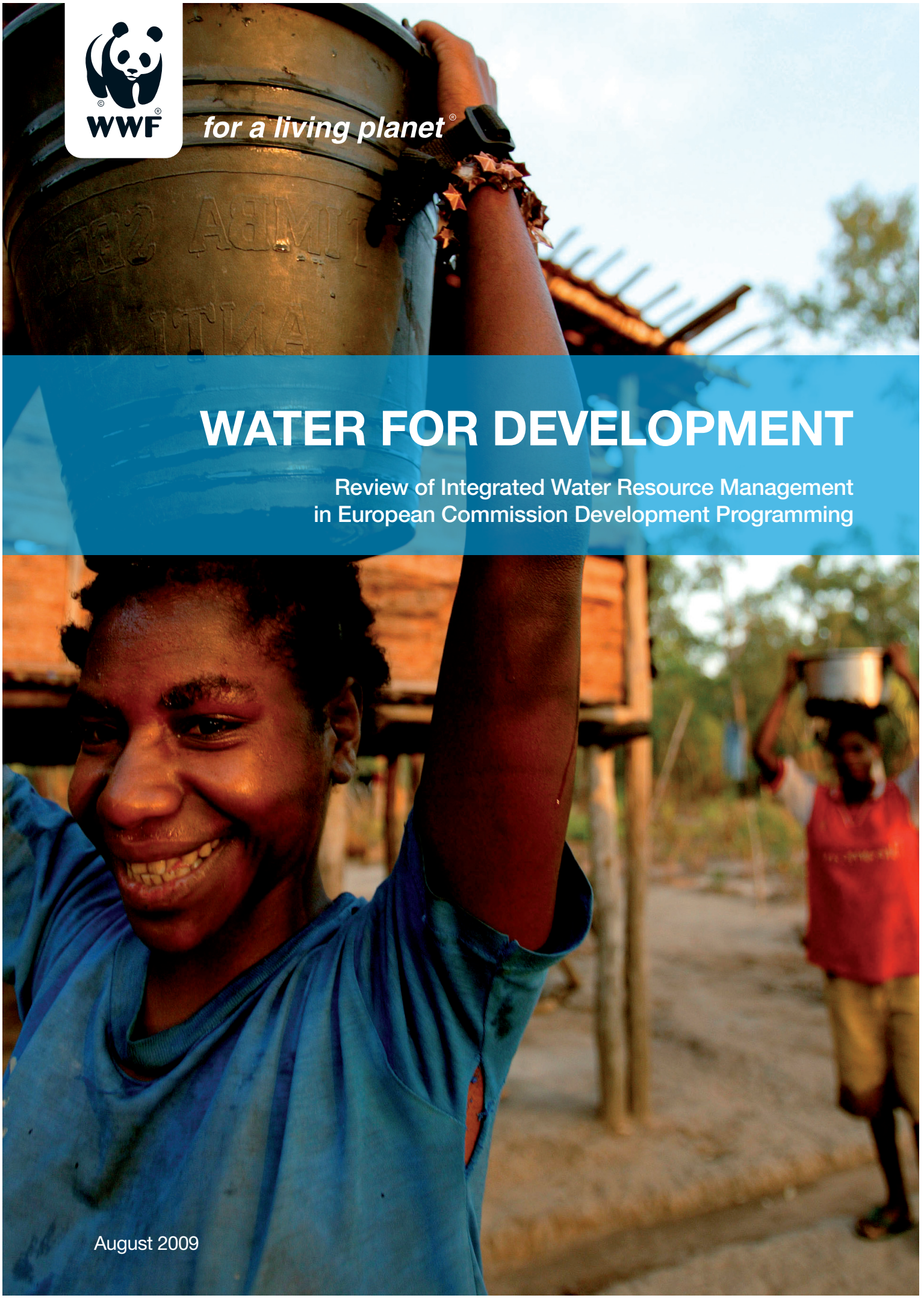

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WATER FOR DEVELOPMENT

Review of Integrated Water Resource Management in European Commission Development Programming

August 2009

"When the well is dry, we know the worth of water"

Benjamin Franklin

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Abreviations

ACP	Africa, Caribbean & Pacific
AMCOW	African Ministerial Council for Water
AU	African Union
CBA	Cost-Benefit Analysis
CEP	Country Environmental Profile
CSP	Country Strategy Paper of the EU
DANIDA	Danish International Development Agency
DCI	Development Co-operation Instrument of the EU
DFID	Department for Internationanal Development of UK
DG	Directorate General
DGIS	Directorate General for International Cooperation
DRC	Democratic Republic of Congo
DSRP	Poverty Reduction Strategy
EC	European Commission
EDF	European Development Fund
EIA	Environmental Impact Assessment
EIB	European Investment Bank
ENRTP	Thematic Programme for Environment, Sustainable Use of Natural Resources and Energy
EU	European Union
EUWI	European Water Initiative
FLEGT	Forest Law Enforcement, Governance and Trade
FSC	Forest Stewardship Council
FTA	Free Trade Agreement
FWG	Finance Working Group (of the EU Water Initiative)
GBS	General Budget Support
GCM	Global Climate Model
GEF	Global Environment Fund
GTZ	German Society for Technical Cooperation
GWP	Global Water Partnership
HDR	Human Development Report (UNDP)
IRBM	Integrated River Basin Management
IWRM	Integrated Water Resource Management
MDG	Millennium Development Goal
MEAs	Multilateral Environment Agreement
M&E	Monitoring and Evaluation
MONRE	Ministry of Natural Resources and Environment (Vietnam)
MWWS	Municipal water and wastewater services
MS	Member State (of the European Union)
NDP	National Development Plan
NEPAD	New Partnership for Africa's Development
NGO	Non-Governmental Organisation
NWRM	National Water Resources Management Strategy
ODA	Official Development Assistance
OTCO	Amazonian Cooperation Organisation
PARPA	Action Plan for the Reduction of Absolute Poverty
PNRH	National Hydrological Resource Plan
PCM	Project Cycle Management
PDFP	Partnership Dialogue Facility
PEP	Poverty Environment Partnership
PRSP	Poverty Reduction Strategy
RAMSAR	Convention on Wetlands of International Importance
RBO	River Basin Organization
SEDP	Socio-Economic Development Plan
SADC	Southern African Development Community
SIDA	Swedish International Development Co-operation Agency

SPsP	Sector Policy Support Programme
SWAP	Sector-wide approach
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WB	The World Bank
WF ACP-EU	European Union - Africa, Caribbean & Pacific Water Facility
W&S	Water & Sanitation
WSSD	World Summit on Sustainable Development
WWF	World Wide Fund for Nature

Executive summary

Water is fundamental for all life on the planet and critical for most economic activities. In the developing world, particularly, proper functioning of freshwater ecosystems has a direct impact on the livelihoods, health and security of the poor. The harmful effects of ecosystem service degradation continue to be borne disproportionately by the poor, and this degradation is often a principal driver of increased poverty and social conflict. The impacts of climate change on the availability of freshwater and on rainfall patterns will be felt in the coming decades, including in developing countries. Therefore, the links between water and development aid cannot be ignored - water has been, and continues to be, a key sector for development assistance.

Water issues cannot be addressed solely from a sectoral perspective. The concept of Integrated Water Resource Management (IWRM) has been developed to address the complexity of managing water resources in a more holistic way rather than targeting only sanitation, irrigation or waste water treatment. The following principles are key to IWRM: integrated planning of water and land-use; cross-sectoral co-operation; environmental sustainability; economic efficiency; social equity; and stakeholder participation.

This review looks at how the European Commission (EC) is taking into account water resources and IWRM in the programming of development aid. The EC has made strong and repeated commitments to integrate the principles of IWRM into their development co-operation efforts. In many donor programmes, including the EU Water Initiative, the EU-ACP water facility, IWRM is defined as a key objective for interventions in the water sector.

The analysis examines the integration of IWRM principles into the EC development programming by reviewing strategic documents and frameworks to determine to what extent aid planning is enabling or promoting IWRM at national or regional/basin levels. Or, to the contrary, whether strategies are neglecting IWRM, paying only lip-service to the principles or even hindering the implementation of IWRM at national and regional river basin levels.

The review was conducted in 12 countries which benefit from EC co-operation programmes and also are important for WWF's global conservation priorities:
Bolivia; Brazil; Peru; Cambodia; Vietnam; Thailand;
Cameroon; Mozambique; Kenya; Congo; Zambia; and Senegal.

While most of the analysis was done as desk research, one field visit to Mozambique took place with the support of the WWF office in Maputo, to look at some issues in more depth and conduct interviews with stakeholders. The following points were distilled from the meetings and discussions in Mozambique.

- *Water is an ever-increasingly important issue for Mozambique*
- *Water resources and water availability are not the key starting point for most donors, they tend to concentrate on provision of water, infrastructure etc*.
- *The EC has been active in the water sector since the 8th EDF, but water is no longer a priority for them in Mozambique.*
- *Budget support is seen as a critical delivery mechanism by donors in Mozambique*
- *Coordination in the water sector requires improvement.*
- *A SWAP for water would be highly recommended to bring all donors together and to achieve an overarching framework to implement IWRM*
- *IWRM implementation is progressing, but challenges remain*

The summary for the 12 case studies analysed in this report must be accompanied by several caveats. The timeframe for the analysis was short in view of the huge body of background materials, initiatives, projects and activities, websites and papers available on the topic. But some common trends are visible and some recommendations can be proposed for a general approach to IWRM integration in EC programming.

Findings

- Investments in water access, sanitation, agriculture and rural development will not be sustainable unless integrated into a framework where water resources are understood as a limited resource. As the situation in Mozambique illustrates, sanitation infrastructure provided with donor money cannot be properly utilised because of water shortages. Planning based on the availability of the natural resource and not just the demand is fundamental.
- The growing importance of water issues in the context of climate change has not been taken into account during the initial programming process for 2007-13 (or 2008-13) some three or four years ago. There is more and more evidence that water resources will be severely impacted and therefore climate change implications for water management need to be adequately addressed during the EC mid-term review.
- In spite of the many guidelines, fiches, environmental integration manuals, and political commitments, there is little sign at the programming level that the EC is a strong advocate of an integrated approach to water resources management. In Bolivia, where water conflicts led to violent demonstrations and an outbreak of violence in certain areas, the EC did put IWRM and water high on their agenda. But in general, warnings of problems emanating from water scarcity, mismanagement or conflict raised in the CEPs are not addressed in the programming.
- In the Latin American and African case studies, water issues are discussed to some extent in the background for programming and some EC aid priorities are linked to water but in Asia, this seems rarely be the case. Where EC programming is dealing with more developed or even emerging economies in Asia, the water-poverty link might be less strong. But pollution, water shortages or climate change impacts already are, or will, affect Asia as well.
  The country environmental profiles (CEPs) for the Asian case studies clearly recognise this, but it is not reflected in the programming where water management and IWRM are critical to so many economic and social issues including sectors chosen for support from EC. There would be scope to explicitly support IWRM implementation in Asian countries.
- Many countries where the EC is providing assistance have national water resource management plans already in place and/or have developed IWRM strategies. EC programming documents often do not refer to these national plans even though sectors such as agriculture or sanitation may be identified for support.
- Budget support is the preferred mode of aid delivery in the Asian countries, but also increasingly in Africa and Latin America. This trend is not only observed for the EC, but also for other donors such as the UK. While one key issue for budget support is monitoring and impact assessment, indicators for success often neglect the environmental dimension. Environmental indicators have been suggested in some country environmental profiles to improve environmental integration but have not been picked up by the EC, the partner country or the donor community in the joint programming documents.
- Although annexed to the Country Strategy Paper, the environmental profiles and their recommendations do not appear to directly inform the programming and recommendations are rarely taken into account for water issues. Although the country environmental profile is cited in the overall assessment, it does not appear to be systematically consulted.
- Some EC programming documents refer to the EU Water Initiative or the Water Facility as substitutes for an EC focus on water issues rather than complementary or additional opportunities. EUWI is primarily a policy and dialogue tool, the Water Facility is a small funding instrument which often involves calls for proposals. They cannot substitute for participation of the EC in joint planning for an integrated and coherent approach to the water sector.
- The institution promoting IWRM implementation on the ground is the Global Water Partnership but coordination and cooperation between donors and GWP at the country level does not seem to happen systematically – and it is not clear if lessons and needs identified by GWP are regularly integrated into mainstream planning.

Recommendations

Raise the importance of integrated water resource management on the EC co-operation agenda

- Use the mid-term reviews to acknowledge the increasing challenge of water resource needs in the context of climate change.
- Utilising an IWRM approach will contribute to building resilience of natural and social systems in the face of climate change impacts.
- Support water issues and an IWRM framework through general programming and make use of the EU Water Initiative and Water Facility for specific added value projects and for the encouragement of dialogue. Ensure these are fully coordinated with country programming, national water resource plans and other donors.
- Approach water provision services from the point of view of water resource availability before initiating infrastructure-based programmes.
- Update the Environmental Profiles with the most recent data on water availability and potential climate change impacts.
- Support the analysis of water resources availability and water governance as a component of national poverty reduction strategies or development strategies.
- Refer back to the Country (or Regional) Environmental Profiles and their recommendations in the water sectors in the course of the annual activity planning.
- Include water and IWRM training into the preparatory courses for delegation staff as part of the standard environmental integration training

Integrate water issues and IWRM into budget support

- Develop monitoring criteria for progress in sustainable management of natural resources, water resources, integrated water policies etc into the analytical framework for budget support
- Develop criteria linked to IWRM implementation progress into the regular monitoring of progress.
- Ensure participation of key actors for the implementation of IWRM in the donor-government consultation groups and in the budget support donor groups.
- Use the consultation process between donors and national government to promote IWRM in national development or poverty reduction strategies
- Facilitate the participation of civil society organisations and community-based organisations in the dialogue and consultations on EC development assistance.

Tackle various currently unconnected water-linked issues (irrigation, sanitation, hydropower, disaster prevention, conservation) in a holistic way

- Ensure EC assistance, particularly for economic sectors, is aligned with the partner country's own national water resource plans or strategies for IWRM.
- Initiate Sector Wide Approaches (SWAPs for the water sector to bring donors and government authorities for the water sector together in a more co-ordinated working relationship
- Ensure sufficient funding for the SWAP to implement concrete projects and programmes and to ensure follow-up
- Promote IWRM throughout the water and sanitation, agricultural, energy, health etc. sectors
- Ensure systematic use of Strategic Environmental Assessments and Environmental Impact Assessments as tools to ensure sustainability.

Support key organisations and beneficiaries in implementing IWRM and tackling poverty and development issues in an IWRM framework

- Emphasise and strengthen the links between water, natural resource management and poverty in development co-operation foray
- Support those actors (with funding, technical capacity, policy backing or organisational support) who are efficiently implementing IWRM (GWP, River Basin Authorities, water-user groups etc.)
- Make full use of the EU Water Facility to bring a transparent and specific added value to water programming through its pillar on water governance, IWRM and transboundary.

Work in partnership

- Publish in full Country Environmental Profiles and Regional Environmental Profiles to encourage discussion on environmental challenges
- Build coalitions with other important promoters of IWRM
- Support awareness-raising of local stakeholders for water issues
- Work with civil society and support their activities (projects but also policy and lobbying work at national, province and river basin levels) in implementing IWRM
- Encourage transboundary approaches to water challenges and management by governments as well as between donor programmes.
- Encourage transboundary approaches through international agreements and conventions, for example, the UN Watercourses Convention. Promote EU-wide ratification of the UN Watercourses Convention as the global policy framework necessary to enable such transboundary approaches.

Global freshwater consumption is doubling every 20 years with agriculture accounting for 70 percent of the water withdrawals.

With increasing demands for animal feed and meat production (requiring 8-10 times more water than cereals, the pressure on water resources is growing.

The overall economic loss in Africa due to the lack of safe water and sanitation is estimated at $28 billion a year or 5 per cent of GDP.

The International Panel on Climate Change expects by 2020 an increase of about 75-250 million people suffering from climate-induced water shortages in Africa alone with a potential falloff in rain-fed agriculture of up to 50 per cent.

1 Introduction and objectives of the review

Water is the essence of all life on the planet as well as an essential resource for many economic activities. It is critical for the survival of plants, animals and people, for agriculture, for energy generation, in industries and in fisheries. Ecosystems are dependent on water to provide key services such as food, fibre, flood mitigation and prevention, drinking water, tourism opportunities, and climate regulation. With the impacts of climate change, the important role of water for humans and ecosystems will be even ore apparent: Floods and droughts are predicted more often, water tables may decrease, desertification will increase, river basins may change.

The links between water and development aid cannot be overestimated, water has been and continues to be a key sector in development aid. This review looks at how the European Commission (EC) is taking water into account in the programming of development aid.

As water is of paramount importance, water issues cannot be addressed only from a sectoral perspective. The concept of Integrated Water Resource Management (IWRM) has been developed to address the complexity of managing water resources in a more holistic way than targeting only sanitation, irrigation or waste water treatment. In many donor programmes, including the EU Water Initiative and the EU-ACP Water Facility, IWRM is defined as a key tool for interventions in the water sector.

The objective of this review is to analyse and document the EC's approach to environmental perspectives of water management within some selected countries where water or water-related activities have been identified as sectors for aid and development co-operation and which are also important from the point of view of freshwater conservation The report also discusses the role of environmental profiles in promoting Integrated Water Resource Management (IWRM) through either country and/or regional strategies.
The review examines in particular:

- Environmental profiles for their coverage of water issues, including scarcity, pressures, pollution, transboundary aspects, national water plans, RAMSAR[1], IWRM.
- How the identified water issues have been addressed in the corresponding country or regional strategy paper, for example, in terms of investment in water and sanitation, agriculture, infrastructure, energy generation.
- Examples of good practice in recognising the value of IWRM and freshwater ecosystem management for human well being, economic development and poverty reduction as well as examples of where IWRM has been poorly integrated.
- How to improve freshwater management issues within sectoral investments made by the European Commission in developing countries.
- The situation in one country as a key case study where investment in water is mapped in more depth, including roles of other donors and loans from multilateral development banks.

Below are the case studies chosen and the data availability for the case studies. It should be mentioned that water is rarely defined as the key sector for the EC development co-operation in the studies chosen. The links to water management are more indirect in focal areas like agricultural development, rural infrastructures, sanitation, energy generation etc.

[1] The Convention on Wetlands, signed in Ramsar, Iran, in 1971, is an intergovernmental treaty which provides the framework for national action and international co-operation for the conservation and wise use of wetlands and their resources.

Continent	Country	Country Strategy Paper	Country Environment Profile	Water dialogue	Comments
Africa	Cameroon	√	√ full		
	Mozambique	√	√ summary	√ parts of	
	Kenya	√	√ summary		
	Congo	√	√ full		
	Zambia	√	√ full	√	
	Senegal	√	√ summary		
Asia	Cambodia	√	√ summary		
	Vietnam	√	√ summary		
	Thailand	√	√ summary		
Latin America	Bolivia	√	√ summary		IRBM as EC focus[2]
	Brazil	√	√ summary		
	Peru	√	√ summary		

The methodology of this review was through desk research to review the existing materials provided by EC websites as well as the documentation of other key donors, multilateral banks, water-related web-sites and WWF publications. For the key case study, donor visits as well as meetings with water-related authorities were undertaken in Mozambique.
The criteria for the selection of case study countries depended on
a) data availability;
b) on geographical spread and
c) on priority river basins from a conservation (WWF) perspective.

[2] IRBM (Integrated River Basin Management) is a river basin based, geographically limited, form of the implementation of IWRM.

2 Background

The European Commission has separate budgets and management arrangements for development co-operation according to geography: African, Caribbean and Pacific countries are grouped together as ACP-countries within DG Development. Co-operation between the EC and ACP countries is driven by the Continuo Agreement which presents the main framework for aid, trade and political cooperation, signed in 2000. The EU and the ACP countries have an agreement for aid support through the EDF (European Development Fund) as its financial instrument. EDFs are always multi-annual programmes; the current 10th EDF is valid from 2008 until 2013.

Development co-operation with Asian and Latin American countries is managed by DG Relex within the framework of the DCI (Development Co-operation Instrument) which is also a multi-annual funding instrument. The context for the new development strategy for the period 2007–2013 is provided by the EU Development Policy Consensus adopted in December 2005. This Consensus makes it clear that the primary and overarching objective of EU development co-operation is the eradication of poverty in the context of sustainable development, including the pursuit of the Millennium Development Goals (MDGs).
It also defines the objectives and principles which should guide Community action, including greater co-ordination between the Commission, Member States and leading donors to ensure better complementarity of aid, concentration of Community activities, and coherence with Community policies.

In March 2005, more than 100 countries and international organisations subscribed to the Paris Declaration, the objective of which is to make development assistance harmonised and effective. It requires that assistance should be aligned with national policies, strategies and institutions of partner countries. In September 2008, a follow-up meeting in Accra reviewed the Paris declaration and further developed its principles.

Aid delivery through budget support is an important element of the Paris declaration, fulfilling the requested alignment to national priorities and systems, involving less transaction costs and facilitating donor harmonisation. Donors have adopted different strategies towards budget support. Most of them use a mixed aid delivery mechanism – general budget support, sector budget support plus a variety of programmes and projects.
The share of budget support is variable, a majority of donors aiming to spend around 50% of their aid in general or sector budget support, but there are considerable variations. The EC is roughly aiming at 50%, but increase in budget support will depend upon the recipient countries' ability to absorb and according to governance and reporting concerns.

Country Environmental Profiles are promoted by the EC as a key tool for addressing environmental issues from the start of the co-operation process. They should be made publicly available in full and a summary of the profile annexed to the Country Strategy Paper. [3] According to the European Commission's Handbook for Environmental Integration (2007), the CEP "is a report that contains a description and broad assessment of a country's environmental situation, policy and regulatory framework, institutional capacities and environmental co-operation."

EC development co-operation programming follows broadly similar lines whether programmed under the EDF or the DCI. A country strategy paper is developed taking into account the history of EC co-operation, the national priorities for development, analyses done by the EC and setting out the EC focal and non-focal sectors over the next programming period.
The country strategy paper also includes an indicative programme, describing the goals and outputs, activities, the funding and the aid modalities for the focal and non-focal sectors.
Based on those strategies, and in close collaboration with other donors and the partner country, annual action programmes are developed. Those annual action programmes include a detailed description of budgets and activities and are the key implementation tool for EC aid.

[3] Find a more detailed discussion on the role of country environmental profiles in the publication: Environmental Tools in EC Development Co-operation by WWF, FERN and BIRDLIFE. 2007.

Implementation can be done in different modalities: budget support (general or sector), technical assistance, project funding and tendering or global grants with calls for proposals. It is normal to review the multi-annual strategic frameworks after half of their lifetime – DCI and EDF strategies will therefore be reviewed over 2009 and 2010.

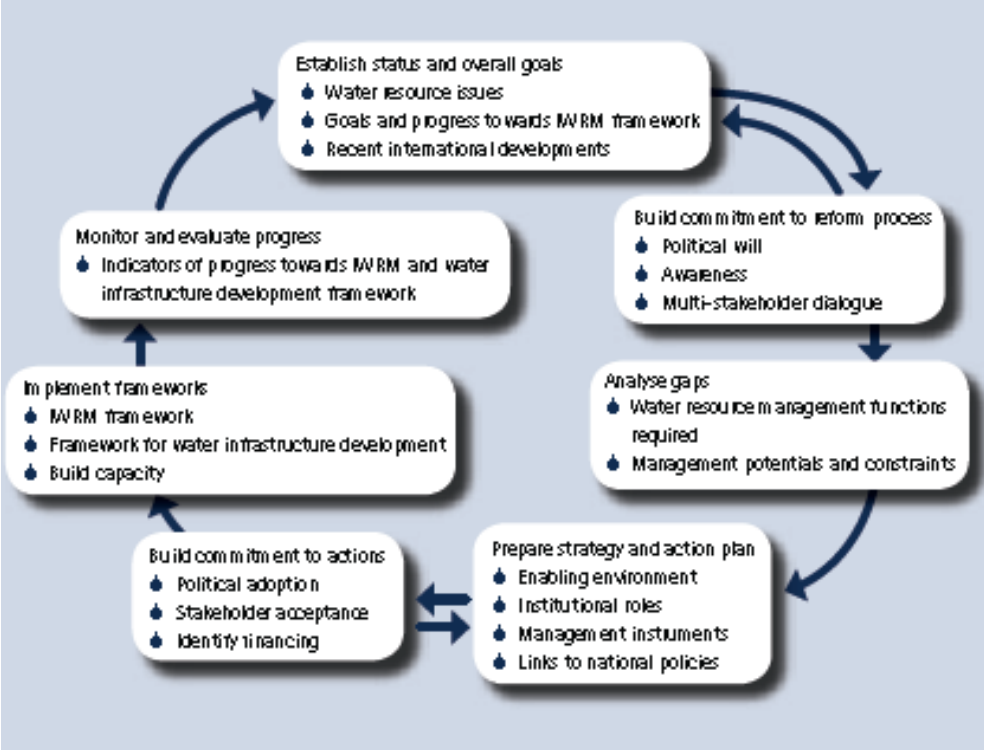
In addition to the country-specific programmes, there is a range of either regional or sector programmes to accompany bi-lateral development co-operation, for example the EC Water Facility or the EC regional programme for Andean countries. More details on relevant additional programmes will be presented later in the report.

3 The principles of IWRM and its relevance for development assistance

Integrated Water Resource Management (IWRM) has been developed as a response to the shortcomings of a sector-driven approach and the often unconnected management structures linked to such an approach. While Integrated River Basin Management has a focus on the geographical – the river basin – scope of the management, IWRM goes beyond the basin focus and stresses the need for integrated management at all levels. Frequently the river basin is the most obvious entity to operationalise IWRM and to apply the principles of IWRM at decentralised level.

