Southern Caucasus states, ratified in 1999. Devised in a spirit of fostering good-neighbour relations, the PCAs include detailed provisions for complying with EU standards, *inter alia* in the field of environment protection, and a political monitoring mechanism (at intergovernmental and inter-parliamentary level). In particular the PCA provisions

concerning environmental protection are relevant for devising water resources management arrangements. Promising in this respect is the opening of the Regional Environmental Centre for the Caucasus (REC), founded in 1999 in Tbilisi as a cooperation project of EU and the South Caucasus governments, which intends to address issues including water pollution.

Such an initiative could be complementary to the innovative US policy of promoting transboundary management directly, by public-private sector cooperation. The \$4m USAID programme for 2001-2002, managed by DAI, can be considered the first example of an earmarked trust fund for confidence building between Armenian and Azerbaijani policy makers, and initial water resource management arrangements are included in a shared section of the Kur-Aras basin. As indicated above, a reference point for legal development is the former USSR-Iran water distribution agreement, and the functional Azerbaijan-Iran agreement for the lower Aras basin. Obviously, legal and political obstacles are posed by the present US embargo against investments in both Iran and Azerbaijan.

Obviously, innovative policies only have a chance if the normative international standards comply with local rule of law. In this respect, policy makers should pay attention to the effectiveness of relevant humanitarian law of war (*jus in bello*), and practices of customary law. The Geneva Conventions, 1977 Protocol II, explicitly consider the disruption of civilian freshwater supply and irrigation channels a war crime. ICRC has a mandate and the field presence to advocate these standards and to initiate appropriate actions. During the armed conflicts ICRC missions gained a reputation, in close consultation with OSCE (CSEC) missions, for effectively counteracting other war crimes, such as indiscriminate hostage taking and mistreatment of POWs.

In this respect, the HCA/ICBL proposal to restore irrigation channels in a 'Trust Zone' across the military line, are rooted in local Christian (Armenian, Georgian) and Muslim (Azerbaijani) ethics of water sharing. Low-key round-tables and joint expert missions, under the auspices of ICRC and OSCE missions are envisaged. The key problem of restoring transboundary irrigation and water supply channels includes the need to demine arable lands. Sweden is in a position to promote multi-track diplomacy in this direction, not only as donor but as a facilitator and trusted third party mediator. Swedish diplomacy has a track record in the region of promoting confidence building measures, under the Swedish-Russian co-chairmanship of the OSCE (CSCE) Minsk Conference, 1992-1995. Early citizens' diplomacy in the Karabagh conflict was co-sponsored by the Olof Palme Peace Award, and is still actively supported by the Palme Foundation and conflict research institutes.

5 Conclusions and recommendations

This section draws out the main conclusions and recommendations reached in the study, and provides some direction for future Swedish involvement in the area of effective transboundary water management as a public good.

The case studies in the report reveal a range of institutional developments aimed at increasing management effectiveness of transboundary water resources. The notion of *political feasibility* is a central conclusion reached. In many of the basins analysed the institutional arrangements have changed according to changes in political feasibility, linked closely to ideas of governance, international sovereignty, state legitimacy and challenges to the state. The implication of this conclusion is that regional public goods such as effective management structures are related to a wider set of issues surrounding development and governance processes. Furthermore, the uniqueness of each case examined is a fundamental point that requires emphasis.

Given this need to achieve politically feasible environments a number of elements of feasibility are identified. A starting point is communication between parties at both technical and political levels in order to establish a dialogue. Where this does not exist – say for example in some cases in the Southern Caucasus – little progress can be made. Furthermore, dialogue can be enhanced if it is based on an established body of data for analysis and interpretation. Where wider political conflicts have been overcome or are in the process of being overcome, i.e. their resolution is being managed, usually by a third party, the dialogue is likely to be more stable and prolonged. Given the nature of these often protracted political processes, the costs are likely to be substantial⁵⁵.

Within politically feasible environments, the process of institution-building requires an emphasis on *process financing*. Trust Funds may help to facilitate this process through creating long-term support structures suitable for funding incremental processes. This type of arrangement can also assist in the inclusion of a variety of voices from within the basin, ranging from private sector contractors, civil society organisations (including NGOs), national and local government and other key actors, including regional economic groupings. Whilst such funding arrangements can help to achieve initial start up and some long-term stability in order to ensure long-term ownership by riparian countries one of the key process issues is promoting benefits of effective transboundary management within national states.

This is in itself a political activity requiring sensitivity to the different upstream downstream perspectives of countries, and their different perceptions on what constitutes a benefit – for instance the widely differing uses to which water may be put. Careful consideration therefore has to be given to the meaning of ‘equitable allocation of water’, particular in economically highly uneven river basins (of which the Mekong, Jordan, Incomati and Nile all provide examples), and where early

⁵⁵ The Nile Basin Initiative is estimated to have cost over \$10m to undertake; likewise the costs of the WCD process are estimated at some \$15m, personal communication.

investments in water diversion have led to the *de facto* appropriation of prior rights. The allocation of water may not render equality in economic and social benefits – for instance in achieving greater or lesser poverty reduction – if national capacities vary widely in capacity to accrue social and economic benefits from water use.

The recommendations of the World Commission on Dams follows the main tenets of the UN Convention on the Law for the Non-Navigational Uses of International

Box 9. World Commission on Dams

Strategic priority 7: Sharing rivers for peace, development and security (Policy principles):

- National water policies make specific provision for basin agreements in shared river basins
- Riparian states embrace an approach that equitable locates the benefits that can be derived from water
- No dams are built on shared rivers in cases where riparian states raise objections that are upheld by an independent panel
- For the development of projects on rivers shared between political units *within* countries legislative provision is made to embody priorities of ‘gaining public acceptance’, ‘recognizing entitlements’ and ‘sustaining rivers and livelihoods’
- External financing agencies should withdraw their support for agencies, planning or facilitating the development of dams on shared rivers in contravention of the principle of good faith

Watercourses and encapsulates this idea in looking beyond equitable distribution of water, towards the benefits to be produced by water utilisation. The public good argument can form the basis on which to develop a consensus on this benefit-sharing idea, and indicates a possible way forward for operationalising the concept regionally. The basic ideas of non-rival and non-excludable consumption and political consensus around the provision of benefits assist in grounding some of the ideas of ‘water security’ and effective ‘water governance’.

An identified need for an international third-party support facility has emerged in the study in order to help achieve the ‘politically feasible’, as well as set in train and assist the process of institution-building. Such a support facility should be set up as a partnership and derive clout from and build upon existing organisations, such World Bank, UNDP, UNEP, GEF, international NGO’s active in transboundary water diplomacy (such as Green Cross) and regional economic councils. Consideration 47 of the EU Water Framework Directive also points to a potential role for the EU in supporting transboundary water management in regions outside the EU, even up to the Southern Caucasus. The establishment of such an ‘International Shared Water Facility’ could be facilitated by the GWP for instance, that has been set up to build alliances in the water sector as well as move practical action in improved water management. Part of the development of the facility would be take a closer look at the mandates of the various partners and see whether they should be adjusted, for

instance to identify a single UN body dealing with transboundary water management or to expand the role of GEF beyond financial support.

Multilateral donors such as the World Bank with UN agencies in support such as UNDP and UNEP could provide seconded staff as technical advisors to the facility in specific areas. Above all, the intention would be to consolidate existing initiatives and organisations and to streamline their accumulated experience within specific, focused programmes of assistance. Examples of process development from related initiatives such as The World Commission on Dams could be used to assist in stakeholder participation. Other examples might be derived from European or North American experiences of managing shared waters. These could include the international river commissions on the Rhine, Meuse and Danube (see Annex 2). Their experience of *process* issues is important. The importance of incorporating Southern perspectives fully within the facility would be facilitated through the experience of river commissions on the Mekong and elsewhere. Other experience could be derived from the International Joint Commission between Canada and the US (Duda and Roche, 1997). The MRC as a transboundary river commission which is established would be an important resource and centre of knowledge on, for instance, regional-national institutional linkages.

The International Shared Water Facility could be helpful in supporting the development of shared norms on data, similar to the work of the UN/ECE. The initiative could also act as a second resort for arbitration on water allocation issues that could not be resolved between riparian countries and develop jurisprudence on equitable distribution of water. In addition the facility could play a role in developing financial modalities for regional water projects that went beyond national investments. The stages of institutional development at which the facility could be employed are represented in Table 6, below.

Table 6. Role of an International Shared Waters Facility at stages in the institutional development process

Process stages	Possible role of facility
<i>A. Initiating process</i>	Promote / support other organisations as key stakeholders in the idea of regional water resources management
<i>B. Institutional management</i>	Independent monitoring of process development including key issues of accountability, participation, governance, stakeholder consultation, etc.
<i>B. Programme implementation</i>	Develop neutral standard and generic tools for data collection and dissemination; facilitate dialogue between parties over specific resource management issues
<i>C. Investment in water management works</i>	Leverage financing for weaker riparians, develop financing modalities for use in different basin institutional, social and economic contexts

There are sharp contrasts in financing between different basins studied: the Mekong with a longstanding river basin committee, a funded secretariat and strong UN and bilateral donor support and the southern Africa case where there is fragmented river basin management, with OKACOM in clear need of support (suggesting an important role for SADC); and between the Jordan basin where there is no transboundary organisation, but a high level of donor commitment for political reasons to assisting national and bilateral efforts, and the Southern Caucasus where funding is again restricted by political realities and the restricted mandates of donor organisations.

Whilst the crucial role that donor support can or does play is evident in all cases an important question to ask particularly when considering the merits and demerits of donor-led institution-building, is whether in the discussion on regional public goods and international public goods, these are likely to be *underprovided* in the absence of regional funding mechanisms. This has not been the case with the Mekong, as the Mekong River Commission and its predecessors even at one stage served as a conduit for bilateral projects and studies in the region, when donor relations with government in the region were not yet possible. What this does suggest, however, is that the provision of regional public goods is as much a matter of ‘funding destination’ (the existence of a fundable well-programmed regional institution in this case) as a matter of ‘funding origin’ (the existence of regional funding mechanisms). The first may even overcome the absence of regional funding programmes, as the MRC has done. In fact, the reverse happened and the regional Mekong Committee for a long while was ‘used’ to channel bilateral programmes to countries in the region at a time when no official bilateral programmes were in place. This was tacitly supported by the governments in the riparian states, as there was no alternative to access bilateral grant aid. A further point to note is that in many cases – the Jordan in particular – it is not lack of funds which inhibits new water management projects – it is lack of capacity at a national level. In the absence of this capacity the scope for higher-level regional management has to be questioned, aside from the political issues involved.

The discussion of the cases has focused strongly on the role of donors in initiating and supporting programmes. With the exception of riparian country contributions to the staffing of joint committees or commissions, there is clearly no pattern of raising revenues for transboundary management from other sources – such as tariffs or charges on water resource use – in the four river basins, that were studied. This level of decentralisation and development of private interest in the management of the resource may well be a cornerstone to the achieving future management effectiveness, however. However, the correct sequencing of donor roles in establishing a feasible institutional and political context (for instance the facilitation provided by the World Bank in the Nile Basin Initiative demonstrates clearly the importance of careful preparation) is essential. This includes laying the groundwork, perhaps, for an environment in which bilateral donors are willing to finance specific projects.

A further major lessons from the case studies and, indeed from the European experience (see Appendices) is that financing institutional development at a basin level is relatively inexpensive and manageable, certainly from a donor perspective. However, the transfer to national-regional level financing of, say recurrent costs, is

far harder and is only recently being established in some basins, notably the Mekong. National capacity to finance is severely constrained, not least because collection of agricultural water users tariffs in a country such as Jordan is not very effectively developed. Thus, the wider socio-economic structures within which management takes place are an important part of the picture, as noted in the earlier section.

There is no single formula for the improved financing of a regional public good such as effective water resources management. The real room for improvement lies in better co-ordination and sequencing of funding, based around more coherent visions and objectives established by co-riparians at a regional level – a key part of the initiation process and essentially political and policy objectives to be resolved by regional governments. Nevertheless, this report has shown that in many cases the origin and direction of funds to water resources management in key regions is piecemeal and frequently uncoordinated and this does not facilitate the necessary level of political decision making either nationally or regionally.

Longer-term financing of regional public goods remains the most difficult enterprise, not least because the longer term positive and negative externalities are harder to gauge and project to important constituencies of interest such as civil society, local government, state institutions and regional groupings. Building political momentum through the incremental engagement of all parties is therefore vital to maintaining the sustainability of long-term provision. The costs of running a transboundary water management arrangement – once it is in place – are relatively small compared to the interests at stake, particularly in large rivers⁵⁶. The issue is one of national riparian funding, which is the key to sustainability and local control over the institutions. Certainly greater autonomy is possible through the establishment of trust funds.

Initially whilst it will be donors who support the diplomacy, politics and fact-finding involved in establishing viable institutions, additional mechanisms such as direct charges and tariffs, and wider financial participation, can evolve at later stages of the process. There is also scope as the structures of management mature for raising funds through government taxation and through direct involvement of other bodies – particularly the private sector – in, for instance, the provision of infrastructure and investments on river basins.

At stages in the financing of institutional development there will be difficult trade-offs between donor willingness to maintain long-term commitments and riparian capacity to finance from domestic sources. Whilst the costs of management arrangements described are not high (particularly from a donor perspective), as they become domestically sourced their real cost will become increasingly apparent, particularly where there are perhaps significant trade-offs with other poverty reduction processes. There is therefore a need to understand the differential rates of progress of this financing sequence with the careful weighting of costs by different riparian capacities, level of socio-economic development and opportunity costs of

⁵⁶ Another issue is the funding of transboundary water management arrangements on smaller rivers, where scale considerations do not allow the more elaborate arrangements that are in place on some of the larger rivers – but where still considerable transboundary sensitivities have to be negotiated.

financing such arrangements. Maintaining a balance between the inputs of different riparians to avoid dominance of the process may also require third-party support. Possible funding arrangements at different stages in the process are shown in Table 7, below.

Table 7. Current and recommended arrangements for process financing

Cost category	Explanation	Current financing arrangements (case studies)	Recommended financing arrangement
<i>Initiating process</i>	Cost of establishing and adjusting transboundary institutions	Mixed and patchy	By international or regional organisations with sufficient strength
<i>Institutional management</i>	Management costs of the transboundary institutions	By riparian countries and externally	By riparian countries solely
<i>Programme implementation</i>	Cost of river basin management – development of uncontested data bases, monitoring, etc	By bilateral donors and UN agencies	On the basis of formulated programme Trust Fund financing by bilateral, multilateral and private donors
<i>Investment in water management works</i>	Cost of investment in water-related infrastructure	(Uncoordinated) National investments (public and private sector)	Co-ordinated national investments and regional investments Risk financing (co-financing regional development banks and private sector) New financing modalities <ul style="list-style-type: none"> • Inter-riparian financing • Cost recovery

The role of civil society whether at a regional or national level has been shown to be complex and important across the case studies examined. Whilst integration and participation in regional structures at a state level is well-developed in most regions, and particularly so in the Mekong, the involvement of civil society as a participant in development policy and programmes is limited. Some emerging indigenous NGOs looking in particular at issues surrounding the environment and dam-building are emerging. In southern Africa there are some internationally important examples of civil society involvement in water management issues on the Okavango, but where the focus is not on internationally protected sites – on the Incomati, for instance – the focus is less sharp. Local civil society can still have an important role to play, however, given the critical developmental issues surrounding water resource development.

In the Jordan basin, significantly perhaps, given the level of political conflict, there is still an important level of civil society participation in management issues, including the critical area of water allocations to agriculture. The political-civil society links are

important and influencing on wider management processes given their level of embeddedness in national political discourse. This ensures, as mentioned earlier in the report, that these are also important processes for regional-level management and, hence, for institutional development surrounding the effective management of resources.

Recent global discussion on water resources management underlines the importance of incorporating civil society groups within the management and planning of water resources development, as exemplified in processes supported by the GWP. The evidence from the case studies therefore fully supports this emphasis, not least because, *de facto*, the principle of subsidiarity and the process of decentralisation is bringing the achievement of effective management closer to the end users and social groups. In many cases donors are also advocating the increased role of civil society in developing water delivery systems in agricultural and domestic sectors, for instance in the much-vaunted irrigation management transfer process.

To be effective, transboundary water management has to include the balancing of priorities between user groups, essential to which is more effective partnering of government and private sector with civil society. Substantial barriers need to be overcome to extending the role of civil society at a regional level, however, and include problems of existing capacity, national political culture hindering the activities of civil society and the larger, technical complexity of transboundary activity itself. The relatively modest use that non governmental organisations have made of the special window for implementing transboundary water programmes under GEF highlights the latter problem, in particular. A particular focus should therefore be to facilitate the entry of civil society (and local government) at a regional level of management. At an international level, in the specific realm of effective transboundary water management this role would be facilitated by greater support to global water networks concerned with policy development and its relationship to states and society, including the World Water Council, the Global Water Partnership and the Green Cross initiative.

Table 8. *A structured role for civil society*

Stages of process	Possible role of civil society
<i>Initiating process</i>	Civil diplomacy between neighbouring groups; construction of dialogue through networks of civil society groups at a regional level
<i>Institutional management</i>	Observers to the main meetings; Development of networks to feed into policy development and data collection
<i>Programme implementation</i>	Capacity building, independent monitoring of process; assistance in feedback of ideas and impacts from local communities
<i>Investment in water management works</i>	Implementation and co-funding, where appropriate; provision of technical expertise in development of management works including social and environmental impact assessment

The essential change in emphasis presented in the table above is the structural inclusion of civil society in the process of institutional development at a regional level in order to improve the functioning of these institutions. It is anticipated that a new international facility could provide a key role in assisting in participation by civil society.

Some of the regional organisations covered in the case studies have used international norms and principles as the basis for agreements, but rarely are these principals capable of enforcement. The SADC protocols are a case in point. In other basins, for instance the Jordan, the question of riparian rights is deliberately avoided in favour of a sharing formula agreed on a bilateral basis (the rights of other riparians are *de facto* ignored).

The development of effective institutions of management is identified in this study as the key regional public good to which donor financing should be targeted. An important part of this process is agreement on principles for participation (who is to participate and at what level), for decision-making (how to make these processes transparent and who to include), and on the principles by which benefits (or water shares) should be apportioned. Hence, establishing the principles and norms involved is an essential step towards the provision of the regional public good. Given the experience on the Mekong – there, enforcement is an issue – or on the Jordan where rights issues are bound up closely with contested territorial sovereignty, the problems of reaching agreement are considerable, and then of monitoring enforcement even more so. The incremental process of seeking agreement in the Nile basin shows how much caution may have to be involved, particularly when there are a large number of parties involved. Similarly, the legal process itself is slow, including at a national level where verification and agreement has to begin; hence, revisions to the SADC protocol have only recently been completed.

Nevertheless, as described in this study and shown in the case studies, substantial work on the development of legal conventions on transboundary water management has produced a document – the UN Convention on the Law on Non Navigational Uses of International Watercourses – which is gathering international support. The Convention was ready for ratification in May 2000, but failed to date to attract the required number of country endorsements. The ratification process remains open-ended. Evidence from the case studies supports the principles of the Convention and has shown how it has still served as a model for several transboundary water agreements, in particular the Mekong River Agreement and the SADC Water Protocol. It remains an important international document, having achieved a degree of international consensus on best practice.

The principles established by the convention are equitable and reasonable utilisation, obligation not to cause significant harm, prior notification, and co-operation on the basis of sovereign equality and mutual benefit. These principles are easier to convert into practice on relatively underdeveloped rivers (such as the Mekong). However, they still leave many politically complicated issues un-resolved in river basins where water use between riparians is unbalanced and contentious, such as the Incomati and

the Jordan basins. The same applies for the transboundary water agreements in the case studies. The Mekong River Basin Agreement sets out the general principles for shared water management, but, at a minimum in order to become effective, generalities have to be translated into agreed water allocation rules, and agreed procedures on notification. As long as these do not exist, the process of institutional development has not been truly 'effective' in managing the transboundary resource.

The case studies and other international river basin examples show that where water allocations are agreed, they will affect the decisions on major investments at a national level. In rivers such as the Incomati considerable investments in water abstraction for strictly national purposes were made prior to agreements on water sharing. However, it is only when transboundary agreements are in place that it is possible to invest in water resource management that serves co-riparian objectives.

Sweden already plays an important role internationally in water resources management at the level of donor support to important initiatives (for instance in southern Africa) and in hosting and supporting initiatives such as the GWP. Given this level of involvement, Sweden's profile in debates surrounding water resources management is similarly substantial. The analysis presented in this report suggests that Sweden can and should continue to support this important activity, and should increasingly focus on issues of process financing of transboundary institutional development.

One immediate issue is development of a clear and accessible 'one-stop shop' facility at an international level to assist in institutional development in shared river basins (big and small). This facility could cover a range of functions associated with the provision of the public good as identified in this study and, ultimately, provide the focus for more coherent and informed assistance in developing suitable financing options from the range of possible types identified within this study. It is precisely the need to identify case-specific solutions, rather than provide blueprints, that makes a new facility so important.

As one of the leading donors in the area of transboundary institutional development (amounting to some \$8m dollars in recent years) Sweden holds an important position in possible future developments of this kind. In addition the Swedish track record in addressing democratic governance issues could assist in operationalising the principle of subsidiarity within any new international arrangements.