The Global Water Partnership defines IWRM as "a process which promotes the co-ordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems." [4]

The process of implementation can be seen as follows:[5]



The following principles are key to IWRM:

- Integrated planning of water and land-use planning
- Cross-sectoral co-operation
- Environmental sustainability
- Economic efficiency
- Social equity
- Stakeholder participation

[4] GWP : Advisory Committee Background Papers No. 4. 2000.
[5] Chart taken from GWP 2008.

By applying all those principles, water management should avoid the problems of fragmented planning of water use, lack of focus on the water needs of ecosystems, unrealistic/subsidised pricing of water, neglect of water conservation and focus on water provision only etc.

Although challenging, the application of the IWRM principles is considered as beneficial by many international stakeholders in the water and in the development context because of the links between water management and poverty reduction and the important role freshwater ecosystem services can play in achieving the Millennium Development Goals (MDGs).

Table 1 Links between the MDGs and Freshwater Ecosystems

Millennium Development Goals	**Freshwater ecosystem linkages**
1. Eradicating extreme poverty and hunger	Securing freshwater ecosystems will ensure healthy aquatic species populations such as fish, crustacea, aquatic plants for medicine and food.
2. Achieve universal primary education	Water- related diseases such as diarrhoea infections cost about 4423 million school days each year, and diminish learning potential.
3. Promote gender equality and empower women	Woman and girls are often the ones responsible for collecting water, an assignment that gets more difficult when water is scarce or freshwater systems are degraded.
4. Reduce child mortality	Water related diseases kill an estimated 3 million people every year in developing countries, the majority of whom are children under the age of five.
5. Improve maternal health	Provision of clean water reduces the incidences of diseases that undermine maternal health and contribute to maternal mortality
6. Combat major diseases	Malaria is a water-related vector disease that kills moe than one million people each year, 90% in sub-Saharan Africa. People already weakened by HIV/AIDS will suffer particularly from the lack of clean water supply or sanitation since diarrhoea and skin diseases are two of the more commonly related infections.
7. Ensure environmental sustainability	Current trends in freshwater degradation must be reversed in order to sustain the health and productivity of these ecosystems. According to the Millennium Ecosystem Assessment, freshwater ecosystem is the worst off. About 50% of inland water systems have been lost during the twentieth century.
8. Develop a global partnership for development	Unfair globalization practices export harmful side-effects. E.g. extensive trade of so called “virtual water” from water scarce areas that often lack effective governance, to regions with water abundance, are aggravating global water stress.

This has led to the inclusion of references to the guiding principles of IWRM in a series of strategic documents, policies and conventions like the Ramsar Convention on Wetlands, the UN Watercourses Convention, the 4th World Water Forum, the European EUWI, the New Partnership for Africa’s Development (NEPAD), most of the bilateral donor documents on water resource planning as well as those of multi-lateral institutions like the World Bank and the African Bank for Development.

The Global Water Partnership – one of the key drivers of IWRM world-wide - describes IWRM not as a dogmatic framework but a common-sense approach to water management and development[6].

[6] Catalyzing Change: a handbook for developing integrated water resources management (IWRM) andwater efficiency strategies, Produced by the Global Water Partnership Technical Committee. 2004.

The underlying principles of IWRM are:

1. Freshwater is a finite and vulnerable resource, essential to sustain life, development and the environment

2. Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels

3. Women play a central part in the provision, management and safeguarding of water

4. Water has an economic value in all its competing uses and is recognised as an economic good

An IWRM approach promotes the co-ordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.
This includes more co-ordinated development and management of land and water, surface water and groundwater, the river basin and its adjacent coastal and marine environment, and upstream and downstream interests. But, as the above definition points out, IWRM is not just about managing physical resources; it is also about reforming human systems to enable people (women as well as men) to reap sustainable and equitable benefits from those resources.
For policy-making and planning, taking an IWRM approach requires that:

- water development and management takes into account the multiple uses of water and the range of people's water needs;
- Stakeholders are given a voice in water planning and management, with particular attention to securing the participation of women and the poor;
- Policies and priorities consider water resources implications, including the two-way relationship between macroeconomic policies and water development, management, and use;
- Water-related decisions made at local and basin levels are in-line with, or at least do not conflict with, the achievement of broader national objectives; and,
- Water planning and strategies.

An introduction to the implementation of IWRM by WWF[7] states that it is not easy to monitor implementation and that the body most appropriate to undertake such an analysis is the Global Water Partnership (GWP). GWP reports show that IWRM implementation remains patchy and that a lot more needs to be done at national and international level.
A key element of GWP strategy for 2009-13 will be to embed water security into national development plans, such as poverty reduction strategies and comprehensive development frameworks. [8]

As IWRM is a complex and also long-term process, WWF has also identified a minimum of six key principles for good IWRM implementation. Without those principles it is unlikely that a successful implementation of IWRM is possible.

1°principle : Communication of IWRM in two levels: Communicating what implementation of IWRM means in practice and why IWRM is important
2°principle: Sustainability of vital ecosystems
3°principle : Participation
4°principle: Decentralisation
5°principle: Defining what integration means in practice
6°principle: Strong leadership

[7] See WWF 2006, page 13f.
[8] See GWP Strategy 2009-13. 2009.

Rationale of Principles:

There is a risk that 'integration' pays lip service to environmental and social correctness without real attention to how this is achieved in practice. It often masks trade-offs and is subject to overriding development interests. While the benefit of IWRM might not be disputed, the urgent message might still be to first solve problems of floods, sanitation, hunger and poverty and then only ensure environmental sustainability. The 'integrated' management of natural resources is not understood by all stakeholders at a large river basin level or within all sectors of national policies.

To succeed, IWRM has first to gain broad support from stakeholders among government, businesses, civil society, and among water users.

It needs to be communicated and understood by all stakeholders that the economic and social benefits for people depend upon environmental sustainability. It is not only the sustainable access to freshwater, as some water and sanitation programmes aim for but the sustainability of the resource itself. In rural contexts of developing countries, environmental, social and economic sustainability are very closely linked and local resource-users seem to be well aware of this link.

Only at a governmental or administrative level are those issues dealt with separately. The ecosystem sustainability needs to be the first base for all other planning.

IWRM can not succeed without genuine and effective participation of all water stakeholders, especially local resource-users. The challenge is to create or adapt workable institutional mechanisms to promote this participation. A WWF study from 2004 found out that one of the common factors for success among the case studies in developing countries was the positive motivation of local people.[9] *But it needs to be ensured that the poor and marginalised populations or water-users are not excluded from participation.*

It is key to decentralise decision-making to the lowest possible level. There are several issues linked to enable decision-making at lower levels like the devolution of powers, existing associations or stakeholder groups with capacities, visibility of local level, ensured participation of the local leadership.

Without shifts in power balances and clear capacity at local levels, decentralisation is not a realistic option. In some cases, the lowest appropriate level can also mean a sub-basin. Operational plans for IWRM at national or basin level have to clearly define what integrated water resource management means.

It is important to address tensions between social, economic and environmental needs and to not leave these unclear in the planning process.

Given that the IWRM is a complex and new approach and might find resistance among existing water power-brokers, strong leadership is required to see the translation of IWRM into effective action.

Those leaders can be groups of stakeholders, various stakeholder types grouped together, NGOs or the national level. Leadership can come from an existing river basin commission or a group of leaders might create such a commission for the better implementation of IWRM.

[9] WWF: Freshwater and poverty reduction. Serving people, saving nature. 2004.

4 The water and poverty link

In the developing world, particularly, the proper functioning of freshwater ecosystems has a direct impact on the livelihoods, health and security of the poor. The harmful effects of ecosystem service degradation will continue to be borne disproportionately by the poor, and this degradation may also be a principal driver of poverty and social conflict.

A recent paper of the Poverty-Environment Partnership (PEP) defines four links between water and poverty reduction[10]:

- Water and Enhanced livelihoods security: the ability of poor people to use their assets and capabilities to make a living in conditions of greater security and sustainability. Water is both a key input to many types of livelihood activity and a determinant of the health and productivity of ecosystems on which the poor depend. Ensuring continuity and timing in water flows and minimum levels of water quality is essential for maintaining the integrity of ecosystems, which in turn is critical for activities such as fishing, grazing and fuel-wood gathering on which many poor people depend.
  Making sure that adequate and reliable water supplies are available for agricultural activities (including livestock, aquaculture, horticulture and other types of production) is a key to poverty reduction throughout the developing world. Designing domestic water schemes so that water is available for home-based livelihood activities such as vegetable production, pottery or laundering is effective in targeting the poor and supporting diversified livelihoods.

- Water and Reduced health risks: the mitigation of environmental and social determinants that put the poor and most vulnerable (especially women and children) at risk from different diseases, disabilities, poor nutrition and premature death. Water-borne (e.g. diarrhoea) and water-related vector-borne diseases (e.g. malaria) are the main killers in many parts of the developing world, and in particular affect children and other vulnerable groups.

- Providing access to safe and sufficient water and improved sanitation is the most effective way to improve health. It is also a good economic bet: investments in water and sanitation provide rates of return in excess of those found in many productive activities and are positive throughout the developing world. Improving the design of hydraulic infrastructure and water management in irrigation schemes and reservoirs within a broader IWRM approach supports a sustainable reduction of vector-borne disease transmission.
  Integrating water, sanitation and hygiene promotion into health systems development, and health management into the water, sanitation and IWRM provisions, is one of the most effective strategies for attaining the MDGs and reducing poverty.

- Water and Reduced vulnerability*:* the reduction of threats from environmental, economic and political hazards, including sudden impact shocks and long-term trends. Water-related disasters such as droughts, floods and major storms undermine development and destroy livelihoods, often throwing people into poverty. Degrading ecosystems, climate change impacts, pollution and soil degradation compound these risks and present formidable barriers to development. Actions to both reduce these risks and increase the resilience of the poor and of ecosystems when disasters strike or resources degrade should be an integral part of any poverty reduction strategy.

- Water and Pro-poor economic growth*:* enhanced economic growth is essential for poverty reduction in most parts of the world, but the quality of growth, and in particular the extent to which it creates new opportunities for the poor, also matter. Water management can be a catalyst for such growth.

[10] The Poverty-Environment Partnership (PEP): Linking Poverty Reduction and Water Management. 2007. The Poverty-Environment Partnership (PEP) is a network of bilateral aid agencies, multilateral development banks, UN agencies and international NGOs that aims to address key poverty-environment issues within the framework of international efforts to achieve the Millennium Development Goals.

This is true at a local level, where it provides vital inputs into productive activities and creates opportunities for local entrepreneurs in supplying technologies, constructing facilities and providing services. The potential of local entrepreneurs remains untapped and can be a vital link in poverty reduction. Local investments generate high returns, retain benefits in the local economy and generate significant multiplier effects.
It is also true at a national and regional level, where major water infrastructure investments can be a key to transforming development prospects.

It is essential that such major investments are done with *effective impact assessment and proper safeguards* and taking into account all costs and benefits they generate. Where this is the case, and where major infrastructure is accompanied by investments in small additional infrastructure, in crop and livelihood diversification opportunities, in institutional development and in the creation of better access to inputs, markets, knowledge and, not least, the infrastructure itself, large-scale water investments can play a key part in poverty reduction.

These more general links have been illustrated by an analysis of selected WWF projects on how water conservation has also benefited the local economy and local livelihoods.[11]
Several lessons were derived from the four cases:

- Sustainable freshwater resource management and livelihoods improvements were not approached as two separate activities, but as part of a holistic and integrated approach. In every case study, conservation activities were not seen in isolation and, more importantly, would not have been possible without specifically addressing livelihoods benefits. Freshwater resources and livelihoods form part of the same continuum.

- Ownership of freshwater conservation activities resided with the communities. Communities were often the first to recognise that improved freshwater resource management was essential to improve their livelihoods. For example, in Lake Dongting in China, local communities involved in the project faced increasingly devastating floods as a result of unsustainable wetlands management, and realised that the restoration of wetlands would be crucial for their well-being.

So the links between water and poverty cannot be overestimated and need to be tackled holistically, whether with the aim of poverty reduction measures or the aim of water conservation measures. It is essential to keep that link in mind for all strategies in development co-operation and for all activities in water conservation.
IWRM incorporates the social and economic benefits of sound water management, but essentially puts the sustainability of water resources as the base and backbone of all efforts to improve livelihoods and reduce poverty.

[11] WWF International: Freshwater and Poverty Reduction: Serving People, Saving Nature. 2005.

5 EC commitments and integration of IWRM

Water and IWRM already play a prominent role in EC policies – both internal and extermal. The principal aim of EC development co-operation is the eradication of poverty in the context of sustainable development, including pursuit of the Millennium Development Goals.

The EC's 'integrated water resources management' policy framework aims at ensuring a supply of sufficient, good quality drinking water, adequate sanitation and hygiene to every human being, in line with the MDGs and the targets from Johannesburg (World Summit on Sustainable Development).
Further it aims at establishing a framework for long term protection of all water resources, preventing further deterioration and promoting sustainable water use.[12]

The main development priorities of the EC for sound water-related interventions are[13]:

- Ensuring a supply to every human being (especially the poorest) of sufficient drinking water of good quality and an adequate means of waste disposal, with the general objective of reducing poverty and improving people's health and quality of life;

- Sustainable and equitable trans-boundary water resources management taking into account all relevant interests and integrating the competing needs of the various users, in particular those of riparian communities and states sharing the same resource base; and,

- Cross-sectoral co-ordination to ensure fair and appropriate distribution of water between users of different types and the mainstreaming of water management principles into related policies; water for food security, for the environment, energy, industry, etc.

In 2000, the Council and the European Parliament adopted Directive 2000/60/EC establishing a framework for the action in the field of water policy in Europe - the Water Framework Directive. Its purpose is to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater. The IWRM management approach included in the WFD is embedded in development projects within the EU.
The challenge in sharing waters is to avoid conflict and promote peaceful co-operation between different interests, both within countries and between them.

The EU Water Initiative has also an Integrated Water Resources Management component. The European Union, at the instigation of several member States, launched an Initiative in Johannesburg (2002) under the Type II partnerships, called "Water for Life" with the following subheadings:
"Health, livelihood, economic development, peace and security" and:
"Implementation of the Programme of Action of the World Summit on Sustainable Development (WSSD)".

Within the EU Water Initiative, the three priorities are:

- access for the poorest people to safe drinking water, and to adequate sanitation;
- sustainable and equitable management of transboundary waters;
- good coordination to ensure fair distribution of water between users of different kinds, based on good governance principles.

A Strategic Partnership Agreement was signed by the African Union and the European Union during the launch of the Initiative. Its implementation in Africa takes place in close coordination with the African Ministers' Council on Water (AMCOW) and NEPAD.

In 2006, EuropeAid published an evaluation of the EC support to the water sector over a decade. This evaluation looked at IWRM integration through two questions:

[12] The European Consensus on Development (2006/C 46/01)
[13] http://ec.europa.eu/development/policies/9interventionareas/waterenergy/water/water_sanitation_en.cfm

a) How far has EC support contributed to the adoption of national policies and legal instruments that are in accordance with the principles of IWRM?; and

b) To what extent has EC support facilitated and contributed to the adoption and implementation of IWRM into the planning and implementation of water and sanitation service delivery?[14]

The following paragraphs are all taken from this evaluation:

In judging "how far EC support contributed to the adoption of national polices and legal instruments that are in accordance with the principles of IWRM" showed there is a surprising degree of uniformity between countries, donors and the development banks and agencies in the way it is applied. Most IWRM best practices are designed to value, raise the profile and conserve water, engage the private sector and reduce the decision making process down to the least possible administrative level. On the whole, most policies are consistent in their approach, and where the differences occur are in how they are implemented. The EC's promotion of IWRM has been positive and is prominently reflected in projects and programmes.

In determining to what "extent has EC support facilitated and contributed to the adoption and implementation of IWRM into the planning and implementation of water and sanitation service delivery", it has become quite clear that the rationale and appropriateness of the EC's water management and development policies are acknowledged by recipient governments, and welcomed. Principles of IWRM have however in practice rarely been mainstreamed into water and sanitation delivery although there is a gradual shift to the inclusion of the IWRM principles. Of major concern is that many water supply schemes (large and small) are being designed, and built with only cursory knowledge of the available water resources.
However, in the cases where infrastructure works have been designed and implemented in line with IWRM principles, the environmental impacts and socio-economic benefits are undeniably positive. Problems were found often to exist with inter-sectoral contradictions, and the emphasis placed by one party on a particular subject (sanitation) is sometimes out of phase with the sectoral priorities (IWRM or gender) of another.

In spite of the emphasis being placed on IWRM, few projects and programmes apply the principles correctly, and some water supply schemes are being constructed without clear knowledge of the available water resource. The principles should be applied more rigorously and water supply schemes must be planned and designed with a proper understanding of the water resources management process and stakeholders provided with the instruments and technology to collect the necessary scientific data. In addition, many important issues associated with the approach are being neglected, or applied incorrectly.

There is little doubt the EC is vigorously promoting IWRM, and that the national policies, projects and programmes of recipient governments are in accordance with the principles it sponsors. Most water and sanitation (W&S) interventions are linked to national policies and many are made conditional on the existence of an enforceable water law, and the existence of a water sector strategy or framework. The Water Facility operational rules have made IWRM a priority, and W&S proposals submitted by an EDF country must demonstrate they have included suitable provision for its application, before they will be considered. The main thrust of water sector policies exemplified in EC policies and programmes have moved towards a more integrated approach, but these changes are uneven in extent, and their general level of acceptance varies widely.

The inclusion of IWRM in EC funded Water & Sanitation programmes and projects through references and links is easy;
What is hard is their application.
This requires the rule of law, strong governance, appropriate institutions, and an acknowledgement that communities must be allowed a voice.
Above all there must be the political will to overcome the many challenges IWRM entails. There will be many false starts and reversals before a country introduces and applies IWRM in the manner it was designed.

[14] Thematic Evaluation of the Water and Sanitation Sector. Synthesis Report. EuropeAid, July 2006

While the IWRM principles are being actively promoted, W&S schemes are consistently being implemented with scant knowledge or understanding of the available water resources. More importantly, it is not generally appreciated how hard IWRM is to apply, and put into practice particularly when trans-boundary issues are involved

Finally, the evaluation gives several recommendations:

- Water supply schemes should be planned and implemented with a greater understanding of the wider water resources management principles described in the IWRM process. In the future the EC must place more emphasis on IWRM, and ensure that project and programme planners and manager are more familiar with their application.

- Where the IWRM principles are understood, and are being mainstreamed into projects and programmes, rarely are they employed correctly, and procedures must be strengthened to ensure that the benefits of IWRM are translated into action. Poor application means that many of the important issues associated with the approach are being neglected, or applied incorrectly.
  These include
  -understanding the environmental consequences of the action (immediate and long term),
  -the resolution of internal conflicts due to competition for water (primarily agriculture but increasingly industry),
  -addressing external trans-border tensions,
  -building community water management structures and water user associations,
  -the provision of support to the decentralisation process through the devolution of responsibility of authority, To name the most prominent.

- Most countries have water laws, water management legislation and strategies, which include the setting up river basin authorities to licence and regulate the sector. These are the natural home for IWRM and should be nurtured (directly or indirectly), and provided with the capacity to manage the process.
  Every Water and Sanitation project or programme funded by the EC must be assessed and structured in terms of IWRM, and assistance needs and means to be given to planners and managers to understand and address the challenges entailed.

- A revision of the Strategic guidelines, and the inclusion of a new Chapter 13 concerned with IWRM should be conducted. Capacity building support and training should also be given in the application of IWRM, in relation to the technical aspects of Water and Sanitation service delivery.

<u>Programming guidance:</u>

A programming fiche on water and sanitation has been produced by the European Commission to assist with the development of Strategy Papers. [15]
This refers to water as a sector of concentration within the context of an integrated approach to water resources management as well as a cross cutting issue as an enabling condition for development. For example, how water resources management if an underlying activity necessary for the success of a whole range of sectors including economic growth, agriculture and food production, industry, hydropower, health, tourism.

It proposes some indicators including
-the number of river basins with river basin management plans;
-number of transboundary waters managed through regional organisations;
-introduction of a national water resource plan,
-including a national and local IWRM strategy;
-national targets for efficient use of water resources;
-transparency of decision making and participation of stakeholders;
-regional exchanges on IWRM good practices.

[15] Programming Guide for Strategy Papers, Programming Fiche, Water and Sanitation, November 2008

Last but not least, the programming fiche points out how mismanagement can lead to drought and desertification and can be a source of conflict, particularly where rivers, lakes and underground aquifers cross national boundaries.

IWRM and transboundary governance are also emphasised in the Communication 'Water Management in Developing Countries Policy and Priorities for EU Development Cooperation'[16] which points to the inherent tensions that exist because water resources are subject to a variety of demands and pressures which in turn affect availability and quality.
For this reason, water resources must be managed in an integrated manner taking account of all the legitimate uses and demands, including environmental objectives. In the transboundary context, cooperation over water resources will require the development of new partnerships and new institutional arrangements. The Communication suggests the EC's participation in supporting improved governance structures to enhance cooperation and practical solutions for the management of shared transboundary water systems.

Six EU Member States have so far ratified the UN Water Courses Convention (1997).
This UN Convention requires states to participate equitably in the use, management and protection of international watercourses, establishes conflict prevention and resolution procedures and offers policy and legal guidance for states to engage in transboundary integrated river basin management.

Once in force, it would therefore provide an extremely valuable instrument internationally to address the many current deficiencies in governance arrangements for share water resources and to support equitable and sustainable water management.

[16] COM(2002) 132

6 Case studies

This report examines the integration of IWRM principles into EC development programming. This entails study of strategic documents and frameworks and an analysis of whether the planned assistance is enabling and promoting IWRM at national or regional/basin levels. Or, on the contrary – whether strategies are neglecting IWRM, paying only lip-service to the principles or even hindering the implementation of IWRM at national and regional/basin levels.

Indicators for this analysis need to pay heed to the rather general and vague language of EC planning documents at the early stages of the multi-annual programming process. A first set of priorities is given, a range of aid modalities is mentioned, but there are no clear activities defined until the annual action programmes or national indicative programmes are developed. Indicators on the integration of IWRM principles therefore need to look at the *intention* and *ability* to support IWRM related actions and how the IWRM principles are woven into the water priorities defined at this stage.
As the EC is formulating its strategies as a "response" to national poverty alleviation or development strategies, it needs to be clarified if those national strategies have integrated IWRM and how EC could claim to have encouraged or strengthened this integration. The indicators can also not be interpreted in strictly quantitative terms but as a general guidance for the analysis.

Indicators on strategic framework, governance and planning level that are used for this analysis:

Theme	**No.**	**Indicator for integration**	**Rationale**
Strategic framework	1	A reference to IWRM is made for all water-related investment priorities at EC strategic level.	Acknowledgement of importance of IWRM as base for water-related investments.
	2	National development strategies are referring to IWRM for all water-related goals and objectives.	Acknowledgement of importance of IWRM as base for water-related investments.
	3	Links between water supply, sanitation and environmentally sustainable water resource use are reflected in development (or water) plans.	Attention needs to be given to the environmental sustainability of water resources when dealing with the alleviation of poverty and sanitation problems.
Governance	4	Policies, laws and regulations are amended or developed to be used for IWRM implementation actions. This governance process is eligible for support.	IWRM requires an appropriate and harmonised policy and legislation framework.
	5	A multi-stakeholder (national or international) river basin or national water management body takes a leadership role and is eligible for support.	Collaborative and participative management needs to be guided by a leading body and will give guidance to IWRM implementation.
	6	Trans-boundary co-operation such as water-sharing agreements or joint protected areas is eligible for support.	Management, use and protection approaches between countries are a pre-requisite for effective IWRM implementation.
	7	Education, training, awareness-raising and capacity-building programmes are foreseen and eligible for support.	Competent stakeholders and big investments into communication are needed for IWRM implementation.
Planning	8	Appropriate impact assessment procedures (EIA, SEA) in place and a pre-requisite for EC support.	Impact assessments need to be applied effectively to avoid and mitigate negative impacts of infrastructure developments on water bodies such as water pollution, habitat destruction etc.
	9	Sites of biodiversity, social, cultural or economic importance and linked to	Important sites need to be identified, a management plan needs to be

		water are being protected or rehabilitated and those actions are eligible for support.	developed and funding secured to meet principles of IWRM.
	10	Natural water infrastructure (such as headwaters, wetlands, environmental flow, floodplain areas etc) are being recognised as important service-providers and protected or rehabilitated. Such actions are eligible for support.	Rehabilitation of such sites is contributing significantly to quantity and quality of water resources and their sustainability.
	11	Planning of reducing impact of natural disasters (floods, droughts, water shortages) through IWRM application. This is eligible for support.	Resource condition is improved through the reduction of socio-economic impacts of natural disasters.
	12	Strategies to reduce pollution of water bodies (agriculture, waste-water, industrial pollution) through IWRM application. This is eligible for support.	Resource condition is improved through the reduction of various pollution factors.

For each case study, the EC country strategy paper, the indicative programme, the country environmental profile and the national poverty reduction strategy have been taken into account. If available, other relevant material was included in the analysis, for example, existing water dialogues or other studies.

Unfortunately, the failure to publish the *full* country environmental profiles for all countries is a big problem when trying to understand the challenges for countries in the environmental sector. Water coverage can only be superficially given in the summaries.
Given the fact that full country environmental profiles are between 80 and 100 pages long on average, a 4-7 page summary annexed to the country strategy paper can never capture the depth of information given in the full document.
This lack of public access to documents in several countries does not facilitate civil society access and participation.