The main recommendations of this report in respect of the above conclusions are:

1. The study recommends the establishment of an International Shared Waters Facility (ISWF), drawing on the established roles of the multilateral organisations and agencies presently engaged in the sector, including the World Bank, UNDP and the GEF, whilst liaising closely with related international initiatives such as the GWP and the World Water Council. Its charter would highlight the importance of transboundary water management as an international public good and would promote the principle of subsidiarity in the provisioning of such a

good. As well as serving as an international source of arbitration between riparians, the ISWF would help to develop modalities between financing institutions in order to facilitate financing arrangements for new and existing initiatives, and would support institutional development in water resources management within regional multilateral organisations. As an international advocate of common legal norms and principles, the ISWF would seek to develop practical awareness of the UN Convention on the Law for Non- Navigational Uses of International Water Courses.

2. Regional economic groupings actively promoting regional public goods (such as SADC) should be encouraged and supported through the development of financing initiatives for basin-specific activities within these groupings. To support the roles that economic groupings can play in promoting transboundary water management institutions, a partnership between different regional councils should be considered, including the SADC and ASEAN. The EU could take the lead in organising such an initiative within which the experience of the various councils could be exchanged and expanded upon.
3. The study also recommends that Consideration 47 in the recently adopted EU Water Framework Directive should be used to establish a more pro-active role for the EU in shared river basins internationally; and specifically, those immediately outside the European Union. A brokerage role for the EU should be made more explicit and streamlined with the EU development programmes in critical transboundary river basin regions. Member states such as Sweden could support this role under the umbrella of the ISWF.
4. This study recommends the increased apportionment of funds to process financing of sufficient duration to ensure continuity of institutional development, rather than piecemeal project financing (whether or not institutional arrangements are executive or co-ordinating in nature).
5. Funding of transboundary institutions should be combined, where appropriate, with parallel national-level institutional strengthening in order to ensure that the future input of riparian countries into regional arrangements can be assisted and the dominance of particular riparians be minimised at a regional level.
6. The development of funds to implement technical programmes under river basin organisations that lack independent or adequate resources should be pursued, recognising that transboundary Trust Funds represent a new venture, but that their feasibility will be dependent on robust institutional and legal structures.
7. Within mature river basin organisations new financing mechanisms such as cost recovery on transboundary water services, including areas such as navigation, or inter-riparian financing should be actively explored and promoted. An essential part of establishing these mechanisms would involve looking at legal requirements and the need to cover risks associated with new developments, particularly where inclusion of the private sector is considered.
8. Programmes to encourage private sector participation in transboundary water management should be specifically developed, recognising both the potential of the private sector but also the specific institutional framework in which it operates.
9. It is recommended that greater support is given to civil society organisations engaged in building effective management capacity between co-riparians. This

support should be in the form of initiatives to assist civil society organisations to network around common river basin management themes.

10. The second stage of assistance should focus on assisting civil society organisations to achieve coherence on confidence-building and conflict prevention surrounding transboundary water management. Financial support should be provided to encourage the development of civil society networks that include local government and can help to both support regional institution-building processes and represent the views of these local institutions. A starting point should be the establishment of transboundary networks of civil society groups in a number of pilot river basin organisations (the Nile basin or the Jordan could provide early examples).
11. The study recommends that internationally-agreed principles as covered in the various international Conventions need to be more widely disseminated to turn them into effective shared norms at an international level. Their agreement in principal needs to be established amongst the community of donor organisations, at a minimum. This function that could be facilitated by the proposed ISWF (see above).
12. Work should be financed to assess the institutional demands (in cost and manpower) of operationalising these principles, and especially issues raised about enforcing compliance between co-riparians.

The case study material and analysis of financing issues included in this report both show that there have been important efforts undertaken to develop transboundary management of shared river basins. However, there clearly remains much to be done in order to provide more effective institutions of water management. The implementation of these recommendations would provide a starting point towards achieving this important goal.

Annex 1 Terms of reference

1. Background

The Swedish Ministry for Foreign Affairs has initiated the project *Development Financing 2000*. The overall purpose of the project is to help increase awareness, knowledge and international commitment to a strong, effective and well-funded multilateral system in the field of development. The project goals are to:

- create political energy and momentum in issues concerning multilateral financing in the field of development,
- seek to develop new perspectives in the thinking about financing the UN-system and the multilateral development banks (MDBs),
- seek to develop concrete mechanisms for financing UN programmes and funds in particular, and finally
- develop concepts concerning global public goods and its financing.

The Development Financing 2000 project will carry out several studies in order to meet these goals. This study focuses on issues related to effective international management of water resources and whether it is useful to consider international water management as a public good. In addition, the study shall specifically address to what extent and explore in what ways Sweden, in capacity of being an ODA contributor, can promote effective regional / international water management.

2. Introduction

The Focus of this Study

The starting point for this study is to explore and to put in perspective whether, and to what extent, the concept of international/regional public goods is useful in describing, analysing and coming to terms with inter-state water management issues. Subsequently, if found feasible to use the concept of international/regional public goods in this context, the study shall, from a development financing perspective, analyse and elaborate on the roles of different financial flows and mechanisms (e.g. private flows, domestic resources, ODA) in the provision of effective international/regional water management.

Effective International/Regional Water Management as a Public Good?

Broadly, the traditional view of the concept of public goods suggests that the responsibility of providing public goods rests with various spheres of national governments. Accordingly, the tasks of national authorities are to facilitate market conditions which, ideally, incentives market participants to contribute to the production of public goods. It is often argued though, that there is a serious under-provision of national public goods. Thus, the world's markets become increasingly integrated in many respects with a possible subsequent recognition that public policy does not necessarily have to be limited to a national concern. Consequently,

responsibilities to provide public goods may become diffuse with a resultant increasing under-provision.

Therefore, it may be necessary to take the concept of public goods across national frontiers. Considering, for example, the provision of effective international/regional water management, which is the focus of this study. Many water related challenges ahead (e.g. population growth, desertification and droughts, land use, pollution etc.) drive up the need for sound cross-border international water management.

The natural resource, water is an economic good. It has a market value, it is possible to set a price on water, it has a supply and a demand side, and it is tradable and so forth. Due to its indispensable nature, water can also be considered as a social good – people must have it for survival and it is a prerequisite for economic well being and health. As an economic and social good, water is quite unique. Not only does the multitudinous and competing use of water in various sectors (agriculture, transport, industry, health, the very nature itself) complicate matters on water use; during its way through societies, cities, regions, nations etc., water shifts from being a public good into a private good (e.g. after being collected or withdrawn from a source and possibly also traded). However, even though water – the good – is not always publicly owned, *effective water management* – the tool or mechanism – is a concern of many people on the local, regional, national and to some extent on the global scale.

The way water is managed in many areas worldwide may lead to depletion of water resources and may cause severe environmental and health degradation. Misuse and mismanagement, particularly in many densely populated countries and regions in arid and semi-arid climates where demand for fresh water often outstrips supply, limit the ability of individual nations to provide drinkable water for their people. Declining availability and deteriorated quality of water resources could cause severe environmental damage, jeopardise health and eventually lead to chronic poverty. Obviously, *effective water management* matters to many people and is often a local and regional concern, not seldom with international or even global dimensions. However, management of water resources are often undertaken according to national perspectives and the management of water resources is often under state and national authority, despite the widely accepted recognition that cross-border related problems are better addressed by multinational settings.

Often, regional co-operation will be needed to restore basin-wide mechanisms to water management. Programmes aimed at achieving improved water quality on the local scale cannot be separated from necessary regional measures. The often-recognised lack of regional co-ordination mechanisms exacerbates the problems of scarcity and poor water quality. A number of initiatives to create regional cross-border and interstate co-ordination mechanisms and institutions, such as river commissions, as well as the elaboration of common strategies for water resources management, has been established in developing and transition regions (e.g. the Aral Sea and Victoria Lake basin co-operations, Mekong river commission, etc.). The aim of such co-operations has been to integrate basin state governments in a common strategy to achieve effective transboundary watershed management. Experience of

these initiatives shows that building up and consolidating such innovative institutional arrangements takes a long time and will not always result in firm action towards effective water management – not the least since cross-border co-operation may sometimes require consensus on a number of difficult political and financial issues;

Poor Countries – Special Challenges

Developing countries start at a disadvantage. Apart from the low purchase power of water consumers, there are managerial constraints; poor countries' institutional capacities are generally low, capital markets are inefficient and under-utilised, they do not access the necessary capital flows, and often, inadequate pricing of water causes constraints in the allocation of financial means necessary for achieving effective water resources management and protection. The policies of levying taxes and fees aimed at achieving the rationalisation and balance of conflicting uses of water still has to be consolidated in many areas and regions world-wide. If properly applied, adequate pricing is perceived to render in better results in the regulation of use, control, monitoring and preservation of water resources. However, it should be noted that, although the recognised need for adequate pricing of water resources, e.g. in terms of full cost recovery of recurrent operation, maintenance and capital costs, pricing is merely an instrument or a tool aimed at achieving much-wanted results and set standards. Thus, adequate pricing and regulatory frameworks themselves are not guarantors for effective water management unless the often-recognised cross-border dimension of the water-related issues is sufficiently considered.

Much is in the making, but is it enough?

The multilateral and bilateral system is actively involved in promoting a more sensible use and management of water resources. So far, coming to terms with sustainable water management in developing countries has often been the work of national and public sectors. UN Agencies, the World Health Organisation, the World Bank, the joint UN/WB facility – GEF, and numerous bilateral and multilateral institutions and NGOs have been engaged in the work of improving the water situation worldwide. Many discussions and actions has also come from various political meetings and declarations; Mar del Plata (1977), continued through Dublin, Rio, the CSD process and has continued through World Water Forum conferences (the latest in March 2000) to the Rio +10 meeting in 2002. The Rio conference in 1992 set 17 interim goals for the year 2000 to achieve universal water supplies with acceptable standards in the year of 2025. However, the subsequent Rio +5 conference did not report much progress – particularly when it comes to mobilising appropriate amounts of bilateral and multilateral resources. Still, there seems to be much to be done in terms of finding the political, social, institutional, technological, educational, and financial innovations in order to satisfactorily address water related problems.

3. Objectives

Against the background outlined in the foregoing, the study has these main objectives:

- (a) *analyse and elaborate on the viability and feasibility of considering effective international/regional water management as a public good and analyse if a changed view on international water management towards a public good perspective will make inter-state water management more effective*

If the analysis under (a) reveals a useful link between international water management and the concept of public goods, the study objectives will be expanded to also include the following;

- (b) *analyse prospects for additional resource mobilisation for international water management*
- (c) *analyse and make recommendations on the needs for financial and/or institutional mechanisms with the purpose of making international water management more effective*
- (d) *make recommendations on how Sweden can facilitate a more effective international/regional water management*

4. Scope of Services

Task 1 Is Effective International/Regional Water Management an International/Regional Public Good?

From a development perspective, the consultant(s) shall analyse if it is feasible and useful to consider *effective international/regional water management* as a public good. Founded on the current debate on the provision of global and international/regional public goods, the consultant(s) shall address the following;

- Can *effective international/regional water management* be considered as a public good?
- From an international development co-operation perspective, is it useful to consider *effective international/regional water management* as a public good?
- Who can and who should be responsible for providing the public good – effective international/regional water management?
- Is it possible to develop the concept of international/regional public goods so that effective international/regional water management will be adequately implemented?

Task 2 Effective International/Regional Water Management as a Public Good and International Development Co-operation

If feasible and useful to consider *effective international/regional water management* as a public good (see task 1), in what ways and to what extent does – or does not – the

international framework for development co-operation respond to this perspective? The consultant(s) shall analyse the following:

- *Institutional framework:* To what extent do – or do not – current relevant conventions, resolutions and regulations adequately contribute to the development of effective international/regional water management – the public good – in terms of;
 - ODA resources mobilisation;
 - Domestic capital mobilisation;
 - Private capital mobilisation; and
 - Institutional development (e.g. interstate co-operation through water commissions)
 - Private–public partnership
- *Multilateral development institutions:* To what extent does – or does not – the multilateral system of international co-operation development institutions (IFIs, UN, bilaterals, etc.) adequately contribute to the development of effective international/regional water management – the public good – in terms of;
 - ODA resources mobilisation;
 - Domestic capital mobilisation;
 - Private capital mobilisation; and
 - Institutional development (e.g. interstate co-operation through water commissions)
 - Private–public partnership

The consultants shall base their conclusions by taking examples from areas / regions where attempts to improve inter-state water management has been made. It is suggested that the consultant(s) shall particularly look at the Zambezi, Okavango and Mekong water basins. In addition, the consultant(s) shall suggest one additional water basin, preferably not in Africa or Asia, to be studied. In the proposal the consultant(s) shall specify and justify his/her/their choice.

To make the analyses complete the consultants shall in their analyses, as a minimum, consider the following set of elements, factors and aspects (with a perspective of considering *effective international/regional water management* as a public good):

Institutional development

The consultant shall consider the need for improved inter-sectoral co-ordination, decentralisation, reform of inefficient spheres of the government and options for removal of market distortions. The analyses may include a consideration of the aspects exemplified in the following:

- monitoring and institutional capacities
- water pricing and political commitment to full cost recovery of services

- fiscal decentralisation and state subsidies
- decentralisation and need for a shift from national authority / responsibility to watershed approaches
- quotas limiting water consumption
- balancing the requirements of environmental protection and drinking water usages with those of agricultural and industrial production

Financing Mechanisms and Institutions

In particular the consultant shall make an analysis on the financing aspects of establishing and maintaining inter-state river basin commissions and authorities. The analyses may include a consideration of the aspects exemplified in the following;

- effective interplay between external (e.g. ODA) and domestic capital as well as domestic revenue collection
- ability to mobilise domestic and private capital
- domestic capital markets
- financing means to run watershed commissions and other basin-wide co-ordination mechanisms
- mechanisms for selling water between states/regions and transfer of resources upstream or downstream to balance water related interests and costs
- financing of relevant institutions / organisations

Wider Participation

The consultant(s) shall analyse the participation of key bodies of society such as the civil society. The analyses may include a consideration of the following aspects and interest groups;

- watershed co-operation
- public-private partnership
- NGOs
- private sector
- national and sub-national spheres of government

Laws and Policy Dimensions

The consultant(s) shall analyse the dimensions of improved inter-state laws and policies and elaborate on what are the critical points in enabling a framework that better responds to effective international/regional water management. The analyses may include a consideration of the aspects exemplified in the following;

- regional policy, quality standards harmonisation, and best practices
- regulatory frameworks and legislation on water use and user rights
- new legal basis for inter-state co-operation and the basis of intergovernmental legal and normative acts
- water distribution schemes and agreements

- adoption of general and regional strategies of water distribution and the adoption of common water quality goals
- regional water resource strategies and activities and harmonisation with national programmes and standards
- abilities to dismantle inherited distorting policy frameworks

Task 3 Options for institutional re-engineering in order to make international water management more effective

Based on the discussion in Task 1 and 2, the consultant(s) shall explore on if there are any feasible and justifiable possibilities and options to re-engineer and / or re-think the institutional framework (conventions, resolutions and regulations) and work programmes of the multilateral development institutions in order to make inter-state water management more effective. The consultant(s) shall;

- analyse the different roles of financial sources (ODA, private capital – including domestic and external capital) in terms of provision of effective international/regional water management.
- analyse the different roles of relevant conventions, mechanisms and major institutions (as a minimum the World Bank and the UN, including GEF, as well as ADB, AfDB, and IDB)
- analyse the needs for new and innovative institutional or financial mechanisms in order to make inter-state/regional water management more effective
- elaborate on the pros and cons of such innovative mechanisms as well as analysing the obstacles for successful implementation of such mechanisms

Task 4 How can Sweden promote the development of effective international regional water management

The consultant shall address to what extent and explore in what ways Sweden, in capacity of being an ODA contributor (multilaterally and bilaterally), best can promote effective international/regional water management.

Task 5 Conclusions and recommendations

Based on the analyses under tasks 1 – 4 the consultant(s) shall summarise his/her/their findings and give recommendations with particular attention on;

- Options for institutional re-engineering (task 3); and
- How Sweden can promote the development of effective international regional water management (task 4)

5. Deliverables, Reporting and Time Scale

5.1 Seminar Activities

It is important that the work under these terms of references is well organised and structured for the presentation of a series of well-defined results. The reports should be prepared in such a way that they can be used as basis for presentations and discussions. The draft final version of the report(s) should be prepared as a background document for a seminar.

5.2 Consultant Supervision

A steering group to this study will be closely involved in the various steps throughout the study, which means that;

- the general outline of the report shall be discussed and agreed upon, with members of the steering group before the start-up of the tasks; and
- the draft final report shall be presented for and discussed with members of the steering group well in advance of the seminar

5.3 Reporting and Tentative Time Scale

The following outputs are expected from the consultant(s) activities;

Deliverables	Content / Activity	Delivery from commencement of assignment ^{*)}
Inception Report	General outline of the report. Issues of importance for the next steps and the future work.	2 weeks
Interim Report	Report on initial findings and elaboration of key issues.	2 months
Draft Final Report	Draft final report with comments from the steering group considered	4 months
Seminar	Presentation of the draft final report	4½ months
Final Report	A full final report with comments from the seminar activities considered, summary of activities and findings, proposals for future activities.	5 months

The Inception Report should include a descriptive inventory of the issues involved including a work plan for the subsequent work. The Interim Report will form the basis for mid-term briefings with desk officers at the Ministry. The assignment is estimated to require a total of approximately 80 man-days consultancy.

^{*)} Preliminary and subject to discussions

Annex 2 River basin data

Examples of river basin organisations in Europe

A. The International Commission for Protection of the Rhine (ICPR)

Background

The river Rhine is 1,320 km long and has a catchment area of some 185,000 km². Most of the 50m people within this catchment are in Germany, Switzerland, France and the Netherlands. Austria, Luxembourg, Italy, Liechtenstein and Belgium are more marginally incorporated. In 1963 the Convention on the International Commission for the Protection of the Rhine against Pollution (Bern Convention) was signed by the France, Germany, the Netherlands, Luxembourg and Switzerland. This formed a basis in international law for future co-operation. With the signature of the additional protocol to the Bern Convention in 1976 the European Economic Community joined as a contracting party. In the same year the Convention on the Protection of the Rhine against Chemical Pollution was signed, with an additional protocol on this subject signed in 1991. Over the years new plans have been developed and approved between the various concerned countries including the Rhine Action Programme (RAP), and the Ministerial decision to draft an Action Plan on flood control measures (Declaration of Arles)

Most recently at the 12th Conference of the Rhine ministers in January 1998, the following decisions were made:

- Agreement on a new International Convention for the Protection of the Rhine to replace the 1963 Bern Convention and form the basis for the future co-operation between the Rhine states.
- Adoption of an Action Plan on Flood Protection.
- Adoption of a set of guidelines for the development of a new Action Plan for the Sustainable Development of the Rhine.
- Publication of a Rhine Atlas, describing flood-prone areas and areas of ecological value
- Publication of a strategy aimed at the creation of a network of ecologically important areas in the Rhine catchment area.

The Rhine Commission

Formal mandate and organisation

In 1999 the mandate, structure and organisation of the Commission was agreed by the Governments of Germany, France, Luxembourg, the Netherlands, Switzerland, and the European Union. These countries and the European Union committed themselves to the following arrangements concerning the Commission (quoted from the Convention):

1. To implement this Convention, the Contracting Parties shall pursue their co-operation within the Commission.
2. The Commission shall have legal personality. In the territory of the Contracting Parties it shall, in particular, enjoy the legal capacity conferred on legal persons by domestic law. It shall be represented by its Chairman.
3. Questions of labour legislation and social matters shall be governed by the law of the country in which the Commission has its seat.

Organisation of the Commission

- The Commission shall consist of the delegations of the Contracting Parties. Each Contracting Party shall appoint its delegates, one of whom shall be head of delegation.
- The delegations may enlist the services of experts.
- The Commission shall be chaired for three years by each delegation in turn in the order of Contracting Parties listed in the preamble.
- The Commission shall draft its rules of procedure and financial regulations.
- The Commission shall decide on matters of internal organisation, the working structure it deems necessary and the annual operating budget.

Tasks of the Commission

1. To achieve the aims set out in Article 3 the Commission shall accomplish the following tasks:
 - prepare international measuring programmes and studies of the Rhine ecosystem and make use of their results;
 - make proposals for individual measures and programmes of measures, where appropriate including economic instruments and taking into account the expected costs;
 - co-ordinate the Contracting States' warning and alert plans for the Rhine;
 - evaluate the effectiveness of the actions decided upon, notably on the basis of the reports of the Contracting Parties and the results of the measuring programmes and studies of the Rhine ecosystem;
 - carry out any other tasks entrusted to it by the Contracting Parties.
2. To this end, the Commission shall take decisions in accordance with Articles 10 and 11.
3. The Commission shall submit an annual activity report to the Contracting Parties.
4. The Commission shall inform the public as to the state of the Rhine and the results of its work. It may draft and publish reports.

Distribution of costs

1. Each Contracting Party shall bear the costs of its representation in the Commission and its working structure, and each Contracting State shall bear the costs of the studies and actions it carries out within its territory.
2. The distribution of costs relating to the annual operating budget between the Contracting Parties shall be laid down in the Commission's rules of procedure and financial regulations.