The following data is taken from an IWRM progress report of the UN of 2007[17], showing the progress of the available case study countries in terms of setting the legal basis for IWRM planning and implementations

Vietnam
• Law on Water Resources – Government of Vietnam (1998)
• National Water Resources Strategy - Government of Vietnam (2006)
• National Strategy on Rural Clean Water Supply and Sanitation - Government of Vietnam (2000)
• National Strategic Programme of Action on Desertification Control - Government of Vietnam (2006)
• IWRM and Water Efficiency Plan – In place and partially implemented.

Cambodia
• Integrated Water Resources Management (IWRM 2005) and Roadmaps in Cambodia – Department of Water Resources Management and Conservation (2006)
• Water Law – Royal Government of Cambodia (Sept 2006)

Thailand
• National Water Law/Code - Government. Of Thailand (draft 2007)
• National Water Policy – Ministry of Natural Resources and Environment (2000)
• IWRM National Roadmap – Department of Water Resources (2007)

[17] UN-Water (2008). Status Report on IWRM and Water Efficiency Plans for CSD16.

Mozambique
• Government of Mozambique - Water Act, Lei de Aguas, 16/91 3 August (1991)
• IWRM Plan – Direccao Nacional de Aguas, Ministry of Public Works and Housing (draft 2007)

Zambia
• IWRM and Water Efficiency Plan – Ministry of Energy and Water Development (2006)
• The Revised National Water Policy – Ministry of Energy and Water Development (2007)
• Water Resources Management Bill – Ministry of Energy and Water Development (draft 2007)
• National Development Plan – Ministry of Energy and Water Development (2007)

Brazil
• National Water Policy (Law No. 9433) – Government of Brazil (1997)
• National Water Resources Plan – Ministry of Environment (SRH/MMA), National Water Council (CNRH) & National Water Agency (ANA) (2007)

6.1. Latin American case studies

6.1.1. Brazil

Water situation in Brazil[18]

Brazil has the largest reserve of freshwater resources on the planet,
-holding approximately 14 per cent of the world's existing freshwater. While in theory there are nearly 34 million litres of water available for every Brazilian, the reality is that water is unevenly distributed throughout the country. Brazil is the third largest hydroelectricity producer in the world. In 2004 hydropower accounted for 83% of Brazilian power production. Brazil has more freshwater fish species than any other country on earth, with the world's largest river basin, the Amazon, and the world's largest tropical floodplain, the Pantanal. In 2007, Brazil had identified nine sites that fulfil criteria for wetlands of international importance according to the Ramsar Convention, seven of which are mainland wetlands.

The impacts of climate change are likely to affect Brazil's natural ecosystems – increasing the risk of biodiversity loss and sectors related to primary production. Water resources are at risk in many areas. Human health and human settlements, especially in coastal lowlands and environmentally and socio-economically marginal areas, also are vulnerable.
There are indications that global climate change and deforestation may lead to major shifts in the hydrological system of the Amazon, with potentially catastrophic consequences for the rainforest and the whole region.

Degradation of the quality of water resources is another serious problem stemming partly from the extensive - and poorly controlled - use of fertilisers and pesticides and partly from problems associated with the lack of basic sanitation and with other contamination of diverse origins (discharge of insufficiently treated industrial effluent, accidents, etc.). In areas of intensive agricultural production, this creates serious problems of soil erosion, sedimentation of streams and contamination and reduction of the level of underground rivers. Deforestation at river heads also causes degradation of rivers.

The Amazonian Co-operation Treaty, which includes Brazil, has been strengthened after the establishment of its permanent Secretariat in Brasilia and its development into the Amazonian Co-operation Organisation, OTCA, a process also supported by the EU.

Responsibility for policy and implementation within the Brazilian water sector is largely devolved to state level. Nationally, the National Water Agency (ANA) is the lead agency with the remit to establish the legal water management instruments laid out in the Water Law. The National Hydrological Resources Plan (PNRH) 2006 was promised following the World Summit on Sustainable Development in 2002, and the

[18] This information on Brazil's water situation is based on World Bank, 2003: Water, Poverty Reduction and Sustainable Development in Brazil.

goals of the plan are based partly on the water-related Millennium Development Goals. The PNRH is used to determine the focus of ANA's work, the needs of each
Water-basin and the priorities and targets to be applied. Water charges are, however, collected at the state level, not the river basin level. This weakens the River Basin Committees, which do not have decision-making control over how the resources are spent.[19]

In 2006, the Government of Brazil approved its first Freshwater Management Plan, making aquatic biodiversity an important aspect of freshwater planning for the entire country. With this plan, Brazil's Government explicitly made biodiversity a part of the decision-making process for the use of the country's freshwater resources.
The National Water Resources Policy is based on the following principles[20]:

I - water is an asset falling within the public domain;
II - water is a limited natural resource endowed with economic value;
III - in shortage situations, the top-priority use of water resources is for human consumption and animals;
IV - the management of water resources should always support multiple water uses;
V - the river basin is the territorial unit for the implementation of the National Water Resources Policy and the activities of the National Water Resources Management System;
VI - the management of water resources should be decentralised, and include the participation of the Government Authorities, users and communities.

EC Country Environmental Profile

This description is based on the six page summary of the CEP from 2005, annexed to the Country Strategy Paper. The CEP summary reviews the lessons learned from EC engagement in the forest protection pilot project and makes recommendations for it to be continued and broadened.. The summary then identifies three main intervention biomes: Amazon, Cerrado and Mata Atlantica.
In the description of those three biomes, the role of water managment is clearly emphasised. IWRM is not mentioned specifically, but water resource management is recommended as a key sector for intervention for the EC.
No more details about water-related issues are available in this summary, nor is there a description of the institutional set-up for natural resource management, a description of environmental problems or trans-boundary water issues.

Brazil's National Development Plan and Water Strategy

The national development plan 2004-2007 PPA - "Plano Brasil de Todos" identified several dimensions for actions and objectives. [21]:

a) Social Dimension: Here, a reference is made to better infrastructure services like sanitation.

b) Economic Dimension: This dimension includes investments in the agricultural sector, modernising the hydrological infrastructures and energy provision.

c) The Regional Dimension tackles land-use planning, regional cohesion, reducing pressure from urbanisation also on the environment, local development including sanitation.

d) The Environmental Dimension talks about the need for sustainability, the link between development and a healthy environment, sustained ecosystem services, natural resource protection and management, air and water quality, river protection and environmental education.

e) The Democratic Dimension includes governance issues, anti-corruption measures, a strong civil society, inclusion of all population groups into the decision-making process etc.

[19] Tearfund report: SEPARATE STREAMS? Adapting water resources management to climate change. 2008.
[20] See ANA (national water authority) website: http://www.ana.gov.br/ingles/waterPolicy.asp
[21] Original in Brasilian Portuguese, summarised by the author.

Box: GWP analysis of links between development strategies and IWRM[22]

Linking water to national development priorities in Brazil
Balanced regional development is a high priority in Brazil, and the Secretariat of Hydraulic Infrastructure in the Ministry for National Integration has special responsibilities to identify opportunities through which water resources can contribute to Brazil's regional development.
The provision of water for both domestic needs and in support of production was identified as one strategy that could contribute to this goal and the important goal of poverty reduction. As a result, new programmes have been established at national level and substantial resources have been allocated to this activity. In addition, the country's National Development Plan includes a series of water management activities to address poverty and development in different regions of the country.

EC Strategy and priorities for 2007-13

As an emerging economy, ODA is not key for Brazil's development. EC bilateral co-operation funds total an average of approximately €10 million a year and thus the EC does not contribute enough to have a decisive impact on the country's environmental, social and economic situations.
To address Brazil's development challenges, the EC plans to build on existing sectoral dialogues, and support small-scale initiatives or "soft" measures that could have a positive multiplier effect.
The range of possibilities is vast and is narrowed down by the adoption of annual Action Plans jointly agreed between the EC and Brazil.

Existing sectoral dialogues can roughly be classified into three categories, on:

1. social issues (including the sectoral dialogues on social and global social issues);

2. economic issues (including the dialogues on bilateral trade and trade-related issues) and

3. Environmental issues (including exchange of information on EU environmental laws)

The two main priorities of EC assistance identified in the 2007-2013 CSP are 1) enhancing bilateral relations; and 2) promoting the environmental dimension of sustainable development. An indicative allocation of € 61 million has been earmarked in the period 2007-2013. The development co-operation strategy will be defined in two National Indicative Programmes, one from 2007 and 2010 (covering 65% of the resources), the other from 2011 to 2013 (covering 35%).

Priority 1 - Enhancing bilateral relations 70 %: 42.7 Mio €;

Priority 2 - Promoting the environmental dimension of sustainable development 30 %, 18,3 Mio €.
The specific objectives of priority 2 will be:

- To curb deforestation;
- To prevent loss of biodiversity;
- To reduce carbon emissions due to deforestation
- To create income and added value in local communities, and thus improve living conditions of indigenous people, traditional populations and rural poor in general.
- To improve governance in natural resource utilisation

[22] http://www.gwpforum.org/gwp/library/TEC_Policy_Brief_6.pdf

Action on this priority should lead to the following results:

- Reduction in annual deforestation rates;
- Increased income for rural poor in target regions.
- Establish and implement agreed and sustainable land use planning strategies;
- Better respect of the rule of law in forest areas;
- Increase in sustainable production and creation of local value;
- Improvement of the local management capacity for sustainable production;
- Availability of new marketing channels;
- Increased applied research for the above mentioned activities.

Summary: Integration of IWRM

There is no direct reference to the relationship of EC priorities to IWRM, although there are multiple links between EC priorities and the water sector. Both of the EC priorities include water and specially mention water issues.
A dialogue about the Water Framework Directive is envisaged – WFD being an example of IWRM at river basin level in Europe. Brazil's national development plan and the EC response to it again mentions water issues and the management of natural resources without referring to IWRM specifically.
A link between poverty and water is made, but remains general.
The Brazilian national water strategy is more specific and includes a majority of principles of IWRM, without labelling this approach IWRM. Overall, a stated commitment for the integration of IWRM in EC priorities would clearly respond to the objectives and activities envisaged.

Indicator for integration	**Comment for Brazil**
A reference to IWRM is made for all water-related investment priorities at EC strategic level.	Not in the EC documents.
National development strategies are referring to IWRM for all water-related goals and objectives.	Not specifically.
Links between water supply, sanitation and environmentally sustainable water resource use are reflected in development (or water) plans.	Not in the EC documents.
Policies, laws and regulations are amended or developed to be used for IWRM implementation actions. This governance process is eligible for support.	Envisaged for forest sectors specifically.
A multi-stakeholder (national or international) river basin or national water management body takes a leadership role and is eligible for support.	Amazonian Co-operation Organisation OTCA exists, has been supported by EC.
Trans-boundary co-operation such as water-sharing agreements or joint protected areas is eligible for support.	Potentially, under the LA regional programme.
Education, training, awareness-raising and capacity-building programmes are foreseen and eligible for support.	Envisaged, but not linked to IWRM specifically.
Appropriate impact assessment procedures (EIA, SEA) in place and a prerequisite for EC support.	Stated in CSP.
Sites of biodiversity, social, cultural or economic importance and linked to water are being protected or rehabilitated and those actions are eligible for support.	Envisaged, but not linked to IWRM specifically.
Natural water infrastructure (such as headwaters, wetlands, floodplain areas etc) are being recognised as important service-providers and protected or rehabilitated. Such actions are eligible for support.	Envisaged, but not linked to IWRM specifically.
Planning of reducing impact of natural disasters (floods, droughts,	Envisaged, but not

water shortages) through IWRM application. This is eligible for support.	linked to IWRM specifically.
Strategies to reduce pollution of water bodies (agriculture, waste-water, industrial pollution) through IWRM application. This is eligible for support.	Envisaged, but not linked to IWRM specifically.

6.1.2. Peru

Water situation in Peru[23]

Peru has a large amount of available water resources, with 106 river basins and a per capita availability of 68,321 cubic meters (m^3) in 2006.
The Andes divide Peru into three natural drainage basins:
-Pacific basin (279,000 km²),
-Atlantic basin (959,000 km²) and
-Lake Titicaca basin (47,000 km²).
-Domestic consumption accounts for 7% of water withdrawals in Peru.
-80% of all water is used for irrigation, but is often lost due to inefficient irrigation systems.

The gradual decline in Peru's water quality is due to the release of untreated effluents from mining, industries, municipalities, and agriculture. This pollution poses problems for irrigation and the cost of potable water supplies. Ineffective irrigation has generated salinisation and drainage problems in 3,000 square kilometres of the coastal valleys (of a total irrigated area of 7,360 km²), reducing these lands' productivity and the quality of Lima's urban water supply. Drainage problems are also affecting 1,500 km² in the Amazon region. In the highland and Amazon areas, excessive deforestation due to agriculture is causing erosion and soil degradation. In 2006, 72% of Peru's total electricity generation (27.4 TWh) came from hydroelectric plants. The effects of climate change in Peru can be seen in more extreme weather conditions such as droughts and floods and the retreat of Andean glaciers.

In 1996 the Government implemented a National Wetlands Conservation Strategy aimed at increasing the amount of mangroves, estuaries, and lagoons under protection.
The Amazonian Co-operation Treaty, which includes Peru, has been strengthened after the establishment of its permanent Secretariat in Brasilia and its development into the Amazonian Co-operation Organisation, OTCA, a process also supported by the EU. The Lake Titicaca Authority is a bi-national regulating body (Peru – Bolivia) that seeks to regulate the conservation of resources found in the lake's basin.
In 2004, the Peruvian Government proposed a National Water Resources Strategy.

The objectives are:

- Institutional renovation and a clear legal framework to include:

  (i) a resolution of current disparities between the Water Law and the Natural Resources Law, and transfer of irrigation system operation and maintenance to River Basin Authorities, promoting public participation in decision-making processes; and

  (ii) Institutional development strategies that formalise water and pollution rights and establish a comprehensive tariff system.

- Integrated Management of Water Resources addressing both water supply and demand, taking into consideration environmental, social and economic factors.

- Increased Quality of Water Resources with a conservation initiative for upstream water resources aimed at decreasing sedimentation.

[23] The information in this chapter is mainly derived from a WIKIPEDIA article on Water Management in Peru.

- Disaster Management and Mitigation including consistent weather monitoring, reforestation in strategic upstream areas, water channelling, and improved urban planning preventing settlements in high-risk areas.
- Capacity Building and Water Culture and education programmes about the economic, social, and environmental value of water resources.
- Water Resources Information System strengthening of networks that monitor water quality and quantity; making accurate information publicly available

EC Country Environmental Profile

The CEP summary[24] mentions water pollution as one of the serious environmental problems in Peru. It also emphasises the link between poverty and unsustainable natural resource use and that those problems can only be solved in an integrated approach.
There is a short paragraph describing water issues, water abstraction, water pollution sources, the irrigation problem and the inefficient management of water resources through a variety of un-co-ordinated authorities at national and local level.
The development of the National Water Resources Strategy is mentioned with the potential to improve water management.

The following recommendations for EC interventions can be found in the summary:

- Introduction or reinforcement of the concept of integrated and sustainable natural resources management rather than the limited concept of environmental conservation.
- Support to decentralised environmental management through institutional strengthening at regional and local levels.
- Qualitative and quantitative improvement of environmental education.
- Participation in rural integrated river basin management programmes (in connection with the European Water Initiative – EUWI).
- Support to the national initiative to establish a ministry of environment.

Peru's National Development Plan

The Peruvian International Co-operation Agency (APCI) has produced two key documents laying down the Peruvian government's guidelines for international co-operation: the National Policy for International Co-operation and the Annual Plan for International Co-operation.
These documents establish four strategic areas in which assistance from donors can complement tasks carried out by the Peruvian state:

a) Human security, contributing to secure universal access to drinking water and sanitation, as well as eliminating all forms of exclusion and discrimination;

b) governance, contributing to a democratic, transparent and efficient state, guaranteeing universal access to justice and assisting the decentralisation process.;

c) Human development, through universal access to quality education and improved health and nutrition;

d) sustainable competitiveness, through the promotion of national competitiveness, appropriate work conditions and sufficient work opportunities, sustainable use of natural resources and the protection of the environment, scientific / technological development and integration of Peru in the world economy

[24] Again, only a 6 page summary of the environmental profile is available for analysis. Additional to this, there is the CEP for the Andean countries available in English, but it talks almost exclusively about Bolivia.

EC Strategy and priorities for 2007-13[25]

EC proposal for interventions in two principal sectors:

1) Support for modernisation of the State, strengthening good governance and social inclusion

2) Support for integrated social development in specific regions and strengthening social cohesion

Under the second sector, the following are envisaged:

a) Productive Activities:
Depending on the geographical area selected the EC could promote productive investment to generate jobs and underpin human resource development. These efforts could be targeted, for example, at crafts, small-scale agro-industry, the organisation and incorporation into the market of farmers, rural roads and productive infrastructure, aquaculture, tourism, etc.

b) Health (reproductive health, prevention, etc.)

c) Improving basic water and sanitation services:
Along the lines of the European Water Initiative which
Prioritises water and sanitation in poverty alleviation and sustainable development projects, support will be given to access to and the quality of basic services and sanitation in the selected geographical area.

d) Environment:
For the last few years Peru has made efforts to strengthen effective management of the environment, culminating in the establishment of the National Environmental Management System and approval of the General Environment Law.
These measures seek to reduce the continuing fragmentation, centralisation and poor performance by national environmental authorities. Based on the principle of subsidiarity, support to local populations is considered essential in matters relating to their management of natural resources, such as water management and quality, river basin management and reforestation, solid waste, co-administration of protected areas and dealing with environmental contamination issues and damage caused by economic activities, especially mining and the use of hydrocarbons.

The EC Andean Regional Strategy (Peru and Bolivia are eligible) has three priorities:
Regional Integration, Social and Economic Cohesion and the Fight against illicit drugs.
Due consideration to the environment will be given when promoting regional economic integration and trade, in terms of both the impact such projects could have on the environment and of raising awareness of sustainable development. This definition allows co-operation activities to cover a wide variety of sectors including in particular the rights of indigenous peoples, employment, cultural industries, gender and the environment. One specific priority under the social cohesion theme is to reinforce positive synergies between social cohesion and environmental protection by integrating sustainable natural resource management into projects aimed at poverty reduction.

[25] Please note here, that the CSP for Peru was not available in full length – the indicative programme was not complete and the annexes were missing.

Summary: Integration of IWRM

There is no direct reference to IWRM in EC priorities, although there are multiple links between EC priorities and the water sector. Both of the EC priorities include water and specially mention water issues. Co-operation along with EUWI is mentioned, although EUWI is not a financial instrument in itself.
The national development plan and the EC response to it again mention water issues, sanitation, environmental problems and the management of natural resources without referring to IWRM specifically. A link between poverty and water is made, but this link is specifically stated only in the CEP. The national water strategy is more specific and includes the principles of IWRM, referring specifically to IWRM in one paragraph.
In general, the EC could build its response strategy in the water sector more clearly on IWRM principles. This would respond to the objectives and activities envisaged as well alignment with the government's national water strategy where reference is made to IWRM as a guiding principle.
The clear commitment to approach water resource issues in the IWRM framework is lacking at this level of EC planning and strategic documents.

Indicator for integration	**Comments for Peru**
A reference to IWRM is made for all water-related investment priorities at EC strategic level.	Not in the EC documents.
National development strategies are referring to IWRM for all water-related goals and objectives.	Exists.
Links between water supply, sanitation and environmentally sustainable water resource use are reflected in development (or water) plans.	Not in the EC documents.
Policies, laws and regulations are amended or developed to be used for IWRM implementation actions. This governance process is eligible for support.	Envisaged for environment in general.
A multi-stakeholder (national or international) river basin or national water management body takes a leadership role and is eligible for support.	Amazonian Co-operation Organisation OTCA exists, has been supported by EC.
Trans-boundary co-operation such as water-sharing agreements or joint protected areas is eligible for support.	Potentially, under the LA regional programme.
Education, training, awareness-raising and capacity-building programmes are foreseen and eligible for support.	Envisaged, but not linked to IWRM specifically.
Appropriate impact assessment procedures (EIA, SEA) in place and a pre-requisite for EC support.	Stated in CSP.
Sites of biodiversity, social, cultural or economic importance and linked to water are being protected or rehabilitated and those actions are eligible for support.	Not envisaged in EC documents.
Natural water infrastructure (such as headwaters, wetlands, floodplain areas etc) are being recognised as important service-providers and protected or rehabilitated. Such actions are eligible for support.	Not envisaged in EC documents.
Planning of reducing impact of natural disasters (floods, droughts, water shortages) through IWRM application. This is eligible for support.	Envisaged, but not linked to IWRM specifically.
Strategies to reduce pollution of water bodies (agriculture, waste-water, industrial pollution) through IWRM application. This is eligible for support.	Envisaged, but not linked to IWRM specifically.

6.1.3. Bolivia

Water situation in Bolivia[26]

According to the UN World Water Development Report 2003, Bolivia ranks number 16 among 180 Countries surveyed, as regards abundance of water resources. According to the FAO,
-the average annual rainfall amounts to 1 258,86 km3, while
-total internal renewable water is 303,53 km3,
-groundwater produced internally 130 km3 and surface water 277,41 km3.
Bolivia's water and sanitation coverage has greatly improved since 1990 due to a considerable increase in sectoral investment. However, the country continues to suffer from what happens to be the continent's lowest coverage levels as well as from low quality of services.

There have been violent conflicts about water management in recent times, for instance in Cochabamba, between proponents of private versus public management approaches. In terms of water quality, Bolivia is placed 67 of 122 in the UN World Water Report (the urban population in general does not have good drinking water and the majority of rural population consume unsafe water). Many of the rivers and lakes and also subterranean water, close to the main cities, are seriously contaminated by waste water, especially from industries.

Effects of climate change are now very noticeable in the Andes, particularly the reduction of glaciers and perceived changes in the traditional patterns of rainy and dry seasons.
In Bolivia, Peru and Ecuador there are concrete data on the shrinking of glaciers. Many irrigation systems are ultimately fed by glaciers and help to support agriculture through the dry seasons.
A desertification process is going on in the Titicaca Lake basin. Average annual rainfall is on the decrease.

The government considers irrigated agriculture as a major contributor to "better quality of life, rural and national development" and is undertaking a major institutional reform in the sector including the creation of a National Irrigation Plan. Bolivia has an irrigated area of approximately 2,265 km³ or about 11% of the total agricultural land of 21,000 km³.
There are about 5,000 irrigation systems in Bolivia, most of them located in the South and South-western areas (Valles and Antiplano). Overall efficiency of irrigation systems varies from 18-30% in traditional systems to 35-50% in improved systems.

As regards the water policy framework, the State presented a draft National Water Basin Programme in March 2005. One of the first measures implemented by the Morales Government was the creation of a new Ministry of Water, which includes a Vice-Ministry for water basins. The above-mentioned National Water Basin Programme will be further developed towards a national policy on water basins, focusing on the decentralised and participatory management of environmental issues and prioritising the social dimension of basin development plans.

Morales' administration is in the process of developing water resources management in Bolivia under the framework of the Policy known as "Agua para Todos." Particularly the government is aiming at:

- establishing a sustainable, participatory, and integral water resources management through the Water Resources Management National Strategy, River Basin National Plan and Water Sector Information Program
- protecting ecosystems through a Desertification Prevention Plan
- increasing civil society collaboration through a Co-ordination Mechanisms Strengthening Plan.

The Water Ministry, the national water authority, created in 2006 is responsible for planning, implementing, monitoring, evaluating, and funding plans and policies for water resources management.

[26] Information of this chapter is mainly derived from the Andean CEP.

It consists of three vice ministries:

- irrigation
- basic services
- River basin and water resources.

At the regional level, and according to the Administrative Decentralisation Law, the prefectures are responsible for water management and conservation of water resources, including integrated water resources management under a river basin management approach. At the local level, the municipalities are responsible for water management and development inside its jurisdiction according to the Municipalities Law. The Interinstitucional del Agua (CONIAG), created in 2002 aims to create a forum for government, social and economic organisations to agree on legal, institutional and technical aspects related to water resources management.

EC Country Environmental Profile[27]

Soil and water contamination are mentioned as the most pressing environmental problems of Bolivia. Water pollution stems from two sources:
Mining in the eastern part of the country and agricultural residues in the west of the country while the lack of waste-water treatment puts additional pressure on the water bodies. According to the CEP summary, while the laws and regulations for sustainable management of natural resources are in place, the application of those laws is weak.
The government is also not giving priority to environmental problems at the moment and very little funding is available for environmental actions.
The summary includes the key environmental regulations and lists international conventions to which Bolivia is a signatory, including Ramsar and the Convention on Biodiversity. Finally, recommendations are given:

- Use an integrated ecosystem approach for natural resources and planning
- Prioritise the enforcement of municipal waste-water treatment
- Integrate environmental concerns into all other sectors
- Invest in environmental education and awareness-raising
- Establish conflict-prevention mechanisms in natural resource use
- Establish bi-lateral or multi-lateral water body management authorities

Bolivia's National Development Plan and Water Strategy

In June 2006, the Government presented its 2006-2010 National Development Plan (NDP), which aims to reduce poverty and create a more inclusive society. The four overall objectives that Bolivia intends to achieve by 2015 with the help of the anti-poverty strategy are:

– To reduce poverty by at least 22 percentage points (from 63% to 41% of the population)

– To reduce extreme poverty from the present 37% to 17%

– To increase life expectancy from 62 to 69

– To increase the population that has completed eight years of primary education from 51% to 67%

[27] The CSP for Bolivia contains a 10 page summary of the CEP in Spanish. Additional to this, there is the CEP for the Andean countries available in English.