Participants

The Commission's members are the signatory countries and the European Union. These countries are formally bound to the Rhine Convention which, as outlined above, also spells out the role, mandate and financing of the Commission. Since the new Rhine Convention was signed in 1998, it has become possible to assign observer status to intergovernmental and non-governmental organisations. Under this arrangement Greenpeace, World Wide Fund for Nature (WWF) and eight other NGOs are observers. Observer status is also issued to sectoral or sub-sectoral institutions, such as the International Syndicate of Water works in the Rhone Catchment Area (IAWR) and the European Association of Chemical industry (CFIC). Commissions granted observer status included the Commission on the protection of the Sarre and Moselle (IKSMS), of the North Sea (OSPAR), the Meuse (CIPM), the Elbe (IKSE), and the Danube (ICPD).

Private sector agencies cannot participate directly, but can be and are, to some extent, represented through their joint representation bodies. There is no provision for regional governments to directly participate. Especially in states like Germany and Switzerland such regional governments have considerable political and legal weight and some of them may have substantial direct interest in matters concerning the Rhine. They can, of course, within the structures of their respective countries, exercise their influence up to the national level. The same applies to government or semi-government bodies concerned with water, operating at a (in-country) regional level, such as the Water Boards in the Netherlands. They cannot participate directly. The national institutions (governments, sectoral ministries and specialised agencies) can and do participate in the decision making and information exchanges in the context of the Rhine Commission.

Mandate

The Commission has a limited mandate and does not have any legal powers towards countries, agencies or others. It is essentially a platform for overseeing and supporting the implementation of conventions with regard to the Rhine and for information exchange, studies, and data collection. To the extent the participating countries commit themselves to specific actions, standards or regulations, it is up to those countries to apply, enforce and monitor their compliance. Neither does the Commission have any direct role in monitoring key aspects of the quality and

quantities of the Rhine's water. The countries have monitoring stations and may exchange and/or pool their information together and the Commission can accept any roles in this, but the Commission will not monitor independently. Finally, the Commission has no role in the allocation of scarce water for irrigation or other purposes. This seems not to be a key issue in the context of the Rhine, at this point. But even if, in a situation of scarcity, decisions would need to be made on extraction, the Commission does not have the legal or political mandate for this, nor the means.

Finance

The costs of the Commission amount to some \$600,000. These costs comprise the running costs of the Secretariat, which has three professionals and some support staff, and the costs of meetings and working groups. The Commission does not incur any costs for rule enforcement, monitoring or allocative decision making, as these are beyond its mandate. If the Commission, usually at the instigation of any of the Working groups, would like to initiate and conduct any special study, new funds need to be secured from countries, international agencies (primarily the European Commission) or other external sources. The regular costs of the Commission are borne by the signatory states. In practice the key stakeholders, Germany, France and the Netherlands each contribute 25 % of the regular costs, while Luxembourg, Switzerland and the European Union make up the remainder. The position of and by the European Union may change in the not so far future.

The future

The role and mandate of the Commission is likely to change substantially as soon as the new EU Water Framework Directive (Directive 2060) is formally issued. This Directive, already approved by the European Parliament and the Council of Ministers, but not yet formally published, sets guidelines and criteria with regard to the quality of surface and groundwater and related matters. This Directive will have the force of law for the EU member states and this will, as such, have much influence on the water regime and related measures discussed and developed through the Commission. It is not clear how the complication that Switzerland, which is a key stakeholder and signatory to the Convention, but not a member of the EU will be resolved. But one may expect that the Directive will have a major impact on the work of the Commission, even to the extent of determining the policy context in which the Commission can operate.

B. The International Commission for the protection of the Danube River (ICPDR)

Background

The Danube has a total length of 2,780 km and a drainage area of about 817,000 km². The climate is diverse, influenced by the Atlantic in the west, the Mediterranean through the Drava and Sava river basins, whilst the rest has a continental climate. The annual precipitation varies from about 2,000 mm per year in the upper basin, to only

500mm on the plains. The natural flow regime is strongly influenced by hydraulic structures and intensive water use in the basin.

The river Danube supports the supply of drinking water, agriculture, industry, fishing, tourism and recreation, is used for power generation, navigation, and too often it is the final destination of disposal of waste waters. These intensive uses have created problems of water quality and quantity, and reduced biodiversity in the basin. Significant problems include the high nutrients loads (nitrogen and phosphorus), changes in river flow patterns and sediment transport regimes, contamination with hazardous substances including oils, and contamination with oxygen depleting substances.

The convention

In order to deal with the problems and opportunities presented by the Danube, a number of riparians have developed initiatives with regard to environmental aspects of the river. This gained momentum in the 1990s and culminated in a Strategic Action Plan, and, in 1994, 11 EU Countries and the EU signing the Danube River Protection Convention (DRPC). A Declaration on establishing the Interim International Commission and its Secretariat for the Convention was also adopted. According to the Objectives and Principles of the Convention, included the following:

- (1) The Contracting Parties shall strive at achieving the goals of a sustainable and equitable water management, including the conservation, improvement and the rational use of surface waters and ground water in the catchment area as far as possible. Moreover the Contracting Parties shall make all efforts to control the hazards originating from accidents involving substances hazardous to water, floods and ice-hazards of the Danube River. Moreover they shall endeavour to contribute to reducing the pollution loads of the Black Sea from sources in the catchment area.
- (2) The Contracting Parties pursuant to the provisions of this Convention shall cooperate on fundamental water management issues and take all appropriate legal, administrative and technical measures, to at least maintain and improve the current environmental and water quality conditions of the Danube River and of the waters in its catchment area and to prevent and reduce as far as possible adverse impacts and changes occurring or likely to be caused.
- (3) To this end the Contracting Parties, taking into account the urgency of water pollution abatement measures and of rational, sustainable water use, shall set priorities as appropriate and shall strengthen, harmonise and co-ordinate measures taken and planned to be taken at the domestic and international level throughout the Danube Basin aiming at sustainable development and environmental protection of the Danube River. This objective in particular is directed to ensure the sustainable use of water resources for municipal, industrial and agricultural purposes as well as the conservation and restoration of ecosystems and to cover also other requirements occurring as to public health.

- (4) The Polluter pays principle and the Precautionary principle constitute a basis for all measures aiming at the protection of the Danube River and of the waters within its catchment area.

The Commission

It took some time (1998) before the establishment of the International Commission for the Protection of the Danube River (ICPDR), to which the signatories of the Danube Convention has committed themselves. Like the Rhine Commission, the Commission, is a platform for exchange of information and views and for co-operation with regard to information, analysis, monitoring, interventions and other activities with regard to the Danube. The Commission does not have regulatory power, nor does it control any physical devices or measures. It does, however, bring together experts of the member countries.

The Commission essentially functions through the secretariat and the various steering groups. The secretariat consists of eight staff, among whom only two professionals. The steering groups comprise four standing working groups and, currently, two ad hoc working groups. These working groups have experts from the various countries as their members. In most cases they are employees of the national departments or ministries, or of specialised government agencies dealing with Danube related matters. They can, however, also include members of organisations that have observer status. These groups generally are very much involved in developing policy documents and exchanging information.

The Commission does not control physical resources or facilities, but is very much involved in the co-ordination of monitoring of selected issues through the monitoring arrangements in the various countries. This includes the Accident Emergency Prevention Warning Systems and the so-called Principal International Alarm Centres. The Commission (or rather the Secretariat) has established and maintains a common database into which the data from the member countries are being brought together. It also runs a quality assurance programme and issues a yearbook. The Secretariat considers itself a tool for the member countries.

Analysis

Participants

The formal members of the Commission are the EU and the countries who signed the Convention. Since its establishment new members have joined, of which most are not (yet) members of the EU. As the catchment area of the river is very extensive, more countries are wholly or partially situated in the catchment area than is the case for any other river in the world. At this point there are 11 contracting parties (i.e. countries having signed the Convention and committed to its targets and to the functioning of the Commission) and three other parties. Those are countries who participate but who have not yet signed the Convention: namely Ukraine, Bosnia Herzegovina and

Yugoslavia. As a rule of thumb a signatory country should have at least 2000 km² within the river's catchment area. This means that some countries, like Albania, Poland and Italy are only marginally involved.

Observer status can be issued to other institutions, especially NGOs. The WWF, for example, is observer and the active involvement of NGOs in the Steering Groups and Plenary sessions is promoted. There is no representation of private sector agencies, either directly or indirectly. The focus of the Commission may soon be very much determined by the Water Framework Directive to be established by the EU. The expectation is that this will set much of the agenda of the Commission.

At the same time it should be clear that the Commission does not have any legal, regulatory or administrative powers. Whatever measures it (or one of its Steering Groups) would present and recommend, it is for the participating countries to apply and enforce those.

Financing

The direct and ongoing costs of the Commission relate to the functioning of the secretariat. Their salary and operational costs are the key element. These costs are to be borne by the countries signing the Convention. Over time all of these countries are expected to contribute an equal share. For the moment, however, the stark differences in national wealth among the present countries are taken into account. This results in a situation where a relatively rich country like Germany pays some one and three-quarters times the amount that would constitute an equal share and a country like Croatia may pay only half of such a share. In time these contributions will converge.

Apart from this the Commission has to raise funds for any specific substantial activity it wants to undertake. The most important sources are the EU (until recently especially 'Phare'), GEF and other multi-lateral agencies. Such funds are used mostly for studies.

Mandate

The Commission has a limited mandate and does not have any legal powers towards countries, agencies or others. It is primarily a platform for overseeing and supporting the implementation of conventions with regard to the river, for information exchange, studies, data collection and for organising co-ordination of monitoring and of actions in case of emergencies. To the extent the participating countries commit themselves to specific actions, standards or regulations, it is up to those countries to apply, enforce and monitor their compliance. The Commission has no resources or mandate to enforce agreed rules or standards, nor does it command any penalties.

The Commission has a role in monitoring key aspects of the quality and quantities of the Danube's water. The countries have monitoring stations and exchange and pool their information together and the Commission has a co-ordinating role in this. The Commission will, however, not monitor independently. Finally, the Commission has

no role in the allocation of scarce water for irrigation or other purposes. The Commission does not have the legal or political mandate for this, nor the means.

C. The Commission for the protection of the Meuse

Background

The Meuse Commission was established in 1995 as a follow up to the Convention for the Protection of the Meuse, signed in 1994 between the international parties on this river. An unusual feature of the Meuse is that not only national governments participate. As a consequence of the considerable decentralisation in Belgium three regional authorities are directly participating in the Convention and in the Commission. The Belgium constitution allows regional bodies to enter into international agreements concerning the issues and resources that have been put under their mandate. This mandate includes (river) water. In the context of the river Meuse, this has led to the involvement of the regional administrations of Flanders, Wallonia and the Urban District of Brussels. Other signatories to the treaty are the national governments of Germany and the Netherlands. The European Union and the federal Government of Belgium have observer status.

The Convention

The Convention has as its main goal the protection and improvement of the quality of the river, with special attention to the chemical-physical and ecological quality, provision of drinking water and other forms of water utilisation. The purpose of the parties to the Convention is to cooperate, taking into account the common interests of riparians and the specific interests of each of them to which end the Convention signatories signed have established the International Commission in 1994.

The Commission

The tasks of the Commission include the following:

- To determine, collect and evaluate of the data, to be provided by the parties to the Convention, for each with regard to its territory, in order to identify the sources of pollution that have a substantial effect on the quality of the Meuse.
- To co-ordinate the programmes of the parties to the Convention for the protection of the water quality in order to arrive at a homogeneous measuring network;
- To develop inventories of and to promote the exchange of information about the sources of pollution as meant above;
- To develop, with a view to their implementation by each of the parties to the Convention an action programme that will especially contain measures aimed at all sorts of local and diffuse sources of pollution, in order to improve and sustain the water quality and, more generally, the ecosystem;

- To serve as a platform for exchange of information about the water policies of the parties to the Convention;
- To serve as a platform for the exchange of information about the projects that are subject to an impact measurement and that have a substantial transboundary impact on the Meuse, taking into account the legislation in force in the territory of the parties to the Convention;
- To encourage the co-operation in the context of the programmes for scientific research, especially with regard to physical, chemical and ecological research and research with regard to fish;
- To serve as a platform for deliberations about actions to be taken with regard to transboundary tributaries and canals of the river system of the Meuse;
- To organise co-operation between the various national and regional warning and alarm networks and to promote the exchange of the information in order to prevent and combat calamitous pollution;
- To cooperate with other International Commissions that carry out similar tasks for transboundary water systems.

Composition

The commission consists of the delegates of the parties that sign the Convention. Every party appoints a maximum of eight delegates. The chairmanship rotates every two years. The Commission meets once a year, convened by the Chairman and at the request of two parties. The Commission can decide to have some of its meetings at ministerial level and can appoint working groups to assist. The commission takes decisions, in the presence of delegations, of all parties to the Convention and in unanimity. Abstention does not make unanimity impossible. Every party has one vote.

Parties of whom the territory is entirely outside the watershed of the river can vote on those issues that can have repercussions on their interests as user of the river's water with regard to abstraction of drinking water, or on their financial obligations as stated in the Convention. The Commission's permanent secretariat has been established in Liege, and is a legal entity, capable to act within the territory of the parties to the Convention.

The Commission may decide to allow observers from any state that is not a party to the Convention and of which a part of its territory is situated in the watershed of the river, the European Union and/or any intergovernmental organisation concerned with similar issues. Observers cannot vote but can participate in the meetings of the Commission and can present any type of information that relates to the goals of the commission.

Costs

Every party to the Commission bears its own costs for its representation on the Commission and in the working groups. The parties jointly cover the other costs

related to the work of the Commission, including those of the Secretariat, according to the following breakdown: The Netherlands 35%, France 16%, the Region of Wallonia: 35%, the Region of Flanders: 7%, the Region of Brussels: 7%. Current costs are approximately \$300,000.

Activities

The Commission has elaborated an Action Programme, distinguishing between a Starting Phase (1995 – 1997) and three other phases: short term (1998-2003), medium term (2003 – 2010) and the long term (one generation). Primary activities, especially in the early phases, are to bring together the various programmes of the participating administrations, to pool and improve monitoring of quality aspects and to reduce pollution. A 'homogeneous monitoring system' is being developed which pools monitoring by the members. The Commission is presently putting the final touches to a computer programme that will make it possible to pool and process the raw data coming from the respective monitoring stations, managed by the participants. Another urgent activity is the establishment of an International Warning and Alarm System. Most of this work is carried out through Working Groups, established on specific issues.

- **Comparative statistics**

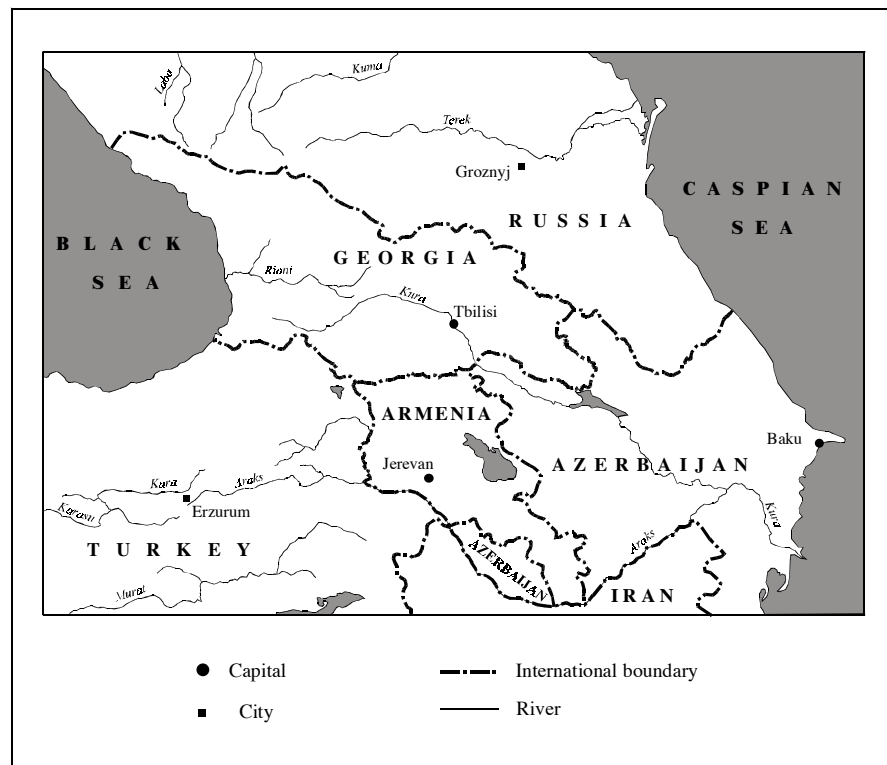
River Basin	Riparians	List of Riparian States	Runoff / (discharge)	Area km ²
Incomati	3	South Africa, Swaziland, Mozambique	5 bcm	50,000
Jordan	4	Lebanon, Syria, Jordan, Israel, (and Palestinian Authority)	1.5 bcm	18,300
Mekong	6	China, Myanmar, Laos, Thailand, Cambodia and Viet Nam	(15,900 cum/sec)	795,000
Nile	10	Tanzania, Burundi, Rwanda, Kenya, Uganda, Zaire, Eritrea, Ethiopia, Sudan, Egypt	84 bcm	2,850,000
Okavango	4	Angola, Namibia, Zimbabwe, Botswana	11 bcm	570,000
Rhine	9	Germany, Switzerland, France, Netherlands, Austria, Luxembourg, Italy, Liechtenstein and Belgium	(2,378 cum/sec at Netherlands border)	185,000
Congo-Zaire	9	Burundi, Rwanda, Central African Republic, Tanzania, Cameroon, Congo, Zaire, Zambia, Angola	1,260 bcm	3,800,000

- **Key examples of other co-operative transboundary arrangements in Asia and Africa**

Key Examples	Type of Agreement			
	Existing Treaties/ Commissions	Institutional arrangements	Financial arrangements	Key Strengths/ Weaknesses
Senegal	Convention of Dakar (1970) Convention of Bamako (1963)	Enforced by Council of OMVS (Organisation pour la Mise en Valeur de Fleuve Sénégal)	Member states Senegal, Mali and Mauritania are all extremely poor. Financial problems are a persistent obstacle to WRM projects. [GEF is funding preparatory assistance for the development of a WRM programme for the Niger river (Integrated management of the Niger river basin)]	Institutional arrangements are strong – a legacy of traditional arrangements. The OMVS is active and effective in ensuring successful and conciliatory sharing of resources of the Senegal River. Financial resources for WRM initiatives are extremely limited.
Ganges	Ganges Treaty (1996) on dry season sharing of water	Joint Committee to oversee water sharing arrangements under the Treaty	Bilateral funding.	Treaty marks a major breakthrough following long periods of contention. Joint Committee a useful forum for future co-operation on other shared rivers and water issues.