The strategy targets the following main priority areas for measures towards achieving the objectives:

1) Increased employment and income opportunities

2) Capacity building

3) Increased safety and protection for the poor

4) Promotion of social integration and participation and the following horizontal areas:

I) Equal opportunities for indigenous peoples and other ethnic groups

ii) Equality between women and men

iii) Sustainable use of natural resources

Analysis of past EC assistance to the Bolivian water sector[28]

The EC's investment in the water sector to date has demonstrated qualified support for national policies and legal instruments in accordance with the principles of IWRM. The impression is that while most people are aware of the importance of IWRM, there is neither the financial, nor the political will to rigorously apply its principles.
The EC's support to the water supply sector at project level has not been able to contribute to the adoption and implementation of IWRM into the planning and implementation of water service delivery.

These experiences, and the views and opinions of other actors engaged in the sector suggest the following:

• Projects are being implemented with scant regard to available water resources

• The few initiatives that are applying IWRM are not getting sufficient support from Government;

• Government has neither the political will nor a sufficiently strong mandate to regulate and limit Exploitation of the country's water resources, particularly from mining; and,

• Applying a sector wide approach to development, the EC will have only limited opportunity to influence the IWRM debate.

Although there are a number of positive signs in Bolivia, EC support to the water supply sector at project level has not contributed to the adoption and implementation of IWRM to any great degree.
The thematic evaluation of the Water and Sanitation Sector of EU also looked at Bolivia and concluded that;

• Projects are being implemented with scant regard to available water resources;

• Few initiatives that are applying IWRM are getting sufficient support from Government; and,

• Government has neither the political will nor a sufficiently strong mandate to regulate and limit exploitation of the country's water resources, in particular from industry and agriculture.

Being land locked, Bolivia has a number of major rivers rising and flowing within its borders, and there is increased awareness as to the strategic importance of this geographical fact. There is urgent need for a comprehensive IWRM plan.[29]

[28] Thematic Evaluation of the Water and Sanitation Sector. Synthesis Report 3: Country Note on Bolivia. EuropeAid, July 2006.
[29] Thematic Evaluation of the Water and Sanitation Sector. Synthesis Report. EuropeAid, July 2006, page 59.

EC Strategy and priorities for 2007-13

Taking full account of the NDP the EC has drawn up the following response strategy for co-operation with Bolivia:

1. Generating sustainable economic opportunities for decent work in micro-enterprises and small and medium-sized enterprises (SMEs)

2. Supporting Bolivia's fight against illicit drug production and trafficking

3. Sustainable management of natural resources, in particular through support for the integrated management of international river basins.

The third priority acknowledges that Bolivia's abundant natural heritage and biodiversity are threatened mainly by rapid deforestation and water pollution. This situation has fuelled regional and sectoral conflicts, and causes uncontrolled migratory movements. In this context, the integrated management of river basins is a particularly important challenge.

The international nature of Bolivia's main basins means that such measures will contribute to the process of its regional integration with the other neighbouring countries. It will also give continuity to similar interventions that the EC has carried out in the past, through which valuable experience has been acquired.
In line with the integrated approach to the management of water resources, and in order to allow the EC's ongoing water and sanitation sector support programme to be brought to a successful conclusion, a final allocation of funds to that programme will be made within this focal sector.

Special emphasis will be placed on Bolivia's international river basins sharing experience gained in previous EC programmes. The programmes will be developed in accordance with the Integrated Management of Water Resources framework, with special emphasis on the problem of mining pollution particularly in the upper catchment areas..

General objective of this priority:
To enhance regional integration by increasing Bolivia's integration with neighbouring countries by means of dialogue and joint actions on the integrated management of shared river basins in the context of the integrated management of water resources. More specifically:

- To increase government capacity for the integrated management of water resources

- to promote the establishment of international river basin organisations that design and implement master plans to improve the living conditions of local inhabitants

- to strengthen dialogue and co-operation with neighbouring countries.

Interventions will focus on investments designed and prioritised by local communities and regional entities in line with national development strategy which views watersheds in a holistic manner. Considering that much of Bolivia's poverty is higher in rural areas and affects indigenous populations in particular, the sustainable and integrated management of water resources plays a key role in contributing to income generation and overcoming marginalisation and exclusion. Combining the conservation and sustainable use of natural resources with social and economic development of the poor is explicitly recognised as one of the major challenges to be addressed.

The Andean Strategy has been described for Peru, but Bolivia is also eligible for support.

Summary: Integration of IWRM

Bolivia can be considered as a good-practice case study for the integration of IWRM at the strategic programming level .
IWRM is mentioned as one of the key priority sectors, is linked to poverty alleviation, to international or trans-boundary catchment management, key deliverables like river basin plans are mentioned as objectives for support and water and sanitation support is programmed under an IWRM framework.

No assessment can be made for the implementation at this stage, but the strategic framework in Bolivia seems to hold promise for a successful and efficient implementation of IWRM. This might also be due to the fact that Bolivia was one of the case study countries for the EuropeAid evaluation on water investments of the EC and those key lessons learned could be integrated in the new programming period.

Indicator for integration	**Comments for Bolivia**
A reference to IWRM is made for all water-related investment priorities at EC strategic level.	Exists.
National development strategies are referring to IWRM for all water-related goals and objectives.	Exists.
Links between water supply, sanitation and environmentally sustainable water resource use are reflected in development (or water) plans.	Exists.
Policies, laws and regulations are amended or developed to be used for IWRM implementation actions. This governance process is eligible for support.	Yes.
A multi-stakeholder (national or international) river basin or national water management body takes a leadership role and is eligible for support.	Amazonian Co-operation Organisation OTCA exists, has been supported by EC. Other bi-lateral management bodies to be strengthened.
Trans-boundary co-operation such as water-sharing agreements or joint protected areas is eligible for support.	Envisaged.
Education, training, awareness-raising and capacity-building programmes are foreseen and eligible for support.	Not clear, but highly probably.
Appropriate impact assessment procedures (EIA, SEA) in place and a pre-requisite for EC support.	Stated in CSP.
Sites of biodiversity, social, cultural or economic importance and linked to water are being protected or rehabilitated and those actions are eligible for support.	Not clear
Natural water infrastructure (such as headwaters, wetlands, floodplain areas etc) are being recognised as important service-providers and protected or rehabilitated. Such actions are eligible for support.	Not clear
Planning of reducing impact of natural disasters (floods, droughts, water shortages) through IWRM application. This is eligible for support.	Envisaged and linked to IWRM.
Strategies to reduce pollution of water bodies (agriculture, waste-water, industrial pollution) through IWRM application. This is eligible for support.	Envisaged and linked to IWRM.

6. 2. Asian case studies

6.2.1 Vietnam

Water situation in Vietnam[30]

About two thirds of Vietnam's water resources originate outside the country, making Vietnam Vulnerable to water resource decisions made in upstream countries.
Vietnam is ranked low in Southeast Asia's water availability per capita. Irrigation constitutes the largest part of the demand on water resources. In 2001 water consumption for agriculture was about three times higher than for other water uses.
Most dams and reservoirs in Vietnam have been constructed for multiple purposes, including flood control, irrigation, hydropower, water supply and other flow management uses. Most are more than 20-30 years old. There are about 3600 reservoirs of various sizes. In addition, sudden releases may cause flooding problems, river erosion downstream and other effects on the water ecosystem.
Trends in the country's nine river basins indicate good upstream water quality, while downstream sections are often polluted. Groundwater quality is showing some contamination. Water supply falls short of demand in urban and rural areas due to inadequate infrastructure and confusing jurisdictional responsibilities.

Insufficient wastewater treatment and waste management from both domestic and industrial sources are causing severe problems of water and air pollution. Wastewater and run-offs from urban Areas, industrial centres, and agricultural land, pollute surface, ground, and coastal waters of Vietnam. Untreated sewage from households, effluents from industrial enterprises and seepage from garbage dumps or landfills are the main causes of organic pollution of surface water.
Ninety percent of the enterprises established prior to 1995 have no wastewater treatment facilities, and use obsolete equipment. Most of the collected waste in Vietnam is disposed in dumps and open landfills, and there is no separate treatment for hazardous waste.
Rapid urbanization and industrialization in the interior, port and marine transport development, expansion in coastal tourism, and rise in oil spills contribute to the deterioration of coastal water quality.

The water sector has no overall integrated strategy and action plan at the national or regional basin level; however, strategies and action plans exist for a number of the sub-sectors. But drafting of a National Strategy on Water Resources Management up to 2020 is in discussion.
According to the Law on Water Resources, the management of water resources, which includes exploitation and protection, will be implemented within a river basin.
In Vietnam, most provinces belong to a river basin but collaboration is often weak between provinces. Three River Basin Management Boards of Red-Thai Binh rivers, Dong Nai river and Cuu Long river were established in 2001.
They are responsible for co-ordinating and advising the government on water resources management within these basins. However, water resources management is dominated by local interest rather than an integrated and collaborated manner for the development and sustainability of a river basin as a whole.[31]

EC Country Environmental Profile

Again, only a 7 page summary is available publicly as annex to the CSP. The summary briefly states the main environmental problems, has a short paragraph about the water situation in Vietnam and goes on to talk in more detail about the legal and institutional framework for the environment.
The Government of Vietnam's National Strategy for Environmental Protection (NSEP) to the year 2010 and Vision toward 2020 recognises that there is a rapid deterioration in environmental quality and natural resources.
In the last five decades, Vietnam has witnessed significant destruction of its natural resources, including an increasing rate of deforestation, biodiversity loss, and rapid deterioration in environmental quality. High

[30] Information is derived from the CEP for Vietnam.
[31] See: WATER RESOURCES MANAGEMENT IN VIET NAM, by By Truong thi Quynh Trang, 2005. http://www.khmerstudies.org/events/Water/Quynh%20Trang%20Nov%202005.pdf

urban migration rates are causing environmental problems such as unmanaged landfills, transport-related air pollution, untreated hazardous waste, and raw sewage flowing in open channels.
In connection with plans for economic renovation, the Government of Vietnam has put in place a sound legal framework for environmental protection and natural resources conservation. The Ministry of Natural Resource and Environment (MONRE) is Vietnam's central environmental authority.
Vietnam has also ratified the Ramsar convention.

Recommendations given in the summary:

- Investment projects should undergo Social and Environmental Impact Assessments.

- Environment, poverty and sustainable livelihoods should be streamlined into EU-funded programmes. Possible future EC support of this kind might include:

  (1) Promoting energy efficient and non-polluting technology with provision of better energy services for the poor;
  (2) Regional integration and co-operation in river basin management, biodiversity conservation, and wildlife trade. This could enable access to good quality natural resource and environmental services including forest, soil and water in supporting the livelihood of the poor as a contribution to the poverty reduction.

- Promotion of certification modalities, such as the Forest Stewardship Council (FSC) and environmental quality control of goods and services, as well as the improvement of environment friendly production methods.

- Promoting the EU Forest Law Enforcement on Governance and Trade (FLEGT) in Vietnam.

- Supporting Vietnam to fulfil its obligations under Multilateral Environment Agreements (MEAs), within the context of supporting Vietnam's efforts to integrate into the international economy.

Vietnam's National Development Plan

The strategic goals of the Socio-Economic Development Plan (SEDP) 2006-2010, are to:

• bring Vietnam out of underdevelopment;
• improve people's material, cultural and spiritual life;
• lay the foundations for a modern-oriented industrialised country by 2020;
• enhance human resources, scientific and technological, infrastructure, economic, defence, and security potentials;
• establish the institutions of a socialist-oriented market economy;
• enhance employment creation, skills and labour productivity;
• heighten the status of Vietnam on the international arena.

The poverty reduction strategy focuses on poverty reduction and other development outcomes, and sets down a reform agenda structured around three main pillars: completion of the transition to a market economy, ensuring social inclusion and environmental sustainability; and building modern governance. Moreover, Vietnam's Agenda 21 states that the protection and improvement of environment quality are to be considered as inseparable factors from the development process.

EC Strategy and priorities for 2007-13

The EC-Vietnam strategy for 2007-2013 is concentrated on:

(i) Support for Vietnam's Socio-economic Development Plan (SEDP) and

(ii) Support for the Health Sector.

Adequate mainstreaming of the environment is also part and parcel of the SEDP-related policy dialogue. The pilot strategic environmental assessments for selected sectors which are conducted under the poverty-reduction strategy will be further expanded and become the general rule, in addition to more specific requirements in the legislative and capacity-building fields. In relation to the health sector, environmental issues such as access to safe water and treatment of medical waste will be mainstreamed, where appropriate.
Finally, in the context of supporting Vietnam's efforts to integrate into the international economy, consideration could be given to supporting Vietnam fulfil its obligations in the Multilateral Environment Agreements (MEAs).

EC-ASIA co-operation
The EC ASIA indicative programme 2007-10 has identified co-operation in the field of environment and sustainability in Asia. This tackles in particular the region's increasing consumption of natural resources, including energy, leading to rising greenhouse gas emissions, and environmental degradation due to unsustainable production and consumption patterns and processes, including severe biodiversity loss and deforestation, waste, mismanagement and misuse of chemicals and hazardous substances, and air and water pollution.
The programme will address Sustainable Production and Sustainable Consumption in an integrated approach. Activities will preferably cover both production and consumption. The main target groups for programme activities will be manufacturing industries, especially SMEs, across Asia with a view to minimising their consumption of natural resources, reducing pollution at source, and improving the quality and extending the lifecycle of products produced.

Summary: Integration of IWRM

In the case of Vietnam, integration of IWRM in EC programmes at this stage is weak. As the water sector is not a priority sector per se but seen as one of several sectors for poverty alleviation, the link between water and health is stated more clearly than the link between water and poverty.
The strategic documents do refer to sustainability, to the need to consume fewer natural resources – but there is no mention of management of natural resources or integrated management of water resources.
There is a reference to SEA however and to multilateral environmental agreements.
This provides an opportunity for the integration on IWRM into the programme.
The use of SEAs is a recommended tool to look more holistically across support for economic development and would in theory highlight water management needs amongst other things.
The same applies for the support for MEAS, which might include the Ramsar Convention.
Once the strategy is broken down into action programmes, a more concrete support to the IWRM and the water sector via sector support or SWAP could be possible.

Indicator for integration	Comment for Vietnam
A reference to IWRM is made for all water-related investment priorities at EC strategic level.	No
National development strategies are referring to IWRM for all water-related goals and objectives.	Not applicable as there is no comprehensive water strategy.
Links between water supply, sanitation and environmentally sustainable water resource use are reflected in development (or water) plans.	For environment as a whole, less so for water.
Policies, laws and regulations are amended or developed to be used for IWRM implementation actions. This governance process is eligible for support.	Not clear.

A multi-stakeholder (national or international) river basin or national water management body takes a leadership role and is eligible for support.	Not clear.
Trans-boundary co-operation such as water-sharing agreements or joint protected areas is eligible for support.	Not clear.
Education, training, awareness-raising and capacity-building programmes are foreseen and eligible for support.	No clear.
Appropriate impact assessment procedures (EIA, SEA) in place and a pre-requisite for EC support.	Stated for relevant investments.
Sites of biodiversity, social, cultural or economic importance and linked to water are being protected or rehabilitated and those actions are eligible for support.	Not clear
Natural water infrastructure (such as headwaters, wetlands, floodplain areas etc) are being recognised as important service-providers and protected or rehabilitated. Such actions are eligible for support.	Not clear.
Planning of reducing impact of natural disasters (floods, droughts, water shortages) through IWRM application. This is eligible for support.	Not clear.
Strategies to reduce pollution of water bodies (agriculture, waste-water, industrial pollution) through IWRM application. This is eligible for support.	No

6.2.3 Cambodia

Water situation in Cambodia[32]

Cambodia has considerable water resource potential, with abundant surface water and aquifers and a high level of seasonal rainfall. In spite of the abundance of water sources, many areas in the central plains and plateaus lack water in the dry season and are therefore dependent on unreliable rainfall patterns.

These water sources are divided into three systems:
(i) the Mekong River System;
(ii) the Tonle Sap River System; and
(iii) the river system flowing into the Gulf of Thailand.

Cambodia's unique hydrological regime is determined by the Mekong River and Tonle Sap Great Lake systems. As the Tonle Sap Great Lake fills, both from the Mekong River and local inflow, it increases in area from about 3,000 km² at the end of the dry season to about 16,000 km² at the end of the wet season. This unique hydrological system is central to the national economy that supports fisheries, agriculture and water transportation.

Groundwater is being exploited at ever-increasing rates, particularly by shallow tube wells for community and household water supply, as well as for irrigation. In Cambodia, surface water, groundwater and rain water, are all major sources for drinking and other domestic purposes. During the rainy season, Cambodia receives a tremendous quantity of water to fill watercourses, wetlands, lowland areas, etc. During the dry season, people in most rural areas are faced with water shortages.

[32] Information was collected using the WEPA (Water and Environment Partnership in Asia) web-site: http://www.wepa-db.net/policies/state/cambodia/index.htm

The Ministry of Water Resources and Meteorology (MOWRAM) was established in 1999 as lead water sector agency. A comprehensive water sector assessment was conducted in 2001/2002 which led to (i) a National Water Sector Profile, (ii) a draft National Water Resources Strategy, (iii) a draft Strategic Plan for the Ministry of Water Resources and Meteorology (MOWRAM), and (iv) a draft National Water Resources Policy, and a draft Law on Water Resources Management. A Water Sector Roadmap was also completed in 2003 and updated in 2004. The National Water Resources Policy was approved in January 2004, and the Law on Water Resources Management is currently at the National Assembly awaiting adoption. A Strategic Development Plan for the Water Sector (2006-2010) has been drafted. Various other sectoral policies and strategies have been drafted or adopted, including the National Water Supply and Sanitation Policy (NWSSP), Urban Water Supply and Sanitation Policy, and a National Environmental Action Plan.

Under the National Water Resources Strategy and Strategic Development Plan for the Water Sector, A river basin approach to IWRM is envisaged and piloted in at least two to three major river basins. Institutional arrangements to implement IWRM have been made, improving co-ordination among many government ministries[33]:

- MOWRAM exercises overall responsibility for water management and conservation including IWRM.
- The Cambodia National Mekong Committee (CNMC) co-ordinates with the water-related Ministries and the Mekong River Commission (MRC).
- The framework and principles of IWRM will be adopted by MRC by the end of 2005 under the Basin Development Plan (BDP).
- CNMC has recently conducted several workshops on IWRM at the central, provincial and basin levels.
- The Ministry of Industry, Mine and Energy (MIME) provides drinking water supply to cities and towns
- The Ministry of Rural Development (MRD) provides clean water to rural areas
- The Ministry of Environment is in charge of wastewater treatment in cities and towns.
- Plans to establish The Basin Management Council and the Office of Basin Management are underway.

EC Country Environmental Profile

A very short, 4 page summary of the CEP is available as annex to the CSP. It briefly states the most pressing environmental problems, namely:

(1) Deforestation and biodiversity loss
(2) Over-fishing
(3) siltation
(4) over-use of pesticides
(5) Waste management, and
(6) Environmental problems related to the Mekong River.

The problems are described in more detail but only the water-related problems are summarised here. Unsustainable fishing is taking place in many areas, notably in Tonle Sap - Cambodia's largest lake - which supplies 40 percent of the country's fish protein. Fish stocks are diminishing rapidly. Over-fishing is a major concern, since inland fisheries contribute approximately 16 percent to GDP and at least 4 million people in Cambodia depend on inland fishing as their primary or secondary source of income and employment. Taking associated activities into account, this figure may increase to more than 50% of the entire population. In addition, most rural, many peri-urban and even urban households fish occasionally for household consumption and added income.

Environmental problems along the Mekong River: Floods, drought and damage from brine in the delta, and large fluctuations in flow between wet and dry seasons lead to large differences in water levels and a deterioration of water quality during parts of the year. In addition, actions by upstream countries that alter the hydrological cycle of the River Mekong and the annual flooding pattern are a potential threat to Cambodia's aquatic resources and habitats.

[33] See ADB paper on water management in Cambodia: http://www.adb.org/Water/Policy/consultations/CAM-ADB-Operations.pdf

Mainstream dams in China and over 6,000 dams constructed in the lower Mekong basin since the 1950's have reduced mean peak flood levels and changed water discharges, leading to a cumulative impact on river flow levels and fish migration.
The planned construction of dams in China, Laos PDR and Thailand and the proposed blasting of rapids by China are all factors which could threaten the very existence of the inland fisheries. Pollution of the Mekong River is also expected to worsen with advancing industrialisation.

There is no listing of international agreements or MEAs, nor is the environmental legal and policy framework described in detail. Apparently, the Cambodian approach to environmental management is an integrative one:
The Cambodian government's environmental policy starts from the premise that
Environmental and natural resource issues are interrelated with other problems, such as poverty and underdevelopment.
Consequently, environmental concerns are addressed from a cross-sectoral perspective: the government tackles environmental problems while at the same time targeting closely related problems like poverty, access to land and governance issues.

Cambodia's National Development Plan:

The coalition government formed in 2004 adopted the Rectangular Strategy for Growth, Employment, Equity and Efficiency as the framework for the country's socio-economic development.
Founded on good governance, peace, political stability, social order, macroeconomic stability, partnership and economic integration, the Rectangular Strategy focuses on critical development issues such as the enhancement of the agricultural sector, rehabilitation and construction of physical infrastructure, private sector development and employment generation, and capacity development and human resource development. The fourth pillar of the strategy reads: Promoting sustainable environmental management and use of natural resources.
The rectangular Strategy has a dedicated paragraph on water resources and irrigation management.
The national policy on water resources and irrigation is part of a broad programme to protect, manage and assure sustainable exploitation of both fresh and salt water resources while enhancing biodiversity and sustainability for equitable benefit to the public.

The focus is on:
- Providing the nation with clean and safe water
- Freeing the nation from water-related diseases
- Providing adequate water support for food security, economic activities and appropriate living standards
- Ensuring water resources and an environment free from toxic elements
- Enabling a supportive fisheries and ecological system

The government of Cambodia considers the National Strategic development Plan 2006-2010 (NSDP) as the single, overarching development strategy for pursuing prioritised goals and actions for the period 2006-2010. The NSDP has been framed as the operationalisation of the Rectangular Strategy, linking the vision in the Rectangular Strategy to concrete goals, targets and strategies.

EC Strategy and priorities for 2007-13:
All interventions within the bilateral programme will fall within the framework of the National Strategic Development Plan for Poverty Reduction (NSDP) for the period 2006-2010, prepared by the government in co-operation with development partners. The NSDP has the Cambodia Millennium Development Goals (CMDGs) as its overall target.

Focal Sector 1: Support to the National Strategic Development Plan (NSDP), through budgetary aid.

Focal Sector 2: Support to Basic Education, delivered by a sector-wide approach.

In the context of co-operation with Cambodia, along with the interventions planned under this Strategic Programme, the Commission intends to pursue thematic actions in a selection of areas, including the environment. This thematic programme could provide support along the following broad lines:
-working upstream on MDG7
-promoting environmental sustainability
-promoting implementation
-better integration by the EU
-strengthening environmental governance and EU leadership
-support for sustainable energy options in Cambodia.

In fact, thematic programmes have been designed to complement geographical programming and in the case of the ENRTP for example, to spend on added-value activities at a transregional or multi-country level that are not country specific. The thematic programme for the environment has a very small budget to deliver on these complementary activities and should not be used to replace interventions for environmental priorities at a national level (WWF comment).

See also the EC-ASIA programme described in the section for Vietnam above.

Summary: Integration of IWRM

Although 3 of 6 key environmental problems mentioned in the CEP are direct water problems, water is not a key sector for EC co-operation with Cambodia but there might be potential for integration of IWRM through the cross-cutting nature of environmental sustainability.
The national water strategy for Cambodia has specific objectives and institutional arrangements for integrating IWRM and ideally, these should be realised with the help of budget support from donors such as the EC.

Indicator for integration	**Comment for Cambodia**
A reference to IWRM is made for all water-related investment priorities at EC strategic level.	No
National development strategies are referring to IWRM for all water-related goals and objectives.	Yes
Links between water supply, sanitation and environmentally sustainable water resource use are reflected in development (or water) plans.	For environment as a whole, less so for water
Policies, laws and regulations are amended or developed to be used for IWRM implementation actions. This governance process is eligible for support.	Not clear
A multi-stakeholder (national or international) river basin or national water management body takes a leadership role and is eligible for support.	Not clear
Trans-boundary co-operation such as water-sharing agreements or joint protected areas is eligible for support.	Not clear
Education, training, awareness-raising and capacity-building programmes are foreseen and eligible for support.	No clear
Appropriate impact assessment procedures (EIA, SEA) in place and a pre-requisite for EC support.	Stated for relevant investments
Sites of biodiversity, social, cultural or economic importance and linked to water are being protected or rehabilitated and those actions are eligible for support.	Not clear
Natural water infrastructure (such as headwaters, wetlands, floodplain areas etc) are being recognised as important service-providers and protected or rehabilitated. Such actions are eligible for support.	Not clear
Planning of reducing impact of natural disasters (floods, droughts, water shortages) through IWRM application. This is eligible for support.	Not clear
Strategies to reduce pollution of water bodies (agriculture, waste-water, industrial pollution) through IWRM application. This is eligible for support.	No

6.2.4. Thailand

Water situation in Thailand[34]

Geographically, Thailand can be divided into 25 river basins. The average annual rainfall for the country is about 1,700 mm. The total annual rainfall of all river basins is about 800,000 million m³ of which 75 % of the amount is lost through evaporation, evatranspiration and the remaining 25 % (200,000 million m³) is in streams, rivers, and reservoirs.
Thus, the available water quantity is about 3,300 m³/ capita/year (Office of National Water Resources Committee, 2000).