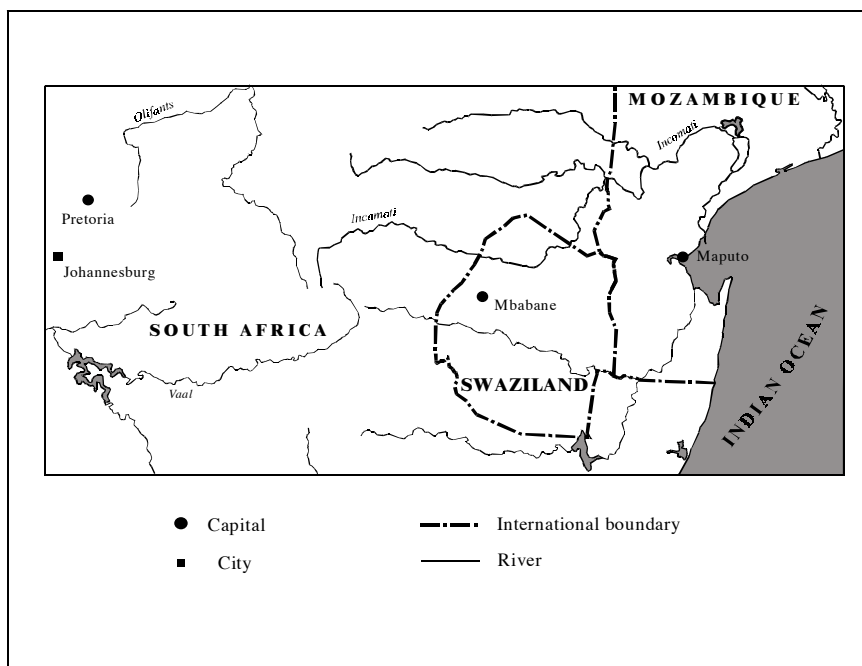
Annex 3: River basin maps

Caucasus River Basins



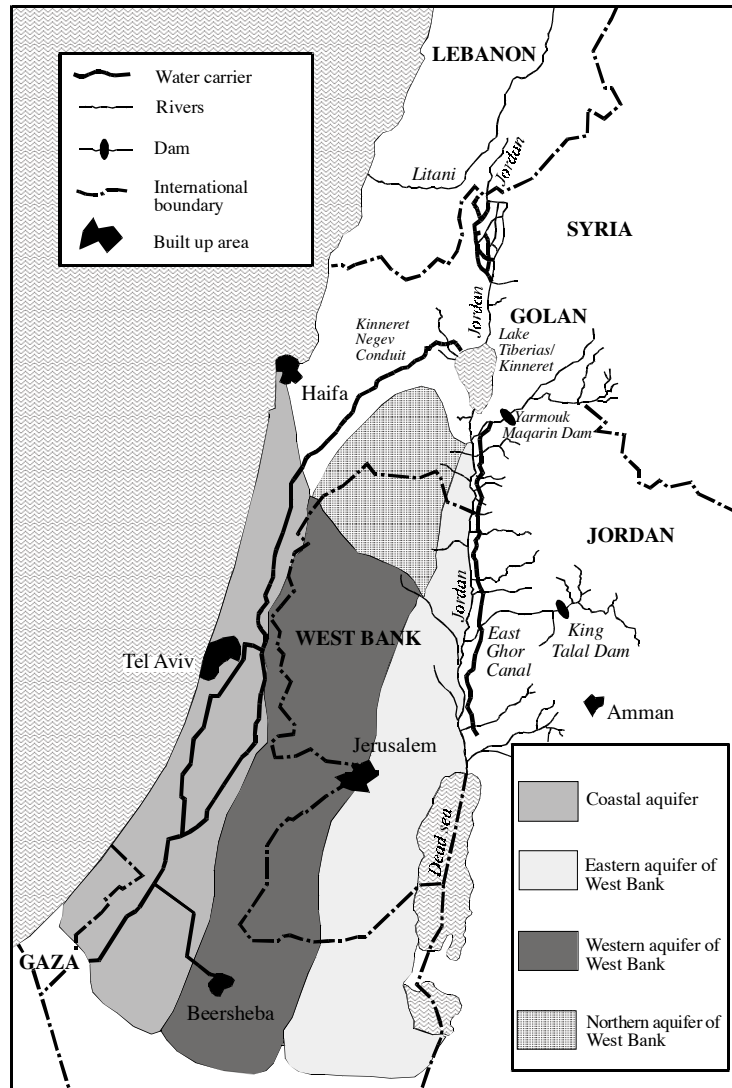
Map produced by Yassir Mohieddin, SOAS

Incomati River Basin



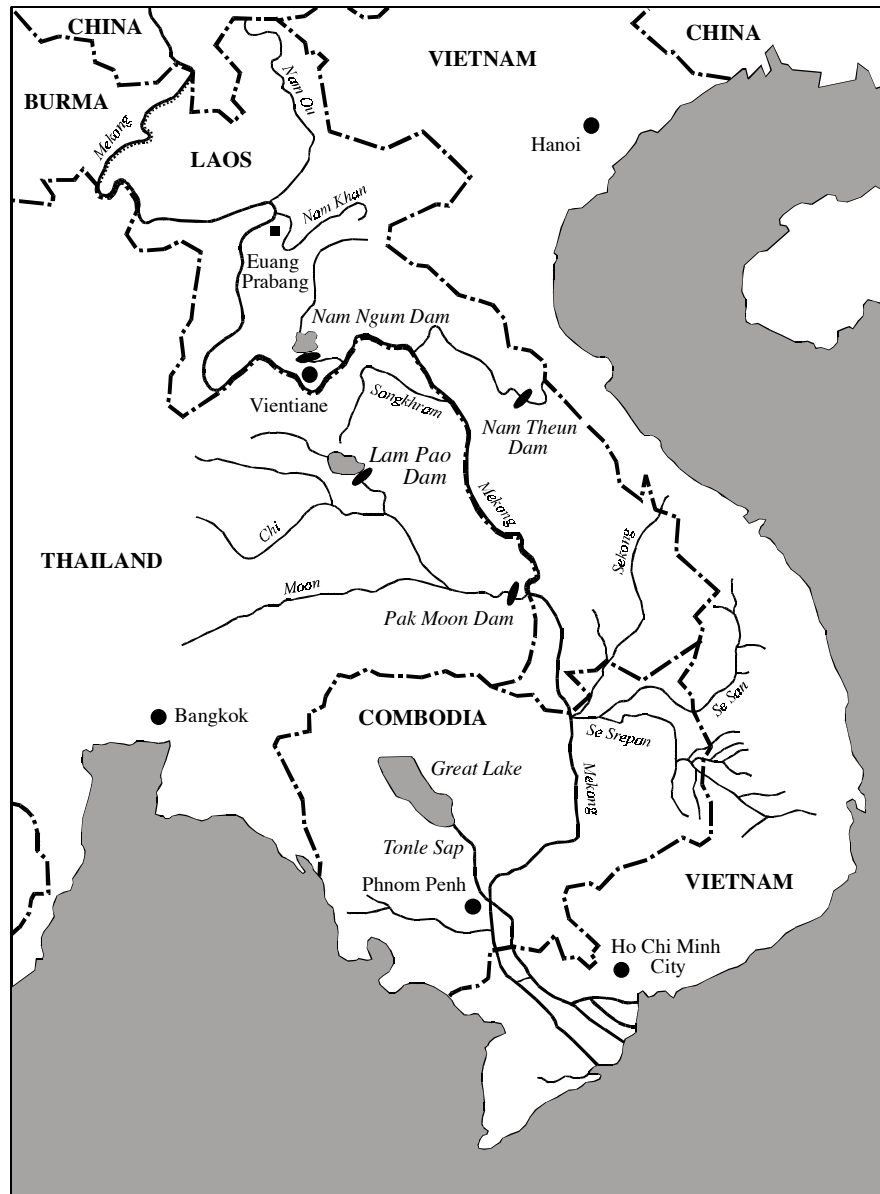
Map produced by Yassir Mohieddin, SOAS

The Jordan Basin and its tributaries, major aquifers the riparians and water transfer systems



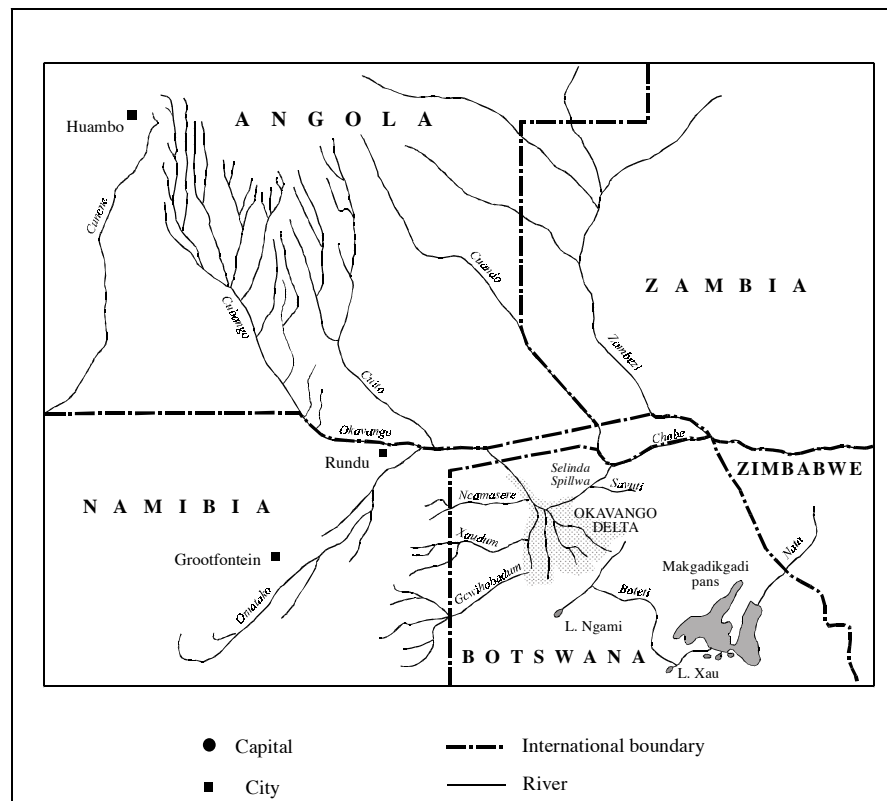
Map produced by Yassir Mohieddin, SOAS

The Mekong River and its tributaries



Map produced by Yassir Mohieddin, SOAS

Okavango River Basin



Map produced by Yassir Mohieddin, SOAS (with acknowledgement to the source material provided by Dr Peter Ashton, South Africa)

Annex 4 Persons consulted

Europe

Mr. R. Zijlmans	Secretary, International Commission for the Protection of the River Meuse, Liege, Belgium
Mr. H. Oterdoon	Secretary, International Commission for the Protection of the River Rhine, Koblenz, Germany
Mr. Liska	International Commission for the Protection of the River Danube, Vienna, Austria
Prof. Miso Hristovski	Member, Lake Ochrid Committee

Middle East

Prof. Kamel Abdel-Jaber	Jordan Institute for Diplomacy
Mr Michel Hamarneh	Adviser to Prince Hassan
Mr Awadis Serpikian	Head of Jordan Valley Authority
Mr Mohamed Hassan	Adviser to Head of Jordan Valley Authority
Mr Harkan Damm	Swedish Embassy, Amman
Mr Fernando Garcias	European Commission
Dr Munther Haddadin	Former Head, JVA and Minister for Water Resources
Ms Deena Bitar	British Embassy, Commercial Section
Ms Samar Ashaar	British Embassy, Commercial Section
Mr Richard Avedikian	KfW (German Development Cooperation)
Ms Cecily Mango	USAID
Prof. Hillel Shuval	Hebrew University, Jerusalem
Mr Moshe Yizraeli	Office of the Water Commissioner, Tel Aviv

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Hou Taing Eng	Cambodian National Mekong Committee, Pnom Penh
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Dr. A.R. Tombale	Director, Department of Water Affairs, Botswana
Mr. Emmanuel Lesoma	Acting Director, Water Affairs Department
Mr. Osborne Shela	Deputy Controller Water Resources, Malawi
Ms. Susana Saranga	Head of International Rivers Unit, Mozambique
Mr. Piet Heyns	Chief Director, Resource Management, Namibia
Mr. Pieter van Niekerk	Chief Director, Planning, DWAF, South Africa
Mr. Fawcett Ngoatje	Director, International Liaison, DWAF
Mr. Raphael Sangweni	Acting Senior Water Engineer, Swaziland
Mr. Faustin Masanja	Senior Hydrologist, Tanzania
Mr. Adam Hussen	Acting Director, Water Affairs, Zambia
Mr. Gilbert Mawere	Chief Hydrologist, Department of Water Development Zimbabwe
Prof. Kadima Muamba	Secretariat General Permanent du CNAEA, DRC
Mr. Terry Jones	
Dr. Peter Ashton	Water Resource Specialist, Council for Scientific and Industrial Research, South Africa
Mr. Florencio Papero	Zambezi Valley Development Authority, Maputo
Mr. Beyers Havenga	Chief Engineer, Water Resources Planning, DWAF
Mr. Neil van Wyk	Chief Engineer, Water Resources Planning, DWAF
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Prof. Rui Brito	Eduardo Mondlane University, Mozambique
Prof. Alvaro Carmo Vaz	Eduardo Mondlane University, Mozambique

Southern Caucasus

Mr. Gunther Beuchel	EU Delegation, Democracy Program, Tbilisi
Mr. Michael Colegrove	ACDI /VOCA seed expert, Tbilisi
Mr. Joep Cuijpers	EC Food Security Advisor, Tbilisi
Mr. Larry Dershem	Save the Children, Tbilisi
Mr. David Kirvalidze	Georgian Minister of Agriculture, Tbilisi
Mr. Graig R. MacPhee	Senior Economic Advisor, Ministry of Finance, Tbilisi
Mr. Stuart Vernon	Team Leader EU Tacis Project Office, Baku

Annex 5 Bibliography

Allan, J.A. and Court J. (1996) *Water, Peace and the Middle East: Negotiating Resources in the Jordan Basin*, London: Tauris Academic Studies.