Ground water is mainly recharged by rainfall and seepage streams. Aquifers yield a large amount of water throughout Thailand, with the exception of the Eastern region. The largest source of groundwater is found in the Lower Central Plain, particularly in Bangkok Metropolitan Region (BMR) and surrounding provinces, and is being used to meet the growing water demand (which doubled from 1990 to 2000). Agricultural run-off, coastal aquaculture, industrial effluents and domestic sewage are responsible for the pollution of groundwater in Thailand.
Also, the lack of an appropriate pricing policy is leading to over-exploitation of groundwater beyond sustainable yield levels. There is limited information on groundwater extraction rates, or the extent of contamination at the national level. Like many countries in Asia, increasing population, economical, agricultural and industrial expansion in Thailand are the major causes of poor water quality in various water sources, including surface water, ground water and sea water.
High loading of pollutants from human activities beyond the water resource carrying capacity contributes to degradation of water quality in the country.

The vision for sustainable water management has been set out by the Government of Thailand as follows[35]:
By 2025, Thailand is projected to have sufficient water of good quality for all users through efficient management, organisation and a legal system to ensure the equitable and sustainable use of its water resources with due consideration to the quality of life and participation of all stakeholders.

Following the development of this vision by a range of stakeholders, an action programme was developed. The introduction for this action programme reads:
The integrated water resources management principle has been incorporated into the water resources management process of Thailand.
The participatory approach is an important process for conducting river basin management and for building confidence.[36]

EC Country Environmental Profile

The summary of the CEP for Thailand is annexed to the CSP and has 3 pages.
It very briefly highlights the water resource situation and problems, gives an overview of the authorities dealing with the environment and gives recommendations. No detailed description of regulations, responsibilities or international agreements is given.
In Thailand, water demand promises to increase even further, but the potential for surface and groundwater development is limited and the efficiency of water storage is decreasing. Allocation
Of water does not conform to existing regulations, particularly due to the rapid increase in
Consumption for urban and industrial purposes.
In principle, Thailand has a relatively well developed policy to tackle environmental problems. In 2002, the Ministry of Natural Resources and Environment (MoNRE) was created in order to strengthen the institutional framework for the protection of the environment. Some environmental laws and regulations are

[34] Information of this paragraph was taken from the WEPA (Water and Environmental Partnership in Asia) website: http://www.wepa-db.net/policies/state/thailand/thailand.htm
[35] See FAO country report: Thailand country report on investment in water. No year. http://www.fao.org/docrep/005/ac623e/ac623e0m.htm
[36] See: Water Resources Management Strategies and Action Plans of Thailand. By the Water Resources Association. No year. http://www.unescap.org/esd/water/publications/water/wrs/85/10%20WRS85-Thailand.pdf

currently being revised and updated in order to provide adequate legal arrangements leading towards more effective and integrated resources and environmental management.

Recommendations given:

- To strengthen the capacity of local and provincial authorities in environmental management.
- To encourage replication of successful community initiatives in natural resource management
- To improve capacity of authorities to monitor and enforce environmental laws and regulations
- To transfer of environmentally friendly technologies that would facilitate trade relations between Thailand and the EU.

Thailand's National Development Plan

The national development plan lays out broad economic and development objectives:
- To strengthen the foundations for steady and sustainable economic growth.
- To improve Thailand's capacity for economic value addition and to enhance the country's competitiveness through the development of a knowledge-based economy.
- To further advance human development and to reduce poverty through continued social sector reform.
- To strengthen Thailand's economic linkages with the global economy through FTA negotiations in view of securing trade and investment benefits.

EC Strategy and priorities for 2007-13

The EC no longer sees its role as a donor of development assistance for Thailand, but rather as a facilitator of knowledge sharing and a partner for substantive policy dialogue on key sectoral issues. The Commission foresees an allocation of € 17 million for the period 2007 – 2013 to support activities in those areas:
- deepening the Thai-EC relationship in various areas of strategic importance and mutual Interest to both partners, with a particular focus on economic relations, scientific and technology co-operation as well as higher education and culture.

- Addressing specific capacity constraints crucial to advancing Thailand's national development agenda.

Cross-cutting issues: Activities pertaining to environment and natural resources management, including energy, will be promoted in view of strengthening the technical expertise and planning capacity of Thai institutions regarding the environmental aspects of the use, development and management of natural resources through co-operation with the EU public and private sector.
This thematic programme could provide support under the following broad lines: working upstream on MDG 7, promoting environmental sustainability, promoting implementation, better integration by the EU strengthening environmental governance and EU leadership, and support for sustainable energy options in Thailand.

But, as mentioned before, thematic programmes have been designed to complement geographical programming and in the case of the ENRTP for example, to spend on added-value activities at a transregional or multi-country level that are not country specific.
The thematic programme for the environment has a very small budget to deliver on these complementary activities and should not be used to replace interventions at a national level. (WWF comment)

Summary - integration of IWRM

In Thailand, integration of IWRM principles is weak for the focal sectors, but potentially stronger in the cross-cutting activities. At this stage of programming, water and sanitation does not seem to play a role for EC co-operation with Thailand. Although water shortage and pollution are mentioned as key environmental problems in the CEP, these are not reflected in the CSP.

Indicators for integration	Comment for Thailand
A reference to IWRM is made for all water-related investment priorities at EC strategic level.	No
National development strategies are referring to IWRM for all water-related goals and objectives.	Yes.
Links between water supply, sanitation and environmentally sustainable water resource use are reflected in development (or water) plans.	No.
Policies, laws and regulations are amended or developed to be used for IWRM implementation actions. This governance process is eligible for support.	Not clear.
A multi-stakeholder (national or international) river basin or national water management body takes a leadership role and is eligible for support.	Not clear.
Trans-boundary co-operation such as water-sharing agreements or joint protected areas is eligible for support.	Not clear.
Education, training, awareness-raising and capacity-building programmes are foreseen and eligible for support.	No clear.
Appropriate impact assessment procedures (EIA, SEA) in place and a pre-requisite for EC support.	Stated for relevant investments.
Sites of biodiversity, social, cultural or economic importance and linked to water are being protected or rehabilitated and those actions are eligible for support.	Not clear
Natural water infrastructure (such as headwaters, wetlands, floodplain areas etc) are being recognised as important service-providers and protected or rehabilitated. Such actions are eligible for support.	Not clear.
Planning of reducing impact of natural disasters (floods, droughts, water shortages) through IWRM application. This is eligible for support.	Not clear.
Strategies to reduce pollution of water bodies (agriculture, waste-water, industrial pollution) through IWRM application. This is eligible for support.	No

6.3 African case studies

6.3.3 Senegal

Water situation in Senegal[37]

The two main river basins (Gambia and Senegal rivers) are fed by high rainfalls in the Guinean mountain areas. Between 1990 and 2002, progress was made in
-the provision of sanitation (from 35% to 52% of the population now has access to sanitation) and
-for the provision of drinking water (from 66% to 72%).
A variety of actors under the national programme for drinking water are aiming to reach 100% of coverage for drinking water and 78% for sanitation in the country. Senegal is faced with major threats due to climate change: Higher risk of droughts, especially in the South, salinisation of surface water, coastal erosion. The availability of water to a great extent governs land use as well as health and impacts on most rural populations living at the subsistence level. It also affects the state of the Senegalese economy. Water supply in the country is erratic, dependent largely on rainfall that varies greatly in amount, distribution and frequency from year to year.

Senegal has four major rivers: Senegal, Sine-Saloum, Gambia and Casamance.

[37] This information is derived from the CSP and from the Global Water Partnership publication 2008.

Because of low rainfall and the high evaporation rate, there are practically no permanent surface bodies of significance except for the Lac de Guiers which is replenished by the floods of the Senegal River regulated by two dams.
A general decrease in rainfall over the past 30 years has also affected the flood volumes of the main rivers. As a result, large areas previously occupied by mangroves near the mouths of the Sine-Saloum and Casamance Rivers have been converted into salt ponds. This means less floodplain agriculture and rangelands, less water for fish breeding and production and decreased habitat for biodiversity.

Laws and regulations in the water sector used to be quite fragmented. With the support of the Global Water Partnership, work on water planning has built on the knowledge already in place through the creation of a Country Water Partnership (CWP) in 2002. The planning process involved regional workshops, a situational analysis and validation of the plan through a steering committee and multi-stakeholder platform. The water plan specifies seven priority programmes with timeframes and cost estimates over eight years. A national dialogue on water was a significant contribution as it raised awareness about IWRM and made the situational analysis more accessible to participants. The Framework for Action to achieve the Senegal water vision for 2025 includes the increase of knowledge on water resources management, the harmonization of the legislation on water, a better design of the institutional and organizational context in Senegal, and also capacity building in the water sector on the concepts of IWRM.[38]

EC Country Environmental Profile

The summary of the CEP is annexed to the CSP. It is not very detailed in the description of water problems, but emphasises the urgent situation of water resources in Senegal:
Groundwater resources in Senegal are estimated at 450 – 600 billion m3, but annual recharge is only at 3-4 m3. So the quantity of pumping groundwater is limited.
Senegal faces numerous water resource management challenges. The main ones relate to a lack of understanding of water management methods, incomplete data on water resource issues, and a lack of knowledge sharing and communication between stakeholders.
In addition, the frameworks for shared planning are insufficient and there is little institutional support, weak application of policy and legal instruments concerning water management, weak capacity to mobilise financial resources, and weak budget allocations for follow-up and maintenance of water infrastructure.
Frequent floods, increased water pollution, a growing level of water-borne diseases and an increase in the proliferation of aquatic weeds increase the sense of urgency for change. One major environmental problem is the Bay of Hann, where the whole river bay is polluted by industrial waste water and wastes.

Main threats to the water quality are:
- Toxic agricultural run-offs
- Overgrowing of water bodies
- Overexploitation of groundwater
- Eutrophication

No description of international agreements was given, neither was the management system for water described in detail in this summary. Additionally, no recommendations are given, but the main weaknesses for the environmental sector in Senegal were listed as:

a) Slow implementation of environmental laws and regulations; and
b) Not enough donor co-ordination in the field of environment.

Senegal National Development Plan and Water Strategy

Two documents build the base for a growth strategy in Senegal. The DSRP II 2007-2010 (Document de stratégie de réduction de la pauvreté / Strategy document for poverty reduction) has four axes of objectives:

[38] See: http://www.gwpforum.org/gwp/library/Regprof_2008_West_Africa.pdf

- Wealth creation
- Access to to all basic social services
- Measures benefiting vulnerable groups
- Good governance

In general, the DSRP recognises the need to identify mechanisms to remedy economic and poverty problems without the degradation or unsustainable use of natural resources. To achieve this, the DSRP proposes three axes:

- Strengthening of the institutional setting for the environment
- Enhancement of the management organisation for the environment
- Ownership by all actors of the strategy

The SCA (strategy de croissance acceleré / rapid growth strategy) was adopted in 2007 and has two complementary approaches:

a) Enhancement of business environment to promote direct foreign investment.
b) Joint promotion of five growth-potential sectors: agriculture and agro-industry, marine and aquaculture products, textiles and clothing, tourism, culture and art, new information and communication technologies.

EC Strategy and priorities for 2008-13

Water and sanitation was in the 9th EDF, and this is taken forward. Priorities for 2007-13 are:

1) Regional and commercial integration: Support for transport infrastructure and economic competitiveness
2) Sanitation infrastructure
3) Budget support for poverty reduction

As for the second sector: sanitation, 40 Mio € (14% of the total budget) is envisaged, while 25 Mio goes to sector budget support, 12 into projects and 3 Mio into institutional support.
The EC is concentrating its efforts to sanitation infrastructures in secondary urban centres and to waste-water treatment in peripheral areas of Dakar. The EC is also envisaging political and institutional reforms in the sanitation sector to improve the governance of this sector. This could be potentially done in form of a sector wide approach and a sector budget support, but only after close examination of the conditions.

More detailed examples of actions under the indicative programme:
- Construction/extension/modernisation of waste-water collection and treatment in urban centres
- Extension of waste-water treatment in Dakar
- Institutional support for sanitation management organisms and the formulation of a sanitation sector policy and SWAP
- Creation of a sectoral dialogue platform chaired by the government and supported by donors
- Conduction of EIAs for sanitation investments and the inclusion of recommendations into the project plans.

Summary: Integration of IWRM

Although the emphasis on water as a finite resource can be found in the CEP and also in the CSP, the investments in the water and sanitation sector do not seem to be linked to IWRM at the moment.
At a national level, IWRM is just starting to be understood and implementation is still dependent on outside funding. However the Commission concentrates solely on sanitation infrastructure and the institutional set-up to provide water and sanitation without taking the water resources as a starting point. This is contradictory as the CEP clearly mentions overexploitation of water resources as a major problem.

Indicator for integration	Comment for Senegal
A reference to IWRM is made for all water-related investment priorities at EC strategic level.	No.
National development strategies are referring to IWRM for all water-related goals and objectives.	No.
Links between water supply, sanitation and environmentally sustainable water resource use are reflected in development (or water) plans.	Not clearly.
Policies, laws and regulations are amended or developed to be used for IWRM implementation actions. This governance process is eligible for support.	Not clearly.
A multi-stakeholder (national or international) river basin or national water management body takes a leadership role and is eligible for support.	Yes.
Trans-boundary co-operation such as water-sharing agreements or joint protected areas is eligible for support.	Not clear.
Education, training, awareness-raising and capacity-building programmes are foreseen and eligible for support.	No clear.
Appropriate impact assessment procedures (EIA, SEA) in place and a pre-requisite for EC support.	Stated for relevant investments.
Sites of biodiversity, social, cultural or economic importance and linked to water are being protected or rehabilitated and those actions are eligible for support.	Not clear.
Natural water infrastructure (such as headwaters, wetlands, floodplain areas etc) are being recognised as important service-providers and protected or rehabilitated. Such actions are eligible for support.	Not clear.
Planning of reducing impact of natural disasters (floods, droughts, water shortages) through IWRM application. This is eligible for support.	Not clear.
Strategies to reduce pollution of water bodies (agriculture, waste-water, industrial pollution) through IWRM application. This is eligible for support.	No.

6.3.4 Congo (DRC)

Water situation in Democratic Republic of Congo

The total freshwater reserves of Congo with the floodplains, lakes and the river basin represent around 52% of all freshwater reserves of the African continent. The Congo, with its catchment area of 3,700,000 square kilometres, is the principal river of Africa and is shared by at least nine countries. The Congo Basin's ecosystem is considered one of the world's richest in terms of the number of species it harbours including 686 known fish species. In 2003, four countries (Democratic Republic of the Congo, Cameroon, Republic of the Congo, Central African Republic) ratified an accord setting up the International Commission of the Congo-Oubangui-Sangha Basin (CICOS).
In terms of sanitation provision, only 16% of the rural and 56% of the urban population have access to clean and healthy drinking water. Waste water collection infrastructure is marginal, waste-water treatment is non-existent and all untreated waste-waters are discharged into the Congo. Congo signed the Ramsar convention in 1972.

Water management depends on 7 different ministries, co-ordinated by the Comité National d'Action de l'Eau et de l'Assainissement (CNAEA), created in 1978. The Ministry of Environment, Nature Conservation, Fisheries and Forests, which has overall responsibility for water resources, and the other institutions involved are constrained in carrying out their tasks due to lack of financial resources, lack of equipment and technical tools,

and the absence of water specialists. At present there is no overall national strategy guiding the sector. A national water law is currently being developed. The objectives are to provide for the conservation of the common resources, reconcilement of different uses, prevention of pollution and harmful effects from floods, efficient use through treating water as an economic resource, and prevention of over-exploitation.

DRC also forms part of the Nile Basin and the Nile Basin Initiative is currently running a project on water management and IWRM: The desired outcome of this component is that Nile riparians prepare and implement multicountry projects based on sound IWRM principles and good practice in project planning and management.[39]

The International Commission of the Congo-Oubangui-Sangha Basin, based in Kinshasa (DRC) is responsible for transborder management of the Congo river basin. Through organisation and moderation of coordinating and decision-making processes, national actors become involved and take on responsibility for carrying out joint measures. Based on existing agreements, CICOS committees are drawing up a strategy for water resource management. CICOS will make information related to river basin management available in a databank. Institutions of the riparian countries will have access to this data and take an active part in updating it and in knowledge management. CICOS is currently supported by GTZ.[40]

EC Country Environmental Profile

For Congo, a separate, full environmental profile exists of 63 pages in French. The environmental situation is closely examined, main pressures are summarised as:

- Environmental degradation through mining activities and armed conflicts
- Low environmental governance, low application of existing regulation
- Very high water pollution
- Sedimentation of river systems
- Lack of sanitation, waste water treatment, waste treatment
- Depletion of natural resources (forest, large mammals, soil and water)

The following main types of environmental interventions are proposed for the European Commission:

- Enhance sanitation and drinking water provision via rural pumping stations and ensure the water quality of rivers via compulsory waste water treatment for the mining sector. For the urban environment, ensure the provision of safe drinking water.

- Support the protection of ecosystems and of biodiversity, especially in the Congo basin via the reduction of pressure onto those ecosystems and via the strengthening of existing structures in the protected areas.

In summary, it is strongly recommended to carefully assess the environmental consequences of all big industrial or infrastructural projects in the Congo basin, especially when planning the development of hydropower infrastructures or water transfer plans to feed into Lake Tchad.

DRC National Development Plan

The government of the Democratic Republic of the Congo (DRC) completed its first full Poverty Reduction Strategy Paper (PRSP) in July 2006. The new government, which was elected in November 2006 and took office in February 2007, confirmed its commitment to poverty reducing strategies outlined in the document. The strategy is emerging from prolonged armed conflicts. These conflicts and decades of poor economic management led to a dramatic drop in national living standards: per capita income collapsed from approximately US$380 in 1960 to a little over US$100. The full PRSP aims at restoring political stability, consolidating peace, and reducing poverty through fostering accelerated growth.

The strategy comprises five pillars:

[39] http://wrpm.nilebasin.org
[40] http://www.gtz.de/en/themen/umwelt-infrastruktur/wasser/18950.htm

(i) promoting good governance and consolidating peace;
(ii) Maintaining macroeconomic stability and growth;
(ii) improving access to social services and reducing vulnerability;
(iv) Combating HIV/AIDS; and
(iv) Improving community dynamics.

The choice of these pillars is based on a number of considerations, including the recent emergence of the country from armed conflict; the state of governance; and the need to invest in critical productive sectors.

EC Strategy and priorities for 2008-13

Taking into account the national development programme of DRC, the EC has proposed three focal and one non-focal sector for their co-operation until 2013:

- Governance (security, budgetary and administrative) 25%
- Transport Infrastructure (road and river transport, but potentially also urban sanitation) 50%
- Health 10%
- Other (environment and natural resources, economic regional integration) 15%

Under the environmental non-focal co-operation priority, the EC plans to continue its focus on forest management. Themes like FLEGT (Forest Law Enforcement, Governance and Trade) and the carbon storage capacity of Congo's forests are mentioned as well as a strengthening of the administrative capacities of local natural resources management bodies or those of protected areas. Water resources are not specifically listed here, but climate change impacts on precipitation levels are mentioned. The EUWI has been active in DRC and managed to establish a water dialogue with key stakeholders and a selection of public authorities.[41] But the evaluation states that there is a lot of confusion between the EUWI and the EU Water Facility at country level and that the lack of direct funding for EUWI is resulting in a very limited interest from the beneficiary side.

Summary: Integration of IWRM

Given that both urban sanitation and river transport are EC priorities and important sub-sectors of water management in Congo, the lack of a stated integrated IWRM approach or the lack of support to achieve IWRM application in Congo is disappointing.

Indicator for integration	Comment for DRC
A reference to IWRM is made for all water-related investment priorities at EC strategic level.	No
National development strategies are referring to IWRM for all water-related goals and objectives.	No
Links between water supply, sanitation and environmentally sustainable water resource use are reflected in development (or water) plans.	Not clearly
Policies, laws and regulations are amended or developed to be used for IWRM implementation actions. This governance process is eligible for support.	Not clearly
A multi-stakeholder (national or international) river basin or national water management body takes a leadership role and is eligible for support.	Yes
Trans-boundary co-operation such as water-sharing agreements or joint protected areas is eligible for support.	Not clear
Education, training, awareness-raising and capacity-building programmes are foreseen and eligible for support.	No clear

[41] see: Initiative Eau de l'Union Européenne. Appui au dialogue national sur l'Eau, l'Assainissement et l'Hygiène en République du Congo et en République Centrafricaine. COWI, 2007.

Appropriate impact assessment procedures (EIA, SEA) in place and a pre-requisite for EC support.	Stated for relevant investments
Sites of biodiversity, social, cultural or economic importance and linked to water are being protected or rehabilitated and those actions are eligible for support.	Not clear
Natural water infrastructure (such as headwaters, wetlands, floodplain areas etc) are being recognised as important service-providers and protected or rehabilitated. Such actions are eligible for support.	No
Planning of reducing impact of natural disasters (floods, droughts, water shortages) through IWRM application. This is eligible for support.	No
Strategies to reduce pollution of water bodies (agriculture, waste-water, industrial pollution) through IWRM application. This is eligible for support.	No

6.3.5 Kenya

Water situation in Kenya[42]

The drainage system in Kenya is determined by the Great Rift Valley, which runs in an approximately north-south direction, and from its flanks, water flows westwards to Lake Victoria and eastwards to the Indian Ocean. Kenya's drainage system is subdivided into five drainage areas (basins) consisting of 192 subdivisions (Cege, 1968).

The five drainage areas are as follows:
1) Lake Victoria basin (46,229 km2) comprises the whole of the area west of the Rift Valley that drains into Lake Victoria.
2) The Rift Valley area (130,452 Km2) is an area of internal drainage discharging into Lake Turkana in the north and Lake Natron to the south.
3) The Athi/Sabaki River area (66,837 Km2) comprises the southern part of the country east of the Rift Valley.
4) The Tana River area (126,026 km2) drains the eastern slopes of the Aberdare ranges, the southern slopes of Mt. Kenya and the Nyambene ranges and discharges into the Indian Ocean. The Tana is largest river in Kenya.
5) The Ewaso Nyiro North River area (210,226 Km2) comprises the northern part of Kenya and drains the northern slopes of the Aberdare ranges and Mt. Kenya, into the Indian Ocean.

According to surface water abstraction permits, not only water supply schemes such as the Department of Water, municipalities and self help schemes, but also a large number of farms, industrial firms, institutions and others take surface water for domestic use. In Kenya,
-only 14 % of households have water piped into their homes or have an outdoor tap.
-Over 50 % of households draw water from rivers and dams which is not safe for drinking.
-80 % of the country population lack access to adequate and safe water supply.
-About 84% of Kenya is arid and semi-arid lands and farming is constrained by low and erratic rainfall.

The Lake Victoria Basin Commission was officially launched in Kisumu, Kenya in June 2007. It is the steward and custodian of the lake, and serves as the caretaker of the lake and its resources on behalf of the people of the Lake Basin and East Africans as a whole. There are a number of programmes and projects running under the LVBC aimed at supporting the health of Lake Victoria's ecosystem and fisheries. They include, The Lake Victoria Management Project financed by the World Bank and the Global Environment Facility; Nile Equatorial Lakes Action Programme; etc.

[42] Taken from: http://www.fao.org/ag/AGL/swlwpnr/reports/y_sf/z_ke/ke.htm#waterr

National Water Act[43]

The tenets of the Water Act 2002 upon which better management of the resource and service delivery were premised are:

(i) Separation or roles and responsibilities;
(ii) Creation of new institutions;
(iii) Stakeholder participation;
(iv) River basin management approach.

The Water Act 2002 provided for the separation of roles and responsibilities with clear mandates. In this context, water resources management was separated from water services and institutions created to be responsible for their execution. The tools developed at National level for management of water resources are the the National Water Resources Management Strategy (NWRMS) and the Integrated Water Resources Management Plan (IWMP). The implementing body is the WRMA (Water Resources Management Authority).

Apart from implementing the NWRM rules 2007, the regional offices have also developed six Catchment Management Strategies (CMSs) as guided by the NWRMS. The implementation of the CMS is done through Catchment Management Units (CMUs).
The CMUs are areas of land classified as ecological, livelihood and commercial depending on the actual or intended use of the CMU to ensure sustainable management of water resources. This implementation has been undertaken within the framework of IWRM principles.
The vision of the Ministry of Water and Irrigation reads: Integrated Water Resources Management and Development through stakeholder participation to ensure water availability and accessibility to enhance National Development.

EC Country Environmental Profile[44]

The following key environmental issues have been identified:

(i) Natural resources degradation (land, water, vegetation cover);
(ii) Loss of biodiversity in the country's main ecosystems including wetlands, forests, marine ecosystem;
(iii) Access to water.

The main indicators of resource degradation are: loss of vegetation cover, loss of forests (5,000 ha/year), increased soil erosion, decrease in soil fertility, reduction in biodiversity, decreasing water availability and quality, decreased agricultural productivity and increased land fragmentation. The main effects of resource degradation are:

(i) Decreased economic base for the major livelihoods;
(ii) Loss of economic investments (infrastructure) due to erosion;
(iii) Increased occurrence and increased intensity of droughts and floods; and Increased poverty. The link between poverty and natural resources depletion has been clearly stated, and a direct relation between the drop in social indicators on health and freshwater access in Kenya to the unsustainable use of resources has been indicated.

Kenya has currently a sound environmental legislative framework in place which is being built upon.

The Environmental Management and Co-ordination Act (EMCA) came into force in 1999. The main function of the EMCA is to provide for the establishment of an appropriate legal and institutional framework for the management of the environment. EMCA is reported to be one of the best framework laws on environment and yet enforcement of the law, to date, is weak. Important international treaties signed by Kenya include the UN Convention on Biological Diversity (UNCBD), 1992, Protocol for Sustainable Development of the Lake Victoria Basin, 2004 and the Ramsar Convention, 1971.