Allan, J.A. (2000) *The water question in the Middle East: the second best works*, London: Tauris Academic Press.

Asian Development Bank (2000) *Water for all: the water policy of the Asian Development Bank*, Manila: ADB.

British Embassy, Amman (2000) 'A Report on the Water Sector in Jordan' The Commercial Section, Amman, Jordan: British Embassy.

Chenje, M. and Johnson, P. (eds.) (1997) *Water in Southern Africa*, Harare: Southern African Research and Documentation Centre.

Cléménçon, R. (2000) *Financing protection of the global commons: the case for a green planet contribution*, Washington: Global Environmental Facility.

Coase, R. (1960) 'The problem of social cost', *Journal of Law and Economics*, October, pp 1-44.

Commission on Global Governance (1995) *Our global neighbourhood*, the report of the Commission on Global Governance, Oxford: Oxford University Press.

Cook, L and J. Sachs, (1999) 'Regional Public Goods in International Assistance', chapter in Kanber, Sandler and Morrison, op cit.

Duda, A. and David La Roche (1997) 'Joint institutional arrangements for addressing transboundary water resources issues – lessons for the GEF', *Natural Resources Forum*, Vol 21, No. 2.

El-Ashry, M.T. (1998) 'Global Water Facility - Finding solutions to water disputes', in *Water and Dispute Prevention: South Perspective*, Center for the Global South, Washington.

Emerson, M. (et al) (2000) 'A Stability Pact for the Caucasus', Centre for European Policy Studies, Brussels.

FAO /GIEWS (2000) *Special Reports and Alerts*, May-October.

Fisheries Office, Ratanakiri Province (2000) 'A study of the downstream impact of the Yali Falls Dam in the Se San River in Ratanakiri Province, Northeast Cambodia', Cambodian Government.

Fruling, P. (1996) 'A Liquid More Valuable than Gold—On the Water Crisis in Southern Africa, Future Risks and Solutions', Stockholm: Sida.

Global Environment Facility (1999) 'Experience with conservation trust Funds'. Evaluation Report 1-1999, Washington: GEF.

Government of Azerbaijan (2000) 'Statement on National Policy of the Republic on Water Resources', in Report of Second World Water Forum and Ministerial Conference, The Hague 2000, p. 95 ff.

Government of Georgia (1999) 'Proposals for investment in mineral resources, sections VII - IX (Fresh Water, Mineral Waters, Thermal Waters)', Paper prepared by the State Department of Geology of Georgia, Tbilisi.

Grawitz, B. and Youseef Hassan (2000) 'Water Management Information System (WMIS) for the Jordan Valley' (www.oieu.fr/riob/ag2000/jordan.htm).

Green Cross (2000) *National Sovereignty and International Watercourses*, March, Geneva: Green Cross International.

Hansen, G. (1998) 'Humanitarian action in the Caucasus: a guide for practitioners', Brown University/ IIS *Occasional Paper* 32, Providence.

Hasenclever, A., Mayer, P., and Rittberger, V. (1997) *Theory of international regimes*, Cambridge: Cambridge University Press.

Herzig, E. (1999) 'The New Caucasus-Armenia, Azerbaijan and Georgia', London: Royal Institute of International Affairs.

Horta, K. (2000) 'The politics of policy and practice: international financial institutions and biodiversity conservation', Unpublished PhD thesis, SOAS University of London.

Hovhannishyan, N. and Gogsadze, G. (eds.) (1999) 'Ethno-regional policy of Armenia and Georgia', Report of Roundtable Discussion, Yerevan: Institute of Oriental Studies.

Institute of Development Studies (2001) 'A Foresight and Policy Study of the Multilateral Development Banks', Development Financing 2000 (Study 2), Stockholm: Ministry for Foreign Affairs.

International Water Management Institute (2000) 'Projected Water Scarcity in 2025', IWMI Global Water Scarcity Study, Colombo: IWMI.

Jordan Government (1998) 'Jordan Groundwater Management Policy', Amman: Ministry of Water and Irrigation.

Jordan Government (1997) 'Jordan Water Strategy', Amman: Ministry of Water and Irrigation.

Kanbur, R. and Sandler, T. with Morrison, K.M. (1999) 'The Future of Development Assistance: Common Pools and International Public Goods', *ODC Policy Essay* No. 25, September 1999, Baltimore: John Hopkins University Press.

Kaul, I., Grunberg, I. and Stern, M.A. (1999) *Global Public Goods: International Co-operation in the 21st Century*. UNDP, Oxford University Press.

Kliot, N. (1994) *Water Resources and Conflict in the Middle East*, London: Routledge

Mekong River Commission. (1999) *MRC Work programme 2000*, Phnom Penh: Mekong River Commission Secretariat.

Ministry of Agriculture (2000) 'Field Trip to the Districts of Kvemo Kartly and Kakheti Regions', Information paper, 29 July, Tblisi, Georgia: Georgian Government.

Ministry for Foreign Affairs (1995) 'Sustainable Aid – Swedish Development Assistance after UNCED', Report from the Working Group on Sustainable Aid (Excerpt from the *Government Report* Ds 1994: 132), Stockholm: Ministry for Foreign Affairs.

Ministry for Foreign Affairs (1999) 'Report on Seminar on Global Public Goods', Department for International Development Co-operation, June, Stockholm: Ministry for Foreign Affairs.

Ministry for Foreign Affairs (2000) 'Sweden's International Development Co-operation Yearbook 1999', Division for International Development Co-operation, Stockholm: Ministry for Foreign Affairs.

Ministry for Foreign Affairs (2000) 'Financing the Multilateral System – proceedings of a Seminar convened by the Swedish Ministry for Foreign Affairs', Stockholm, August: Ministry for Foreign Affairs.

Ministry for Foreign Affairs, (2001) 'Effective International Water Management as a Public Good – proceedings of a Seminar convened by the Swedish Ministry for Foreign Affairs', March 27 2001, Lidingö, Stockholm: Ministry for Foreign Affairs.

Neda (1998) *The Management of Shared River basins—Experiences from SADC and EU*, The Netherlands: Ministry of Foreign Affairs.

NGO Forum on Cambodia.(1997) 'Cambodia Mekong Directory', Phnom Penh.

Noord-Holland Regional Government (1999) 'Evaluation of the visit of the province of Noord-Holland to Kvemo Karli, Mission Reports, Haarlem: Netherlands.

O'Brien, R, Goetz, A. M., Scholte, J. A. and Williams, M. (2000) *Contesting global governance: multilateral economic institutions and global social movements*, Cambridge Studies in International Relations, Cambridge: CUP.

Ohlsson, L. (1995) 'Water and Security in Southern Africa', *Publications on Water Resources*, No. 1., Department for Natural Resources and the Environment, Stockholm: Sida.

Öjendal, J. (1995) Mainland Southeast Asia: co-operation or conflict over water?, In: L. Ohlsson (ed) *Hydropolitics: conflicts over water as a development constraint*. London: Zed Books.

Philip, H. and Gerard Cheong (1996) 'Natural resource management in the Mekong River Basin: perspectives for Australian Development Co-operation', Final overview report to AusAid.

Rosenau, J. N. and Czempiel, E-O (1992) *Governance without government: order and change in world politics*, Cambridge: CUP.

Save the Children (2000) 'Rapid Appraisal of Drought Conditions in Kakheti Region of Georgia', Report by Save the Children Georgia Office, Tbilisi, August.

Shapland, G. (1997) *International Water Disputes in the Middle East*, London: Hurst

Shawn, C., Margot Cohen and Bertil Lintner (2000) 'The Mekong: choke point', *Far Eastern Economic Review*, October 12, 2000.

Stockholm International Water Institute (2000) 'Water and development in developing countries: a study commissioned by the European Parliament', Stockholm: SIWI.

Soffer, A. (1999) *Rivers of Fire*, Boulder: Rowman and Littlefield.

Stålgren, P. (2000) 'Regional Public Goods and the Future of International Development Co-operation – a Review of the Literature on Regional Public Goods', Expert Group on Development Issues, Working Paper 2000: 2, Stockholm: Ministry for Foreign Affairs.

Ti, Le Huu (1999) 'Key elements in the participatory processes of transboundary river management based on selected Asian experiences'. In: J. Gayer 'Participatory processes in water management'. Proceedings of the Satellite Conference to the World Conference on Science, 28-30 June 1999, Budapest.

UN/OCHA (2000) 'Georgia Information Bulletin', Special updates on drought in Eastern Georgia, July-August, United Nations.

USAID/DAI (2001) 'Strengthening Sustainable Water Management in the South Caucasus', USAID.

Wolf, A. et al (1999) 'International River Basins of the World', *International Journal of Water resources Development*, Vol.15 No.4, December.

Wolf, A. and Hamer, J.H. (2000) 'Trends in Transboundary Water Disputes and Dispute Resolution', in *Water for Peace in the Middle East and Southern Africa* prepared by Green Cross International for the 2nd World Water Forum in The Hague, March, Geneva: Green Cross International.

World Commission on Dams (2000) 'Dams and development: a new framework for decision-making', final report, Cape Town: WCD.

Zemmali, A. (1995) 'The protection of water in times of armed conflict', in: *International Review of the Red Cross*, No. 308 (1995), p. 550 ff.

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The study looks at transboundary water management through the lens of international public goods and analyses and elaborates on the roles of different financial flows and institutional mechanisms in the provision of regional water management. Some of the key issues addressed by the study are:

- The need for a more co-ordinated approach to managing and financing transboundary waters
- The importance of politically feasible environments
- A more pro-active role for regional economic groupings such as the EU, SADC and ASEAN
- New financing mechanisms and a strengthened institutional framework



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