[43] Water Resources Issues and interventions in Kenya by John Phillip Olum, Chief Executive Officer
Water Resources Management Authority, Nairobi, Kenya. Paper presented to the ICT (International Institute for Geo-Information Science and Earth Observation) conference 2008.
[44] An 8-page summary has been annexed to the CSP.

The CEP provides several recommendations to strengthen environmental integration into the implementation of co-operation of the EC:

- An important instrument for environmental integration in the case of GBS and SPSPs is the Strategic Environmental Assessment (SEA). SEAs contribute to properly integrating environmental concerns in strategy and policy papers, and define indicators to be monitored during implementation and evaluations.
- As GBS is the main focal sector of EC support in terms of investments, it is recommended that the EC consider integration of environmental indicators in the monitoring of the ERS implementation and to make disbursements conditional to these outcome indicators. An SEA would be a first step in identification of environmental outcome indicators.

Possible indicators are:
– Preparation and enactment of a comprehensive land policy
– Indicators for enforcement of existing land policies
– Area brought under forestry (apart from the gazetted forests)
– Areas of implemented soil and water conservation plans.

- For agriculture (inter alia): Support to the implementation of the Agricultural Recovery Strategy:
– Include/finance/environmental sound techniques in extension,
– Stimulate watershed management programmes,
– Support the implementation of the Forestry Strategy;

Kenya's National Development Plan

The Kenya 2030 Vision is translated into the medium-term plan 2008-12. The Vision 2030 is built on four pillars – economic growth, equitable social development human capital and a strengthened democratic political system.

(a) Strengthen economic growth: The overall objective is to restore economic growth within a stable and sustainable macroeconomic framework of low inflation, fiscal sustainability and healthy balance of payments.

(b) Improve physical infrastructure: Improvement of the state of the road infrastructure is a key strategic objective to foster economic growth and social development.

(c) Improve governance: Good governance is a pillar for sustainable development. Democracy and political governance and strengthening governance institutions are being addressed.

(d) Invest in human capital: The government has committed itself to allocating an increasing share of its resources to poverty-reduction programmes, in particular to education and health.

The medium-term plan 2008-12 has a multitude of goals, the one for water reads: "The provision of clean water, sanitation and waste management is closely related to the status of human health. However, the current water supply is poor, with only 57 % of households using water from sources considered safe. Available data also indicates that about 75 % of the country's urban population and 50 % of the rural population currently have access to safe drinking water.
To address this problem, a number of programmes and projects will be implemented, including the rehabilitation and protection of forests in firewater towers; water storage and harvesting programme through the construction of two large multi-purpose dams with capacity to store 2.4 billion cubic meters as well as the development of sanitation and urban sewerage programmes."[45] In the later detailed description of water management issues, there are various references to integrated planning, but the term IWRM is not used.

[45] See Executive Summary. First Medium-Term Plan 2008-2012, Republic of Kenya, 2008.

EC Strategy and priorities for 2008-13

Focal sector 1): Regional economic integration by means of transport infrastructure

Focal sector 2) agriculture and rural development to enhance the ability of poor rural households to raise their incomes. An indicative amount of 26% of the A envelope, or €98.8m, will be set aside for this second focal sector. Cross-cutting issues will include environmental sustainability.

With regard to agriculture and rural development, the response strategy is mainly founded on the basis of the Strategy for Revitalising Agriculture (SRA) inter alia:]

- To improve extension, advisory, support and other services;
- To promote conservation of the environment and natural resources by means of sustainable land use practices;
- To formulate food security policy and implementation programmes.

Summary: Integration of IWRM

Kenya seems to have an efficient national framework for IWRM and has already started to implement IWRM at a River Basin level. The link between poverty and water is stated clearly in the national development plan and also presented in the priorities of the EC for rural development. At a theoretical level, integrated resource management including water seems to be relatively well integrated in the EC programming for Kenya, even if the term IWRM is not used in the programming documents.

Indicator for integration	Comment for Kenya
A reference to IWRM is made for all water-related investment priorities at EC strategic level.	Not clearly.
National development strategies are referring to IWRM for all water-related goals and objectives.	Yes
Links between water supply, sanitation and environmentally sustainable water resource use are reflected in development (or water) plans.	Yes.
Policies, laws and regulations are amended or developed to be used for IWRM implementation actions. This governance process is eligible for support.	Yes.
A multi-stakeholder (national or international) river basin or national water management body takes a leadership role and is eligible for support.	Yes.
Trans-boundary co-operation such as water-sharing agreements or joint protected areas is eligible for support.	Yes.
Education, training, awareness-raising and capacity-building programmes are foreseen and eligible for support.	No clear.
Appropriate impact assessment procedures (EIA, SEA) in place and a pre-requisite for EC support.	Stated for relevant investments.
Sites of biodiversity, social, cultural or economic importance and linked to water are being protected or rehabilitated and those actions are eligible for support.	Not clear.
Natural water infrastructure (such as headwaters, wetlands, floodplain areas etc) are being recognised as important service-providers and protected or rehabilitated. Such actions are eligible for support.	Not clear.
Planning of reducing impact of natural disasters (floods, droughts, water shortages) through IWRM application. This is eligible for support.	Not clear.
Strategies to reduce pollution of water bodies (agriculture, waste-water, industrial pollution) through IWRM application. This is eligible for support.	Not clear.

6.3.6. Cameroon

Water situation in Cameroon[46]

Cameroon is rich in surface waters and is the location of several major river basins: Cross River, Sanaga Basin, Niger, Congo and Chad rivers.
Altogether, more than 60% of the territory of Cameroon is part of a river basin. The Sanaga river in particular is high in biodiversity. Most rivers are not navigable, but have a high potential for hydropower generation. Several water regulation dams exist along the rivers to provide water for irrigation and for consumption purposes. These modifications of the river flow have had negative consequences for biodiversity.
Although Cameroon is endowed with abundant water resources, the following issues do need to be taken into account: Increasing demand for water, due to the development potentials of the country and against a background of a continuous drop in the quality of water resources.
This will inevitably lead to competition and even conflict in water use. Increasing water pollution (domestic pollution in major cities, industrial and agricultural pollution, etc.) has led to a reduction in the quality of the available water resources needed for some specific purposes. In the long run, this will increase the competition for water resources.

This fight for the control of water resources will be manifested at several levels;

- At the level of each river basin due to competition between water users from the different sectors;
- At the national level between the development policies of competing sectors;
- At the international level when basins are shared, as is the case with most of the surface water resources in Cameroon (Niger Basin, Lake Chad Basin, Congo Basin, etc).

Freshwater provision is not developed in all regions of Cameroon:
-86.2% of the urban population, but only 31,3% of the rural population have access to safe drinking water. No waste water treatment infrastructure exists. Limited sanitation infrastructure exists only in the capital or in urban centres. Water pollution is mainly due to mining activities, waste water from chemical industries and from chemicals used in agriculture.
Cameroon has not signed the Ramsar convention.

After the Rio Summit in 1992, Cameroon started to strengthen national mechanisms for efficient environmental protection and natural resources management and developed, in 1996, the PNGE (Plan National de Gestion d' Environnement – National plan for the management of the environment). Since 1998, there has been a general law for water use in Cameroon, overseen and implemented by the Comite National de l'Eau (National Water Committee). This committee is responsible for the conservation of water resources, the sustainable use of water, water quality control etc.

The Cameroon Water Partnership, also called Global Water Partnership Cameroon (GWP-Cm) was created in June 2005. It functions as a neutral multi-stakeholder platform that regroups all categories of stakeholders in the water sector in Cameroon, and is the operational part of GWP network Cameroon. The Cameroon Water Partnership is a facilitating institution, not an implementing institution.

EC Country Environmental Profile

A full CEP of 148 pages is available in French. The following key environmental problems have been identified by the CEP: Deforestation, soil degradation, loss of biodiversity, decreasing water quality, desertification, and urban pollution. Those problems stem from urban pollution, industrial pollution, a highly developed agro-industrial sector with no waste or wastewater management, overexploitation of natural resources like mangroves, forests, water, and some fish species.
The CEP describes the status of the different biomes in Cameroon, also gives an introduction to the legal and regulatory framework guiding natural resources management and describes interventions of EC and EU member states in Cameroon.

[46] Information taken from the CEP and the GWP Cameroon website: http://www.gwpcm.org/

Finally, the following recommendations are given (inter alia), both process- and activity-oriented:

- Strengthen environmental integration in the development strategies of Cameroon
- Develop environmental services inside the sector ministries
- Complete the regulatory framework for environment and natural resources
- Strengthen biodiversity protection and management actions
- Apply FLEGT[47] in Cameroon
- Apply IWRM for sanitation and drinking water provision plans
- Apply IRBM for the Sanaga basin
- Develop sanitation and wastewater infrastructures

Cameroon's National Development Plan

Document de Stratégie de Réduction de la Pauvreté (DSRP – Poverty Reduction Strategy)
This strategy was adopted by the government in 2003 and has 7 strategic axes:

1. Promotion of a stable macro-economic framework
2. Growth and the diversification of the economy
3. Dynamisation of the private sector as a motor of growth and a provider of social services
4. Development of basic infrastructure, natural resources and the protection of the environment
5. Accelerated regional integration
6. Strengthening of human resources and of the social sector, bring marginalised groups into the economic activities
7. Enhancement of institutional and administrative capacities, governance

An integral part to this DSRP plan is the "Document de Stratégie de Développement du Secteur Rural (DSDSR – Strategy for Rural development)".
This strategy is geared towards more agricultural productivity and has five domains:

a) Local development,
b) Higher production,
c) Institution building,
d) Sustainable management of natural resources;
e) Financing of the rural sector.

For the sustainable management of natural resources, several actions are proposed: Co-ordinated and integrated management of natural resources with the participation of different administrations and the resource users; conservation and restoration of natural resources and their services; community-based management of natural resources and local collective infrastructures.

EC Strategy and priorities for 2008-13

The 10th EDF has a total sum of 239 Mio € for the A envelope for Cameroon. The following focal sectors are planned for EC co-operation in 2007-13:

1) Governance (justice, public finances, forest management, electoral process) taking 15-19%
2) Business and regional integration (export, infrastructures), taking 66 to 70%

Activities outside concentration areas are:
- Rural development,
- rural social infrastructure,
- non-state actors,
- technical co-operation, taking 15%

[47] Forest Law Enforcement, Governance and Trade

Under the forest management theme, it is envisaged to strengthen governance in the forest sector and to support the sustainable management of natural resources in Cameroon. An indicative amount of 8-11 Mio € is reserved for those actions, mainly comprising the application of FLEGT in Cameroon. Furthermore, a continuation of the ECOFAC[48] programme is envisaged. For the non-focal sector rural development, a support for rural water provision infrastructures is envisaged.

Summary: Integration of IWRM

Cameroon is starting to establish a framework for IWRM with the support of the Global Water Partnership. To date, neither the national development plan nor the EC strategy refers to IWRM when tackling the management of water resources. Only the CEP gives the clear recommendation to apply IWRM for water issues. Nevertheless, there is room for integration as the EC talks about the integrated and sustainable management of natural resources and has sanitation, but also forest governance as key points for support. All of this could be put into the IWRM framework easily once the annual action programmes are developed and a national IWRM strategy is ready.

Indicator for integration	Comment for Cameroon
A reference to IWRM is made for all water-related investment priorities at EC strategic level.	Not clearly.
National development strategies are referring to IWRM for all water-related goals and objectives.	No
Links between water supply, sanitation and environmentally sustainable water resource use are reflected in development (or water) plans.	Yes.
Policies, laws and regulations are amended or developed to be used for IWRM implementation actions. This governance process is eligible for support.	No.
A multi-stakeholder (national or international) river basin or national water management body takes a leadership role and is eligible for support.	Yes.
Trans-boundary co-operation such as water-sharing agreements or joint protected areas is eligible for support.	Not clearly
Education, training, awareness-raising and capacity-building programmes are foreseen and eligible for support.	No clear.
Appropriate impact assessment procedures (EIA, SEA) in place and a pre-requisite for EC support.	Stated for relevant investments.
Sites of biodiversity, social, cultural or economic importance and linked to water are being protected or rehabilitated and those actions are eligible for support.	Not clear.
Natural water infrastructure (such as headwaters, wetlands, floodplain areas etc) are being recognised as important service-providers and protected or rehabilitated. Such actions are eligible for support.	Not clear.
Planning of reducing impact of natural disasters (floods, droughts, water shortages) through IWRM application. This is eligible for support.	Not clear.
Strategies to reduce pollution of water bodies (agriculture, waste-water, industrial pollution) through IWRM application. This is eligible for support.	Not clear.

[48] Ecosystème Forestier d'Afrique Centrale

6.3.6 Zambia

Water situation in Zambia[49]

Rainfall in northern Zambia is in excess of 1,200 mm per year. The run-off component of this precipitation feeds four major river systems, two of them transboundary. In the centre and west the Zambezi and its principal tributary the Kafue; in the north the Luapula that is a major contributor to the Congo River system; and in the east the Luangwa, that is Zambia's other major tributary feeder into the Zambezi.
Transboundary water resources are already an economic and political focal area in the Zambezi River basin that covers six of Zambia's riparian state neighbours.
Apart from direct abstraction benefits from water resources, the flows in the major river systems also offer indirect benefits for hydropower generation, and for irrigated agriculture, fisheries and tourism development. The utilisation of Zambia's water resources has been limited in recent years, although the Kafue basin supports water and energy supplies to most of the country's economic core, and there has been interest in water transport in some river systems. In the Kafue Basin, extreme dry events, coupled with increased demands for hydroelectric power and domestic, industrial and agricultural water may create problems sooner rather than later. Groundwater limitations are only of serious concern in the Lusaka area, where rapidly increasing demands to meet domestic, industrial and peri-urban agriculture consumption are placing pressure on available aquifers.
Hydropower has been the backbone of Zambia's industrial development since the early 1960's. But both the Kariba and Kafue Gorge impoundments (supplying hydropower stations) resulted in considerable and continuing impacts. The floodplain system above the Kafue Gorge dam has been significantly changed.

Principal water concerns are linked to large-scale agriculture and pollution and biodiversity effects from agrochemicals and land clearing. Where farming adjoins river systems or overlies dolomite aquifers the water pollution threat is highest. Water pollution is created by direct and indirect flows from agricultural, mining, industrial and solid waste operations, and from sewage treatment plants;
Groundwater contamination of aquifers in dolomite and limestone geologies underlying urban areas results from leakage of petroleum products and chemicals, waste water and septic tanks and pit latrines. All major urban areas (Lusaka, Kabwe and the Copperbelt) overlie, or are close to these aquifers.

Zambia signed the Ramsar convention in 1971. New legislation followed the new policy framework and several new environment-related Acts were generated after 1990: Environmental Protection and Pollution Control (1990); Energy (1994); Mining and Minerals (1995); Wildlife (1998); Forests; and Lands (1999); and Water (2001). The basis for these elements of legislation includes the incorporation of best practices and international conventions and they represent a highly relevant basis for environmental management in most sectors. The other government ministries that have major environmental responsibilities include:

- the Ministry of Agriculture and Cooperatives (previously coordinated under the now defunct Agriculture Sector Investment Programme[ASIP]);
- the Ministry of Energy and Water Development (supervising the Energy Regulation Board [ERB], the National Water Supply and Sanitation Council [NAWASCO] and the Water Development Board); and
- The Ministry of Mines and Minerals Development (that regulates all large and small-scale mining).

A Zambian IWRM process started and, with support of the GWP, an IWRM plan has been developed. As for international water management, a negotiation process involving all eight Zambezi riparian countries culminated in an agreement, signed in July 2005 by seven of the countries, to establish a river basin organization, the Zambezi Watercourse Commission (ZAMCOM), to manage the shared water resources in the basin. A number of activities are under way to operationalize ZAMCOM. The remaining major activity is the formulation of the integrated water resources management (IWRM) strategy for the whole basin.

[49] Information taken from the CEP Zambia.

EC Country Environmental Profile[50]

Zambia's natural environment still appears largely undisturbed. Some 60% of the land area is still forested, its major river catchments are still largely unpolluted, and on average air quality is generally good by global standards. But environmental degradation is increasing and in this context, several key environmental issues have been identified:

- land degradation and dereliction – mainly in mining areas, but increasingly also in peri-urban and highly settled and drought-prone agricultural areas;
- avoidance of future contamination and increased, appropriate, handling of hazardous and radioactive wastes;
- surface and groundwater pollution – in mining, urban and major agricultural areas;
- localised air pollution – again mainly in mining and major urban areas;
- deforestation – widespread but particularly evident adjacent to headwater catchments, major urban areas and trunk road systems;
- wildlife depletion t;
- fish stock depletion – in all fisheries;
- loss and degradation of wetlands (floodplains, swamps, dambos) – significant in the Kafue River catchment;
- loss of biodiversity – as an outcome of all of the above issues

Recommended priority actions to reverse the accumulating negative environmental impacts include:

- the expanded dissemination of environmental information;
- increased contributions to natural resources and protected area management; capacity building in the public service - to improve the consistent and effective delivery of environmental policies and regulations;
- an increase in public finance contributions to natural resources management; and
- increased support for environmental research and monitoring by non-state actors – who often can support independent monitoring activities that government institutions sometimes have difficulty supporting.
- the construction of capacity in state and non-state actors to collect, analyse, project, plan and monitor environmental and natural resource management interventions;
- building consensus on, developing materials, disseminating them widely, and then applying mainstreaming environmental issues into all programmes;
- building enhanced environmental issues and capacity into programme design and the procurement of technical assistance that implement programmes;
- providing support, where possible, to special environmental concern areas in the agriculture, forestry, fisheries and wildlife sectors – and to simplified support to non-state actor interventions;
- providing mechanisms for local support to meeting the requirements of international environmental conventions;
- Applying particular environmental intervention support through the private sector, state and non-state actors to specific areas of EC co-operation, for example, trade related areas (sugar) and special budget line support.

Zambia's National Development Plan and Water Strategy

The Government prepared the Fifth National Development Plan (FNDP) in consultation with all the relevant stakeholders. The FNDP is a medium-term planning instrument intended to focus the Government's policy and programming for the period 2006-2010. The theme of the FNDP is "Broad Based Wealth and Job Creation through Citizenry Participation and Technological Advancement".

[50] A full 53 page CEP is available in English language.

Its focus will be on:

1) Pro-poor growth-oriented sectors that create employment and income opportunities for the poor, including in particular rural development, agriculture and manufacturing, and
2) Provision of accessible quality social services (education, health, social protection) and well-maintained economic and social infrastructure. The FNDP is built on achieving economic development based on four main economic pillars: mining, agriculture, tourism and manufacturing. Supporting sectors that will build the human capital base and strengthen the fabric of development include: infrastructure (including water and sanitation), education and skills development, health, order and safety and governance. The FNDP provides a medium-term planning framework covering the period 2006 to 2010.

Zambia's Vision Statement is "To be a prosperous middle income nation by the Year 2030", with the future economy of Zambia characterised, inter alia, by a development based on principles of sustainable environment and natural resource management.
Environment and natural resources-related sector visions and targets related to management include:

-*Mining* **:** putting in place a mechanism to ensure environmental protection in mining areas so that by 2015 and 2030 the level of environmental degradation is reduced by 50% and 75%, respectively;
-*Agriculture:* increasing land under irrigation, increase crop diversification, and preserving the agricultural resource base;
-*Food and Nutrition:* developing and/or advocating policies and programmes that will ensure food and nutrition security, food quality and safety;
-*Water and Sanitation:* improving access to appropriate, environmentally friendly sanitation for all Zambians;
-attainment of 100% access to safe and clean water;
-attainment of 100% access to sanitation; and
-fully integrated and sustainable water resource management;
-rehabilitation and/or re-construction of sewage treatment facilities in all major towns and cities;
-80% of solid waste collected and transported;
-90% of polluting industrial facilities comply to environmental legislation; and
-80% of unplanned settlements upgraded and the residents provided with access to clean drinking water and sanitation.

GWP analysis of links between development strategies and IWRM[51]

Linking water to national development priorities in Zambia
Zambia fully integrated better water management into its Fifth National Development Plan (FNDP), which in turn has informed the country's IWRM Plan.
Zambia's experience in meeting the international target on IWRM and Water Efficiency Plans was presented at World Water Week in Stockholm. The IWRM/WE plan gives great significance to the FNDP whose focus is on pro poor oriented sectors with the theme 'Broad Based Wealth and Job Creation through Citizen's Participation and Technological Advancement'.
The approach taken in the water sector was designed to support the FNDP's key objectives which include:

- poverty alleviation,
- food security, and
- industrial development.

[51] http://www.gwpforum.org/gwp/library/TEC_Policy_Brief_6.pdf

EC Strategy and priorities for 2008-13

475 Mio € will be spent in Zambia under the 10th EDF.
Interventions are planned under two focal areas:
-Regional Integration/Infrastructure and Transport (24.6%)
-Human Development/Health (12.4%),
Combined with Macro-economic support (general budget support, 48.9%).
The modality to deliver the two first focal areas is sector budget support.
Nonfocal interventions (14.1%) will concentrate on agriculture-food security, governance, and support to nonstate actors and to EPA/ regional integration implementation. Under the non-focal areas, water supply or water management are not mentioned.
The emphasis is on extension, production, food security and nutrition, marketing, export development, sugar sector development and sub-sector development.
EUWI facilitates a country dialogue on water in Zambia. The evaluation of this EU intitiative stated that the Country Dialogues must provide added value and should be complemented by actions on the ground. This could be done by not only analysing the current initiatives and constraints in the water sector but also trying to identify potential financial resources for bridging the gaps.[52]
Under the first and second Call for Proposals for the ACP-EU Water Facility, 6 projects of a total amount of EUR 14 million were selected.
So far, three grant contracts with NGOs and one contribution agreement (Red Cross) have been signed.
Two Financing Agreements with public entities (Ministry of Energy and Water Development, National Water Supply and Sanitation Council) have been signed.

Summary: Integration of IWRM

It seems that Zambia has successfully started an IWRM process and is currently developing IWRM strategies for the Zambezi. But the EC is not seemingly supporting the promotion of IWRM in Zambia in a coherent and coordinated way through the priorities identified in the CSP. For example, when looking at the activities proposed for agricultural development, the lack of mention of water resource management raises many questions about its appropriateness and sustainability.

Indicator for integration	Comment for Zambia
A reference to IWRM is made for all water-related investment priorities at EC strategic level.	No
National development strategies are referring to IWRM for all water-related goals and objectives.	Not clearly
Links between water supply, sanitation and environmentally sustainable water resource use are reflected in development (or water) plans.	Yes
Policies, laws and regulations are amended or developed to be used for IWRM implementation actions. This governance process is eligible for support.	Yes
A multi-stakeholder (national or international) river basin or national water management body takes a leadership role and is eligible for support.	Yes
Trans-boundary co-operation such as water-sharing agreements or joint protected areas is eligible for support.	Yes
Education, training, awareness-raising and capacity-building programmes are foreseen and eligible for support.	No clear
Appropriate impact assessment procedures (EIA, SEA and CBA) in place and a pre-requisite for EC support.	Stated for relevant investments
Sites of biodiversity, social, cultural or economic importance and linked to water are being protected or rehabilitated and those actions are eligible for support.	Not clear
Natural water infrastructure (such as headwaters, wetlands, floodplain areas etc) are being recognised as important service-providers and protected or rehabilitated. Such actions are eligible for support.	Not clear
Planning of reducing impact of natural disasters (floods, droughts, water shortages) through IWRM application. This is eligible for support.	Not clear
Strategies to reduce pollution of water bodies (agriculture, waste-water, industrial pollution) through IWRM application. This is eligible for support.	Not clear

[52] See: Summary and Lessons Learned from the initial steps for starting the Country Dialogue in Zambia. GTZ et al. 2005.

7 Detailed case study: Mozambique

7.1 Water situation in Mozambique[53]

Thirty-nine major rivers drain into to the Indian Ocean along the Mozambique coastline.
The most important of these from South to North are the Maputo, Umbeluzi, Nkomati (in Maputo Province), the Limpopo (in Gaza Province), Save (in Inhambane Province), the Buzi, Pungoe (in Sofala Province), Zambezi, Licungo, Ligonha, Lurio (in Nampula Province), and the Messalo and Rovuma (in Cabo Delgado Province).
The majority of these rivers have a torrential regime with high flows during the rainy season (January to April) and low flows for the remainder of the year.
Thus, while Mozambique has abundant surface water resources (216 km3/year), much of this is available for short periods of the year only, and is concentrated in a limited number of river basin areas (e.g. the Zambezi river accounts for almost 50% of the total flow).
Also of importance is the fact that 50% of the available freshwater arrives as cross border flow. Abstraction by neighbouring countries, while not a major issue yet, is likely to become highly significant in the future.

A decreasing trend in rainfall has been observed in East Africa region as a whole over the last four decades, while the occurrence of droughts has been steadily increasing. High variability in rainfall associated with tropical cyclones and the El Nino/La Nina phenomenon compounds this problem, resulting in extreme floods and droughts from time to time. Further reductions in stream flow can be anticipated in Mozambique in the future associated with global climate change, with rainfall projected to decline by 5-10% and evaporation to increase by 9-13% by 2075.

The water and sanitation infrastructure continues to be weak in rural areas and insufficient in most urban areas. The state of the sewage systems is critical for Maputo, Beira and Nampula towns, and is lacking investment funds. In spite of the fact that over the past ten years, access to clean drinking water has increased from 40% to 67% in urban areas and from 17% to 26% in rural areas, the target of MDG 7 of halving the population with no access to water is unlikely to be achieved. Similarly, access to sanitation has improved marginally from 48% to 51% in urban areas and from 14% to 15% in rural areas.
An important aspect for poverty reduction relates to the expansion of safe and sustainable water: only 27% of the rural households are served with clean water.

The 12 dams in the country have a total storage capacity of 44700 million cubic metres, with Cahora Bassa, the second biggest dam in Africa, having installed capacity of 2075 MW. Mozambique is an important power exporter to other Southern African countries such as South Africa and Zimbabwe.

Most of the rural population survives on subsistence agriculture which makes them vulnerable to natural disasters (floods and droughts). The last major flood occurred in 2000 but 2005 was marked by a drought that affected mainly the south of the country. Drought is a recurrent situation for Mozambique, and so the real challenge for the country is to properly implement a long-term perspective mitigation plan.

Water authorities and Water Law:

Water resources management in Mozambique is under the jurisdiction of the Water Law promulgated in 1991, and is administered by the Ministry of Public Works and Housing, more specifically the National Directorate for Water (DNA). In general, the institutional and legal framework is considered to be coherent and has been designed to implement an approach to managing the water sector that is consistent with experience and good practice in many middle and high income countries. A strong focus on decentralisation is being applied with the aim of devolving water management issues to various water management areas in the country (termed ARAs).
There are 5 ARAs comprising several river basins and not necessarily corresponding to the administrative provinces of Mozambique. The ARA's are also the implementing agencies for the River Basin Management Plans.

[53] Information collected from the CSP background information on Mozambique and from the CEP.

National Water Policy and Institutional Framework
The National Water Policy (NWP) from 1995 forms the basis of the national water sector programme, which is based on the following key principles:

– integrated approach to water resources management
– economic development should be balanced with poverty alleviation and the satisfaction of basic needs
– water as an economic good as well as a social value. With regard to water and sanitation services provision, stakeholder participation and public-private partnerships are favoured, whilst the central government is moving away from direct service provision toward regulatory activities.

The main features of the policy are as follows:

- The satisfaction of basic needs is a high priority and requires an increase in water supply and sanitation coverage rates, with a special focus on low-income groups including urban, peri-urban and rural populations.
- The effective use of resources and the provision of appropriate service levels are facilitated through the participation of beneficiaries at relevant stages of planning and implementation.
- The price of water should gradually achieve cost recovery, while remaining socially sustainable, aiming to balance economic development with poverty alleviation and improvements in public health.
- The role of central government should evolve, with a progressive withdrawal from direct implementation in favour of regulatory, planning and supervision responsibilities.
- Private sector participation is promoted to obtain full benefits from existing infrastructures and for the provision of water and sanitation services on a professional and cost-effective basis.
- Integrated water resources management, the sustainable use of water, consideration for instream flow requirements, support for water conservation and environment protection are key principles of the policy in co-ordination with neighbour countries for shared rivers.
- Decentralisation is pursued for the operational aspects of water resource management, which are being decentralised to autonomous regional authorities, and the provision of water services, which is being decentralised to local agencies.

A National Water Resources Management Strategy was prepared for the World Water Forum in Rome in 2007, with support from various donors, including the World Bank. The National Strategy proposes strengthening of river basin organisations and the subsequent IWRM plan will include the Licungo river basin as a pilot. The implementation plan for this strategy is now being developed with support from the Global Water Partnership.

7.2 EC Country Environmental Profile

Annexed to the CSP is an 11 page summary of the Country Environmental Profile of Mozambique. While it is very detailed when describing environmental problems, it does not give background information about the international environmental commitments of Mozambique.

However, the CEP provides much detail on water problems and water issues:

- Access to freshwater: Mozambique is not a water-poor country (surface water availability ranges between 5,560 m3 per inhabitant per year considering only the runoff generated in the country or 12,000 m3/inhabitant/year including the flows from upstream countries).
  However, the country faces a number of difficult challenges in supplying adequate freshwater for irrigation, and domestic and industrial uses. These include high variability of precipitation, substantial lack of water resources infrastructure, its geographic location as a downstream riparian of most of its major rivers, extremely low efficiency and rapid deterioration of existing systems, and serious equity issues as a large share of the poor has little or no access to water for their basic needs.
  Supplies of water for irrigation are woefully inadequate at present, while supplies to both urban and rural areas in Mozambique reportedly compares poorly with other countries at a similar level of development. Significant progress has however been made in improving access to clean water supplies in the urban and rural areas in particular.

- Cross-border water abstraction: The fact that such a large proportion of Mozambique's freshwater supplies (>50%) originate from rain that falls in neighbouring countries remains an issue of concern for the future. Even with its water supply infrastructure fully developed, reduction of flow due to intensive use in the neighbouring countries is likely to limit delivery of water for domestic and agricultural use in Mozambique in the future.
  The central and southern part of the country is where the reduction in flow from hinterland is most critical at present - it is estimated that South Africa, Swaziland and Zimbabwe already abstract about 40% to 60% of their cross border flows.

- Modification of freshwater flows: While Mozambique desperately needs to expand its water resources infrastructure, particularly that required for harvesting surface water (e.g. dams), care must be taken to ensure that this is done in a manner that does not unduly impact on other beneficiaries of the water, notably the environment and fisheries. Impacts of dam construction have been felt in Mozambique as much as anywhere else in the world, particularly those associated with the construction of the Cahora Bassa and Kariba Dams on the Zambezi River.
  Notable impacts of these dams in Mozambique include loss of biodiversity, coastal erosion, declines in the marine shrimp fishery, loss of freshwater fisheries, resettlement of people, and loss of agricultural productivity. Internationally accepted and applied techniques are available for minimising impacts of dams on river systems and should be applied to all new water resource developments in the country.

- Water pollution: Three primary sources of pollution include agriculture (sedimentation, and pesticide and fertiliser runoffs), industrial activities (discharge of untreated waste containing heavy metals, hydrocarbons, etc.) and sewage and domestic waste (most of which is discharged without treatment directly to the rivers and sea).

Recommendations given:

- Water will probably become the most limiting natural resource in the future in the face of economic growth and development.
- The economy is both vulnerable to and constrained by water related factors (regional climatic variability, high dependence on international water resources, and under-developed water infrastructure, impacts of floods and droughts).
- Agriculture is mostly based on rain-fed farming and so very dependent on the gradual increase in water shocks (highly variable rainfall pattern and frequent droughts).
- Expansion of the extractive and tourism industry depends on access to (hydro)-energy and water.
- The useful capacity of the country's dams represents only 5% of the mean annual runoff, excluding Zambezi, indicating a need to develop adequate infrastructure in order to improve response to water shocks and guarantee reserves for future expansion.
- Development of any new water resources infrastructure must be done in a manner that takes account of the full costs of the development and minimises any impacts on the environment and other users of the water (this can be achieved by completing an Environmental Flow Assessment).

An important aspect for poverty reduction relates to the expansion of safe and sustainable water access for both rural and urban populations. This has been given some priority in recent years but the achievement of 27% of the rural households served with clean water is still very far from an acceptable level. Negotiations with neighbouring countries over rights to cross-border water flows also need much greater focus than it has been given up to now as this will become a major issue in the future, especially when it begins to constrain or even reverse economic growth and development in Mozambique.

Talk of future wars being fought over water may be idle speculation in some areas, but this is certainly not the case in southern and eastern Africa where shortages of freshwater are becoming more acute all the time. Improvements in water supply infrastructure are also urgently required for the expansion of irrigation as this is currently well below its potential and is a major constraint in the intensification of agriculture in many areas.

7.3 Mozambique's National Development Strategy: PARPA II (Action Plan for the Reduction of Absolute Poverty 2006-09)[54]

The strategy is divided into several pillars: General, governance, human capital and economic development. The first pillar aims to achieve rapid and sustainable growth plus a reduction of poverty in Mozambique. Under the third pillar "human capital", one objective is to improve and expand access to potable water and adequate sanitation. The objectives under the third pillar are to be achieved (inter alia) via:

- Improve the extent of coverage of water supply and sanitation services
- Ensure maintenance of environmental equilibrium throughout Mozambique, including areas where new projects, regardless of their nature, are being carried out.
  The fourth pillar concentrates on economic growth and rural development.
  Objectives are to be achieved (inter alia) via:
- Guarantee the sustainable use of natural resources and implement transparent mechanisms for the management and rational exploitation of those resources;
- Implement a programme for construction of excavated reservoirs; rainwater collection systems; and small, medium, and large dams in order to satisfy the needs for water for human consumption, l ivestock, irrigation, fisheries, industry, tourism, electricity production—among other uses—to mitigate, in a planned manner, the negative effects of droughts and floods, with a view to ensuring sustainable management of the country's water resources.

Within the sectoral planning for PARPA, it is stated that the economic sectors need more attention: agriculture—especially irrigation, research, extension services, and small-scale fishing.
The growth of biofuels for export is also seen as a potential growth sector.
No indications on how this could be done in an environmentally sustainable way are provided at this juncture The water sector will see growth—firstly to compensate for the low rate of disbursement of its budget in the past, and secondly, because of the need to rehabilitate certain dams.

PARPA II identifies eight cross-cutting topics:

- Gender
- HIV/AIDS
- Environment
- Food and nutritional security
- Science and rechnologogy
- Rural development
- Natural disasters
- De-mining

7.3.1 The Environment as a cross-cutting issue in PARPA

Most of Mozambique's population depends on natural resources for subsistence and income. PARPA II, in light of that reality, recognises that attaining its objectives depends heavily on how those natural resources are managed and preserved, and on the relationship between their use and exploitation and the benefits for the poor.

Improving the current situation of environmental deterioration requires proper planning or reclassification of urban land areas, particularly land title registration and land use zoning, as well as proper access, drainage and water supply infrastructures. An integrated development of Mozambican territory could curb the proliferation of informal communities on the periphery of urban centres, which pose a serious threat to public health, social well-being, and biodiversity.

The major environmental priorities in Mozambique focus mainly on the following:

[54] Meanwhile, this plan has been extended until 2010.

- cleaning the environment
- territorial zoning
- prevention of soil degradation
- natural resource management, including control over burning
- legal and institutional aspects, i.e., environmental education, compliance with law, and development of institutional capabilities
- reduction of air, water, and soil pollution
- prevention and reduction of the effects of natural disasters.

Issues connected with environmental governance also deserve attention; the responsibilities of the business community in terms of environmental and social matters; the recognition of the relationship between the environment and poverty, with a focus on environmental education, the role of health care sectors, agricultural and rural development, energy, industry, tourism, mines, fisheries, management of marine and coastal zones, technology, vulnerability, and natural disasters.

The protection of natural resources and their sustainable use will ensure more abundant production of better quality food. But this requires steps to be taken to reduce water pollution and protect the fertility of soils, and for efficient fishing and forest conservation. The purpose of a cross-sectoral approach to environmental issues is to ensure that all actors in the development process, including the State, properly play their role in preserving the environment, both urban and rural.

7.3.2 Natural Disasters as a cross-cutting theme in PARPA

Natural hazards are considered to be disasters only when they impact human activities. Threats from nature do not affect everyone equally; disastrous consequences are proportional to the vulnerability of communities and territories. That is why 90 percent of disaster victims live in developing countries, in poverty, often marginalised in hazardous areas likely to be hit by floods, earthquakes, etc. The risks they face are greater when insufficient environmental, technological, and urban planning practices aggravate problems. The world-wide increase in disaster occurrence, especially in countries like Mozambique, threatens to destroy human wealth, and life itself. That is why disaster prevention is such an important aspect of development.

Natural disasters resulting from climate changes and seismic activities can aggravate a situation of absolute poverty because of their destructive impact on socio-economic infrastructures. Mozambique's geographic location makes it vulnerable to weather anomalies.

The primary objectives in managing threats of natural disasters are:

- to reduce the number of human victims and the amount of property loss
- to consolidate a culture of prevention
- to give the country the means of prevention and mitigation.

The government's action plan for reducing the impact of disasters includes preventative measures i.e., advance warning systems for the kinds of disasters that are most frequent in Mozambique—namely floods and cyclones—as well as identifying and mapping the zones that are at risk. Appropriate response mechanisms (information for the affected population groups, evacuation, search and rescue) are also included.
Other actions would require strengthening institutional, regional, and international co-ordination, installation of hydro-meteorological networks in the most vulnerable basins for prompt measurement and transmission of information, the construction of hydraulic infrastructures such as defence dikes and dams, as well as increasing civilian training and education in subjects associated with weather-related events.

7.3.3 Water related issues in PARPA

The link between poverty and water issues is clearly spelled out. Environmental problems resulting from insufficient access to water and poor water quality that stems from inadequate sanitation and waste disposal services, among other factors, are the cause of the most serious diseases, including malaria,

cholera, and other diarrhoeal diseases that affect the poorer communities, especially women and children, disproportionately. These diseases impair people's productive capacity, their ability to generate the wealth necessary to improve their quality of life and well-being. Therefore, attention to issues of environmental health and the related diseases are one of the top priorities of the plan to reduce poverty.

The following are the primary challenges and priorities:

- strengthening the planning skills in the sector (provincial master plans) and the ability to provide suitable, sustainable services
- training of the principal persons involved in this sector
- reinforcing decentralisation and de-concentration, including the recruitment of qualified professionals in the various areas and at all levels, but with greater focus on the districts
- assuring the sustainability of the water supply and sanitation infrastructures by focusing on districts/communities
- promoting integrated water supply and sanitation projects in order to maximise impacts;
- reinforcing education in the areas of water, health, and hygiene in communities
- implementation of a utility rates policy that makes it possible to recover costs
- establish and improve reliable systems for monitoring and evaluating (national and provincial databases) water supply and sanitation services
- ensuring the availability of water for crops and rural development.

Water supply and sanitation increase coverage:

- of the water supply to 60 percent, thereby serving about 4 million residents living in urban areas by 2009, and achieve 70 percent in 2015, serving 5.4 million people;
- to 55 percent of the population, thereby serving about 8 million residents who live in rural areas by 2009, and achieve 70 percent in 2015, serving 11.8 million people;
- of urban sanitation services to 55 percent, thereby serving about 3.8 million people living in urban and peri-urban areas by 2009, and achieve 80 percent in 2015
- of rural sanitation services to 40 percent, so as to serve about 6 million people living in rural areas by 2009, and achieve 50 percent in 2015, serving 8.4 million people.

7.3.4 Water Resources Management, flood mitigation and prevention in PARPA

Main objectives to mitigate the effects of droughts and floods:

- relieve water shortages for the population, as well as for irrigation and small-scale livestock raising by building 50 dams, or excavated reservoirs to capture rainwater.
- reinforce water management programs in terms of a strategy for reducing vulnerability to flooding, by: (i) rehabilitating the network of hydro-meteorological stations; (iii) installing flood warning systems connected to a telemetric network and hydrological prediction models; (iii) mapping of areas susceptible to flooding; and (iv) rehabilitation of the Defence Dikes and Refuge Platforms;
- increase the capacity for storing the water, and regulate the Limpopo, Incomodai and Pungué rivers so that their hydrological resources can be used, by conducting studies toward future construction of large dams: Barragem Mapai (on the Limpopo), Barragem de Bue Maria (on the Pungué), and prepare the detailed design for the Moamba Major dam (on the Incomodai).

7.3.5 Natural Resource Management in PARPA

Main objectives:
- improve equitable access by communities and individuals to natural resources for sustainable use and management
- promote a service that provides information on existing natural resources (land, forests, and wildlife)
- improve oversight of the exploitation of these resources
- consolidate and publicise legislation on access to natural resources

- assist with establishment of local and private Mozambican initiatives in the rational and sustainable use of natural resources (concessions, communities)
- certify and/or deed the rights to land to small and medium-scale farmers for income crops;
- take inventory and map the occupation, use, and exploitation of lands, and routinely update the national cartography
- oversee compliance with natural resources legislation
- implement a strategy to manage the conflict between people and animals
- prevent and control uncontrolled burning of lands
- develop appropriate technologies for the sustainable management of natural resources
- develop forestry care systems to establish and enrich forest species and formations.

Water is included also in many other actions proposed in the strategy: for example, mining (reduce water pollution), fisheries (protect aquatic resources), health (access to sanitation), transportation (develop waterways) etc.

7.4 EC Country Strategy Paper

7.4.1. Water and sanitation in 8th and 9th EDF

Implementation of the 8th EDF capacity-building project for integrated development of water resources management and rural water supplies in the Zambezi river basin (€11.6m) continued into the 9th EDF. [55].

The Beira sanitation project (works and supervision) was approved at the end of 2005, with an initial allocation of €32.95m (recently increased of additional € 20 m), and implementation started in 2006. The overall purpose of the project is to improve national health by rehabilitating the existing sanitation network and constructing new systems in the city of Beira, including the sewage network, the wastewater treatment plant and the drainage system.

These activities in the water sub-sector are supplemented by the projects in Mozambique financed under the successive calls for proposals for the 9th EDF Water Facility.

The EC launched the first call for proposals for the Water Facility in November 2004 for a total of €230m and 23 proposals were submitted from Mozambique. projects were eventually approved, including 3 with a regional component, with an EDF contribution of €33.5m for a total investment of €89.7m.
The Maputo Water Supply Project, with a total investment of €76.2m (EDF grant of €29.8m), co-financed by the EIB is the flagship project of the Facility in Mozambique. Considering that much of the financial support provided to Mozambique will come in the form of budget support, donors have a particular role to play in ensuring that environmental issues are addressed across the board.
The Government has also committed itself to ensuring that the full environmental costs of any development project, including dams, are explicitly recognised and accounted for during the planning phase.

7.4.2 EC Response strategy 2008-13

The 10th EDF A envelope provides €622 million to Mozambique. This envelope covers long-term programmable development operations under the strategy, and in particular:

a) Support for macroeconomic reforms
Objectives: The objective of the support is to contribute to maintaining macroeconomic stability while allowing the pattern of public expenditure needed to achieve the PARPA II objectives and to make progress towards the Millennium Development Goals. This in a context of the growing needs in expanding and improving the quality of public service delivery and reforming the role of the State public service to perform its core tasks.

[55] The final report of this project is still in preparation, but according to the EC delegation in Mozambique, it was a very successful project.

Mainstreaming of cross-cutting issues in macroeconomic reform:

According to the response strategy, direct budget support finances implementation of the Government's poverty reduction strategy which civil society and the development partners see as adequately integrating cross-cutting issues. Contributions to the State budget are the most direct and sustainable way to support Government policies on the environment, gender, HIV/AIDS, children's rights, social protection, etc. To monitor the results of implementation of PARPA better by means of progress indicators and to inform political decisions well, the EC considers development of the statistical system one important area of interest to improved governance.

b) Transport infrastructure and regional economic integration

c) Agriculture, rural development and regional economic integration

Objectives: The main objective of the EDF support is to enhance food security and promote income generation in rural areas by improving the performance of agriculture. The specific objectives include improving the delivery of public services in the agricultural sector, securing better access to and management of natural resources by the rural population and supporting decentralisation at provincial and district levels.

In line with the activities already supported under the 9th EDF, the 10th EDF will continue supporting the Government efforts to cushion the increase of natural risks by promoting river basin management, water catchment and irrigation schemes, research and introduction of drought-tolerant crops and varieties.

The preferred implementing instrument is sector budget support (85% to 90% of the allocation).

The sustainable management of natural resources that are under the mandate of the Ministry of Agriculture (land, water and forests) will receive specific attention in the framework of the dialogue between donors and MINAG in the context of PROAGRI. This should lead in particular to a more efficient enforcement of land and forests laws with a specific focus to ensure communities' rights on land as well as to fight against illegal logging and more generally to protect the forestry resource. When needed, the appropriate type of environmental assessment for projects will be carried out.

EC Indicative Programme

10th EDF A envelope €622 million: this envelope will cover long-term programmable development operations under the strategy, and in particular:

a) General budget support: 46%-50% of the total amount;
b) Transport infrastructure and regional economic integration:
Around 21% of the total, in the form of sector budget support and projects;
d) Agriculture, rural development and regional economic integration:
12%-15% of the total, in the form of sector budget support and programmes;
e) Other programmes: 14% of the total,

Three indicators in the indicative programme are indirectly related to water issues:
-the only indicator in the performance assessment matrix under the cross-cutting issue environment is spatial planning.
-another one, under agriculture, is rehabilitation of irrigation infrastructure.
-the indicator for promotion of natural resource management is an increase of human and financial resources for natural resource management and monitoring.

7.5 Other donors or multi-lateral banks active in the Water Sector in Mozambique

The following list is just illustrative and by no means a complete selection of all activities going on in Mozambique in the water field. It demonstrates the importance of water for donors and the different approaches taken.

7.5.1 African Development Bank

The Bank joined a group of 19 donors (PAP) in February 2006 to form a coherent group supporting a single government reform program, the Government Poverty Reduction Plan for 2006- 2009 (PARPA II). The Bank 2006/09 CSP is aligned with the PARPA II period and focuses on 2 of the 3 PARPA pillars: governance and economic development.
The Bank is also a member of 8 sector working groups, and has chaired the roads donor working group since 2007. The country strategy paper of 2006 acknowledges the need to invest in the water and sanitation sectors in Mozambique.
The mid-term review defines priorities for the period until 2009 as (inter alia):

-*Agriculture*: The Bank will finance Massingir Dam Rehabilitation. Massingir Dam is a priority as a source of irrigation for agriculture, but also needs emergency repairs to ensure the downstream \ population's safety in the future. Micro-level projects such as artisanal fisheries, small scale irrigation, rural finance and family farming will be on-going during the period;

-*Water and Sanitation:* There will be two on-going projects:
-Integrated Rural Water Supply for Nampula and Niassa provinces and Urban Water Supply and – Institutional Support for 4 towns.
-In addition, the AfDB is also supporting dialogue in the field of environment and other cross-cutting issues integration into the programmes.

7.5.2 World Bank[56]

The WB has developed a multi-annual strategy for the years 2007-11 for Mozambique.
The following pillars and objectives of the WB activities are defined in the table below.[57]

Water Resource Management
Water resources are a major natural asset for Mozambique, and are instrumental to all economic Sectors, including agriculture, energy, industry and commerce, rural development and health. The combination of high climatic and hydrological variability, high dependency of the country on international rivers, and growing competing water demands by some neighbours and productive and domestic users in Mozambique represent a serious challenge to long-term growth.
The World Bank Group has prepared with Government and development partners a Country Water Resources Assistance Strategy that could help plan investments in water infrastructure and improvements in water management institutions and management practices. The objective of this strategy is to help reduce vulnerability to water shortages, and to provide a minimum platform of water infrastructure to underpin growth in water dependent sectors.

Priority areas of intervention identified in the strategy include:

- Water resources development and management in the water-stressed south, specifically in the Incomati and Umbeluzi basins
- Small scale water resources development to support smallholder irrigation and provide infrastructure for small towns
- Assistance to Government in identifying and implementing the environmental and social requirements for the development of large water infrastructure (particularly on the Zambezi River) institution building in the water resources sector.

[56] Unfortunately, there was no possibility during the field visit to meet a responsible person for water issues from the World Bank. A letter and phone calls asking for a meeting were not successful.
[57] See World Bank: Mozambique Country Partnership Strategy 2007-11. Page ii.

Result Areas	Outcomes the CPS Expects to Influence
Pillar I – Increased Accountability and Public Voice	
Result Area #1: Improved Economic Governance	Outcome 1: Improved budget planning at central, district and municipal level Outcome 2: Improved government fiduciary systems
Result Area #2: Stronger Citizens' Oversight Mechanisms	Outcome 3: Improved government information and communication systems Outcome 4: Increased efficiency in legal and judicial services in selected provinces
Pillar II - Equitable Access to Key Services	
Result Area #3: Improved government effectiveness in the provision of services	Outcome 5: Increased access to information on HIV/AIDS and to treatment Outcome 6: Improved equity in health services Outcome 7: Improved quality of technical and vocational education Outcome 8: Increased access to potable water Outcome 9: Increased sustainable and affordable access to electricity to institutions outside of the power network
Pillar III - Sustainable and Broad-Based Growth	
Result Area #4: International and local investments enabled	Outcome 10: Simplified procedures to start a business Outcome 11: Increased access to finance and support for SMEs Outcome 12: Increased teledensity and access to ICT-based services Outcome 13: Improved mobility
Result Area #5: Strengthened economic growth potential	Outcome 14: Increased access to technologies and extension information Outcome 15: Strengthened government capacity to develop tourism Outcome 16: Increased energy production for export, commerce and industry Outcome 17: Improved sustainable management of water resources Outcome 18: Enhanced capacity to respond to disasters

The rational and sustainable development of natural resources, including by mega-projects, could:

- allow increased spending on poverty alleviation and the MDGs
- significantly augment Mozambique's and the region's electricity supply
- allow improved control of water flows on the Zambezi and other international rivers (with benefits for flood control, power generation, agriculture and aquaculture, and urban and rural water supply)
- protect the environment.

Analysis will also continue on the management and exploitation of natural resources, both to maximise the long-term fiscal benefits for Mozambique but also to ensure environmentally sustainable resource use. This will include continuous support for the preparation of a national water resource strategy.

7.5.3 GTZ/ BMZ (German Ministry of Development Co-operation)

The Flood Disaster Prevention Project of GTZ started in 2005 and continues. It is implemented by GTZ in Mozambique, but funded by a Germany insurance company, the Munich Re. Activities are concentrated on the Buzi and Save river basins. The actions are simple, but efficient: Village officials take daily precipitation readings at strategic points along the river basin. At the same time, they monitor clearly marked gauges on the river. If precipitation is particularly heavy or the river reaches critical levels, this information is passed on by radio. If reports reaching the control centre indicate widespread heavy rainfall, the alarm is raised. The gauges along the river are vital monitoring devices. Special training ensures that people are fully aware of the risk.

7.5.4 DGIS/ Netherlands

Dutch development co-operation is co-funding large water supply systems in the Western provinces of Mozambique. Another national project is called HAUPA:
"Environmental hygiene and productive use of water".

7.5.5 Switzerland

As well as the Netherlands, Switzerland is funding several water and sanitation projects in selected provinces in Mozambique (Niassa and Nampula).

7.5.6 UN Group

FAO has several projects linked to irrigation and flood control. UNHabitat/GEF is implementing a project to develop and implement participatory land use tools and plans for sustainable land management in the Lower Limpopo River Basin in order to reduce the impact of floods on land, ecosystems and human settlements. UNDP is implementing a disaster prevention project.

7.5.7 SIDA/Sweden

An interesting trans-boundary project is funded by SIDA, the Pungwe River Project[58]
During spring tide and low river flows, saline water intrusion extends upstream of Pungwe River mouth, which has negative impacts on sugar cane farming and domestic water for Beira City in Mozambique.

The effects of gold mining activities in the Pungwe basin dominate the water quality and increased sediment concentrations of the surface water of the Pungwe River. The gold mining activities in the river basin are mainly poverty-driven, i.e. it is a subsistence activity. The suspended sediments make the water unsuitable for drinking, washing and irrigation, bury the aquatic fauna, prevent photosynthesis and have effects on the fish population. Miners use mercury in the gold mining process causing elevated concentrations of mercury in the suspended sediments.
Also other heavy metals, e.g. lead and cadmium, are bound to the suspended sediments since they exist naturally in the soils.
Floods cause frequent problems in the lower parts of the Pungwe River basin. Widespread poverty and competing demands for available water resources within and between the countries.

IWRM actions:

The Pungwe Project commenced in February 2002 and included three phases, viz:
Phase 1 – Monograph Phase,
Phase 2 – Scenario Development Phase, and
Phase 3 – Joint IWRM Strategy Phase.

During the monograph phase a large effort was directed towards improving the knowledge base for the development of the water resources of the basin through a number of sector studies.
The scenarios for water resources development were elaborated in the Phase 2. The development scenarios included a number of projects and studies, including e.g. possibilities of medium-large dams on the Pungwe River or its tributaries, flood warning system, local groundwater assessments and measures for improved surface water quality.
In Phase 3 implementation plans for the projects adopted by the stakeholders of the Pungwe River basin were elaborated and the Joint Integrated Water Resources Management Water Strategy formulated.
In parallel the development of a climate change adaptation strategy for the basin has commenced. Local assessment of climate change impacts were made by feeding GCM scenarios into a regional higher resolution climate models and linking it to the hydrological models of the basin.

Impacts:

Sector studies conducted by the Project describe the present situation in the basin with regards to water resources, environment and pollution, water demand, infrastructure and socio-economy. River basin organisations have been strengthened, water permitting and revenue collection operationalized and stakeholder participation increased through the establishment of a basin committee. A five year joint program between the Governments of Mozambique and Zimbabwe has commenced to strengthen the capacity of key basin IWRM institutions – To strengthen and expand stakeholder participation in Integrated Water Resources Management in the Pungwe Basin.

The objectives are to ensure appropriate, efficient, effective and sustainable technical systems and capacities for the collection, monitoring, management and communication of water resources data; to mobilise resources for sustainable, poverty-oriented, water-related development investments in the

[58] Source: http://www.pungweriver.net

Pungwe Basin through establishment of a Pungwe Basin Pre-Investment Facility and launching of the Pungwe Basin Initiative. In addition, seven Critical Development Projects have been developed with their own specific objectives. Large-scale investments such as major hydraulic infrastructure is anticipated to be funded through other sources mobilised through a Pungwe Basin Investment Facility.

The Joint Integrated Water Resources Management Strategy for the Pungwe River Basin has been able to materialise the vision of a broad and sustainable socio-economic development without environmental harm.

7.5.8 DANIDA

Denmark is supporting the water sector only indirectly via the support to the environmental sector project. The budget is 180 million DKK, around 30 million USD for a period from 2006-2010. The following areas will be supported:

1. strengthening of MICOA
   Institutional Strengthening of MICOA is designed to improve public environmental management services, centrally and locally, and across sectors.
2. Urban environment in Greater Maputo and 7 Cities in the North
3. Natural resource management in Sofala and coastal zone management at provincial and district level
   Furthermore, DANIDA supports the hydropower sector and the agricultural sectors, both linked to water issues very closely.

7.6 Lessons learned during the field visit in Mozambique

During a 2-day visit to Mozambique, meetings were held with:
Representative of the Water Resources Management Department, National Directorate of Water
Representatives of GTZ, DANIDA, European Commission
WWF Mozambique

The following points were distilled from those meetings and discussions:

- *Water is an ever-increasingly important issue for Mozambique*
  It became clear in almost all the discussions that climate change is already quite visible in Mozambique and that consequences for the water management are dramatic. Almost the whole national economy is dependent on water, while rainfall patterns are changing and extreme drought and flood situations are predicted to occur on a more regular basis.
  Furthermore, trans-national aspects of water in Mozambique can not be neglected. Energy provision, water abstraction and flood prevention all have an important international dimension. So the importance of an effective and efficient national and international water resources management is acknowledged by everyone and is key to sustainable development in Mozambique.

- *Co-ordination in the water sector appears inefficient*
  A wide range of activities are happening in the water sector - various donors are directly or indirectly supporting activities linked to water, several ministries and government authorities are involved in the water sector, multilateral banks are implementing large sanitation and water infrastructure projects. This all seems sometimes a rather patchy and not very well co-ordinated undertaking - an impression shared by most of the interviewees. The donor working group on water and sanitation is quite large and some of the interviewees felt that this way of working together was not very efficient, as it can easily become a talk shop. As water is such a trans-sectoral issue in Mozambique, a split into sanitation, agriculture and so forth does not do justice to the key importance of water underlying the economic and social sectors.
- *SWAP for water would be highly recommended to bring all donors together and to achieve an overarching framework to implement IWRM*
  To remedy the above-mentioned observation, all the interviewees opted for a sector-wide approach (SWAP) for water in Mozambique. This would encourage donors into a more co-ordinated way of

planning and acting, would give enough resources and capacity for national IWRM implementation, would make donor-government co-ordination more focused and help to achieve a more integrated management of water resources. Apparently, the development of a SWAP is already in discussion amongst donors, but clear funding commitments are lacking at the moment.

- *Water RESOURCES are not the key starting point for most donor but they tend to concentrate on provision, infrastructure etc*
  Although the many water problems facing Mozambique seem apparent, the intuitive approach to their solution is currently not through water resource management. It appears that to many, water availability is assured by as the provision of infrastructures and the concept of water as a limited resource is not factored in. In particular the official from the Water Resources Department felt that this was a key problem. He mentioned that there are certain times in the year, when all the newly installed pumps and taps are running dry as water aquifers are empty. Another observation is that water-saving programmes seem to be absent from all those donor plans except those for irrigation and agriculture. But in general, water storage infrastructure is most urgently needed to adapt to climate change induced rain fluctuations.
- *The EC has been active in the water sector since the 8th EDF, but water is no longer a priority sector*
  The European Commission has been active in the water sector – the Zamwat project had a capacity-building aspect for the upper Zambesi authorities and the EC helped to create the ARAs responsible for River Basin Management Plans. But the lessons from this engagement were that the knowledge provided and built by EC support could not be transferred to the authorities. At the moment, around 20-25 Mio € goes into water projects, but the administrative burden of relatively "small" water projects does not make the engagement attractive to an understaffed delegation. A reference to the next EUWF call for proposals was made. While the delegation would see an integrated approach (water, health, education for rural development) as a good solution, the process to deliver this is non-existent at the moment. A SWAP with a water facility for Mozambique would be welcomed by the Commission. But a potential funding transfer could only happen during the mid-term review.
- *IWRM implementation is progressing, but challenges remain*
  The Global Water Partnership is perceived as a key actor in supporting IWRM implementation in the country. Currently, the ARAs are implementing IWRM in their basins, but with slow progress and not enough resources to be very effective. Another problem is the lack of informed and aware local stakeholders. While water seems to be the key important issue for local populations, there are few organised and informed interest groups amongst them. According to the discussion in the department of water resources management, awareness-raising and training is an urgent need for local stakeholders.
- *Before Mozambique can engage in international river basin commissions, it needs to develop a NATIONAL position*
  At the moment, most of the IWRM is happening in a river basin – therefore at a decentralised level. While this is an advantage in some fields, for the international engagement of Mozambique, it is perceived as a problem. Most of the big river basins in Mozambique are international and it is of high importance for the development of Mozambique to engage in international river basin commissions. But this engagement would require a national position for water resources in Mozambique – a position that does not exist at the moment.
- *Budget support is seen as a critical delivery mechanism by donors in Mozambique*
  A point not related to water issues directly, was the discussion about budget support as the preferred means of delivery in Mozambique. Several of the donors were critical about this, they mentioned that there was no real improvement in poverty indicators or success in MDGs so far. Another weakness of general budget support seems to be the weak environmental indicators and the lack of appropriate water indicators. The MDG indicators for water access and sanitation, need to be broken down into more qualitative indicators for Mozambique. Another point of concern from donors was that a considerable bulk of budget support is used for recurrent costs and not enough funding is used for investments.

7.7 Summary and conclusions for Mozambique

Only some observations and preliminary conclusions can be drawn due to time constraints on the period spent in field with key stakeholders and for research. The situation of water in Mozambique is key to all the development efforts of the country yet at the same time very complex. A multitude of activities, organisations, banks, donors, and initiatives are active in a complex and complicated water sector situation. Donors are sometimes hindered by administrative burdens to engage in certain preferred projects . The general trend towards budget support surprisingly seems not helpful in pushing for an integrated approach. Clear environmental and water indicators are lacking to check the impact or progress of interventions.
An issue which did not feature specifically in this research but did appear in another report by WWF, is the problem posed by plans for bioenergy crops in Mozambique and the water stresses experienced by the country. The case study noted that the Mozambican government had initiated rapid expansion plan for biofuel production (mainly for export), but without putting social and environmental safeguards in place. There are emerging water competition issues, as the area for intesive biofuels production is also a severely water-stressed area, and sugar farmers share water with other agricultural producers, rural communities, and downstream claimants.[59]

Some first tentative conclusions for the purpose of this report would be:

- At the moment, the integration of IWRM in EC programming is low as water is not an official focal sector.
- But given the attempts and progress made for IWRM implementation in Mozambique, integration could be much higher.
- Mozambique has initiated many developments relating to IWRM implementation – the EC could think of supporting those even if water per se is not a key sector of choice..
  The EC could envisage shifting funding during the mid-term review to kick-start a water sector SWAP .
- The EU Water Initiatives and EU Water Facility should be not used as substitutes for more coherent water engagement of the EC in Mozambique.
- The EC as one of the biggest donors through budget support should push for the integration of efficient environmental and water-related indicators into monitoring systems.
- If “small” water projects are administratively not attractive, global grants could be given to a functioning “umbrella” organisation for water like the UN Water, GWP or those organisations which can manage smaller projects, could be supported.
- The lessons-learned from many years of EC engagement in the water sector and in IWRM should be distributed widely and also discussed with the water sector donor group – even if EC is no longer a member.

Finally, the table of IWRM integration of EC programming in Mozambique:

Indicator for integration	**Comment for Mozambique**
A reference to IWRM is made for all water-related investment priorities at EC strategic level.	Yes, but only general – no water related investments planned
National development strategies are referring to IWRM for all water-related goals and objectives.	Yes
Links between water supply, sanitation and environmentally sustainable water resource use are reflected in development (or water) plans.	Yes
Policies, laws and regulations are amended or developed to be used for IWRM implementation actions. This governance process is eligible for support.	Yes
A multi-stakeholder (national or international) river basin or national water management body takes a leadership role and is eligible for support.	Yes
Trans-boundary co-operation such as water-sharing agreements or joint protected areas is eligible for support.	Not clear

[59] See: FINAL REPORT. COMMUNICATIONS AND OUTREACH PROGRAMME OF THE WWF MULTICOUNTRY STUDY, SOUTH AFRICA: The Impact of Trade Liberalization on Rural Livelihoods and the Environment. December 2006.

Education, training, awareness-raising and capacity-building programmes are foreseen and eligible for support.	No
Appropriate impact assessment procedures (EIA, SEA) in place and a pre-requisite for EC support.	Stated for relevant investments
Sites of biodiversity, social, cultural or economic importance and linked to water are being protected or rehabilitated and those actions are eligible for support.	No
Natural water infrastructure (such as headwaters, wetlands, floodplain areas etc) are being recognised as important service-providers and protected or rehabilitated. Such actions are eligible for support.	No
Planning of reducing impact of natural disasters (floods, droughts, water shortages) through IWRM application. This is eligible for support.	Not clear
Strategies to reduce pollution of water bodies (agriculture, waste-water, industrial pollution) through IWRM application. This is eligible for support.	No

8 Overall summary of findings and conclusions

A summary for the 12 case studies analysed here must be accompanied by several caveats. The timeframe for the analysis was short (20 days altogether), the huge body of background materials, initiatives, projects and activities, websites and papers could not be analysed and integrated fully in the short amount of time. Of course, every country is different, and a much deeper analysis is needed to make country-specific detailed recommendations. But nevertheless, common trends are visible and some recommendations can be proposed for IWRM integration in EC programming:

- It appears that the growing importance of water issues and and the global consequences of climate change on the water situation have not been taken into account during the programming process for 2007-13 or 2008-13 some three or four years ago. This is partly understandable as the situation was less visible then – but predictions for severe implications of climate change, particularly on water resources, existed.

- While in Latin American and African case studies, water issues are discussed at least in the background for programming, directly or indirectly, and some EC aid priorities are linked to water, in Asia, this seems rarely to be the case. Where EC programming is negotiated with more developed or even emerging economies in Asia, the water-poverty link might be less strong. But pollution, water shortages or climate change impacts already are, or will, affect Asia as well. The country environmental profiles for the Asia case studies clearly indicate this, but it is not reflected in the programming. Water management and IWRM will be critical to so many economic and social issues including sectors chosen for support from EC. It seems that some of the Asian countries have already made a good start in implementing IWRM, and drawing the links between resource use and development. There would be scope to explicitly support IWRM implementation in Asian countries.

- It was noticeable that many countries had developed national water resource management plans or frameworks in place to implement integrated water resource management. However, little reference was made to these in the programming documents even though sectors chosen for EC support would be heavily dependent upon water resources, for example agriculture and sanitation. (Zambia and Senegal).

- Budget support is the preferred mode of aid delivery in the Asian countries, but also increasingly in Africa and Latin America. This trend is not only observed for the EC, but also for other donors such as the UK. While one key issue of budget support is monitoring and impact assessment, indicators for success often neglect the environmental dimension. Environmental indicators or the criteria for success of environmental policy integration have been suggested in some CEPs[60], but have not been picked up by the EC, the beneficiary country or the donor community in the joint programming documents. While the policy frameworks normally include all the appropriate wording ("sustainable use of natural resources" etc.), there are no measurements for progress in those sustainability issues. Donors should consider how such indicators could be part of the activity/success matrix. As noted in the CEP for Kenya: "The EC has not (yet) procedures in place for environmental integration in PCM for GBS and SPSP. In the present PCM procedures environment is part of the cross-cutting issues in identification, formulation, implementation and evaluation. For projects, the EC has procedures for assessment of EIA requirements for different types of projects".

- Although annexed to the Country Strategy Paper, the Country Environmental Profile and its recommendations rarely seem to be directly informing the EC programming. Certainly, recommendations are rarely taken into account for water issues in the countries reviewed for this report. A Country Environmental Profile may be used as a background document but not taken as a guiding tool for programming or a document consulted on a systematic basis. Another problem may be the rotation of staff in delegations so that staff might be contributing to the annual activities while not being aware of, or having had access to, the CEP originally prepared. A CEP does not seem to be a document which is systematically and regularly used in the delegation throughout the programming period (at least this was the experience for Mozambique).

[60] For example for Kenya.

- Investments in water supply, sanitation, agriculture and rural development are not sustainable if not integrated into a framework where water resources are understood as a limited resource. For example, in Mozambique, sanitation infrastructure provided with donor money cannot be properly used due to water shortages. IWRM is a good tool for making all stakeholders aware of the value of water and how this limited resource can be distributed or allocated among all the different needs. But still, donors often plan from the infrastructure base, not from the resource base. The EC, as a strong promoter of IWRM at the European level, could take the lead in reversing this trend.

- The need for a coherent approach. Some programming documents refer to the EU Water Initiative or the Water Facility as substitutes for an EC focus on water issues instead of complementary tools which might respond to the needs of local authorities, civil society and river basin organisations. The Water Initiative is primarily a policy tool and the Water Facility is a funding instrument with calls for proposals. Neither can substitute for participation of the EC in an integrated and coherent joint plan for the water sector. Both initiatives should be integrated in the donor dialogues, joint programming and monitoring and links made where there is budget support.[61]

- Donor co-ordination in the water sector should be improved. A multitude of different actors, donors and authorities are involved at national, but also at international levels. In Mozambique, the creation of a Sector Wide Approach has been suggested as a good way to address water issues in all their complexity.

- The Global Water Partnership has a particular mandate to promote IWRM implementation on the ground. However coordination and cooperation between GWP and with donors – for example via participation of GWP or a representative of the country water partnerships in sector working groups – does not happen systematically. In fact in several case study countries, the EC has supported the GWP but there is no systematic integration of GWP lessons into the mainstream programming of the EC.

[61] See also a very critical analysis of Water Aid and Tearfund: An empty glass. The EU Water Initiative's contribution to the water and sanitation Millennium targets. 2005

9 Recommendations

Raise the importance of integrated water resource management on the EC co-operation agenda

- Use the mid-term reviews to acknowledge the increasing challenge of water resource needs in the context of climate change.
- Utilising an IWRM approach will contribute to building resilience of natural and social systems in the face of climate change impacts.
- Support water issues and an IWRM framework through general programming and make use of the EU Water Initiative and Water Facility for specific added value projects and for the encouragement of dialogue. Ensure these are fully coordinated with country programming, national water resource plans and other donors.
- Approch water provision services from the point of view of water resource availability before initiating infrastructure-based programmes.
- Update the Environmental Profiles with the most recent data on water availability and potential climate change impacts.
- Support the analysis of water resources availability and water governance as a component of national poverty reduction strategies or development strategies.
- Refer back to the Country (or Regional) Environmental Profiles and their recommendations in the water sectors in the course of the annual activity planning.
- Include water and IWRM training into the preparatory courses for delegation staff as part of the standard environmental integration training

Integrate water issues and IWRM into budget support

- Develop monitoring criteria for progress in sustainable management of natural resources, water resources, integrated water policies etc into the analytical framework for budget support
- Develop criteria linked to IWRM implementation progress into the regular monitoring of progress.
- Ensure participation of key actors for the implementation of IWRM in the donor-government consultation groups and in the budget support donor groups.
- Use the consultation process between donors and national government to promote IWRM in national development or poverty reduction strategies
- Facilitate the participation of civil society organisations and community-based organisations in the dialogue and consultations on EC development assistance.

Tackle various currently unconnected water-linked issues (irrigation, sanitation, hydropower, disaster prevention, conservation) in a holistic way

- Ensure EC assistance, particularly for economic sectors, is aligned with the partner country's own national water resource plans or strategies for IWRM.
- Initiate Sector Wide Approaches (SWAPs for the water sector to bring donors and government authorities for the water sector together in a more co-ordinated working relationship
- Ensure sufficient funding for the SWAP to implement concrete projects and programmes and to ensure follow-up
- Promote IWRM throughout the water and sanitation, agricultural, energy, health etc. sectors
- Ensure systematic use of Strategic Environmental Assessments and Environmental Impact Assessments as tools to ensure sustainability.

Support key organisations and beneficiaries in implementing IWRM and tackling poverty and development issues in an IWRM framework

- Emphasise and strengthen the links between water, natural resource management and poverty in development co-operation foray
- Support those actors (with funding, technical capacity, policy backing or organisational support) who are efficiently implementing IWRM (GWP, River Basin Authorities, water-user groups etc.)
- Make full use of the EU Water Facility to bring a transparent and specific added value to water programming through its pillar on water governance, IWRM and transboundary.

Work in partnership

- Publish in full Country Environmental Profiles and Regional Environmental Profiles to encourage discussion on environmental challenges
- Build coalitions with other important promoters of IWRM
- Support awareness-raising of local stakeholders for water issues
- Work with civil society and support their activities (projects but also policy and lobbying work at national, province and river basin levels) in implementing IWRM
- Encourage transboundary approaches to water challenges and management by governments as well as between donor programmes.
- Encourage transboundary approaches through international agreements and conventions, for example, the UN Watercourses Convention. Promote EU-wide ratification of the UN Watercourses Convention as the global policy framework necessary to enable such transboundary approaches.

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ANNEX I

Water in EC development policy

I.(a) Water in development co-operation in Africa

The European Union is making a significant contribution to water and sanitation, although not necessarily inthe context of IWRM. The UN Millennium Project Task Force on Water and Sanitation has identified ten critical actions it believes are needed if the MDGs are to be met. The report of the Africa Commission[62] has also pointed out the critical need to improve efforts to deliver safe water and basic sanitation. The EU Water Initiative, as a means of improving the efficiency and effectiveness of our bilateral co-operation, and the ACP-EU Water Facility, to address at least in part the financing gap, are examples.

ACP-EU Water Facility was launched in 2004 as a response to the need to catalyse additional funding and to work directly with those most affected by shortages of water and the absence of sanitation. An amount of €250m for the Facility was approved by the EU Council in 2004 for a kick-off. The overall objective of the facility is to contribute to poverty reduction and sustainable development through the achievement of the specific Millennium Development Goals (MDGs) and World Summit for Sustainable Development (WSSD) targets on water and sanitation in ACP countries. Specific objectives of this facility are to boost the sustainable delivery of water and sanitation infrastructure and improve water governance and Integrated Water Resources Management (IWRM) practices in ACP countries by helping to address the financing gap.

I.(b).Water in development co-operation in Asia

Whilst a clearly defined water facility for ACP countries exists, such an earmarked funding is not available for Asia. According to the bi-lateral negotiations with beneficiary states, the water sector might be defined as a focal sector for EU aid investments. Additionally, investments linked to water can be funded under the "cross-cutting issues" heading in the regional programmes. With the Strategy Document for EU-Asia Co-operation, a total of €775 million (16% of the overall funding for Asia) has been specifically allocated for assistance at a regional level. The Multi-annual Indicative Programme (MIP) for the first four years has been allocated €400 million while the MIP for the final three years has been allocated €375 million. Additional to this, the DCI thematic instrument on the environment is being developed, which will include water issues as well.

The Regional Programming for Asia Strategy Document briefly mentions environmental problems, the annex describing the environmental profile for Asia was not available for download. It is unknown therefore how specific the profile is on water issues and problems related to water.
The strategy document concentrates on three strategic priorities for EC regional co-operation in Asia for the period 2007-2013, one of them being policy and know-how based co-operation in the field of environment, energy and climate change among others. The two main activities that are foreseen under this pillar are: (1) Sustainable Consumption
and Production in Asia; Its objective is to promote trade in environmental goods and services. Three types of environmental goods are aimed at: Environmental technology and know-how; environmentally friendly produced goods and services; and goods and services that are environmentally friendly in their use. The second activity is (2) Forest Law Enforcement, Governance and Trade (FLEGT). No ring-fenced instrument for water-related activities exists.

More specifically, since 2002, the Asia Pro Eco Programme has been strengthening the environmental dialogue between Asia and Europe through the exchange of policy information, technologies and best practices that promote more resource-efficient, market-driven and sustainable solutions to urban environmental problems in Asia. Partnership projects between EU and Asian organisations have been funded since 2003 and are now supported through networking events to share experiences that can lead to improved environmental management in the region. Between 2002 and 2006, €53 million was granted

[62] EUWI- Africa: Mapping European Aid to Africa. 2008.

to co-fund 132 projects for implementation up to 2009. There will be no further call for Proposals under Asia Pro Eco.

I.(c) Water in development co-operation in Latin America

Like Asia, Latin America also does not have a dedicated funding instrument for water and the water sector. But the EU Water Initiative has a component on Latin America. See details later. Again, environment and co-operation in the field of natural resources management has been mentioned in regional and sub-regional co-operation strategies of the EC. The theme of environmental protection is put under the "social cohesion or social protection" focus of the Commission co-operation. Additional to this, the DCI developed the thematic instrument on the environment which includes water and biodiversity issues as well[63].

Annex II

The Latin American Regional Co-operation Strategy

Latin American regional programming slots into the framework of the Development Co-operation Instrument (DCI) and the follow-up to the summits between the EU and Latin America and the Caribbean, the 2004 Guadalajara summit, the 2006 Vienna summit and the 2008 Lima Summit. It is aimed at strengthening the strategic partnership between the European Union and Latin America. This partnership is conducted at three co-ordinated levels: regional, sub-regional and bilateral.

While the strategy generally states environmental problems and their influence on poverty reduction[64], the document only briefly describes cross-border environmental challenges: The Latin America region faces many environmental challenges: „The environment is deteriorating rapidly across the region owing to the poor socio-economic conditions of large swathes of the population, the Latin American economies' high dependency on the exploitation of natural resources and their growing vulnerability to natural disasters caused by the climate. Climate change, water, biodiversity and forests are issues of serious concern in most Latin American countries and should therefore be priorities for action by the EU."[65]

This is reflected in the first focal area for EC regional co-operation "social and economic cohesion". It is stated that the response strategy needs to reflect the link between social cohesion and the environment, such as access to and sustainable use of natural resources, including water, forests and agriculture. But no further details are given at this stage. The second focal area on „regional integration" is more specific. Here, the co-operation, regional dialogue and the exchange of experience and good practice on environmental aspects of sustainable development are one of the 5 key intervention areas. Water (European Water Initiative, cross-border management of water courses, sewage treatment) is listed as a field of particular attention.

The Latin America Regional Indicative programme budget totals €556 million, 21% of the global allocation for Latin America for the period 2007-2013. This programme covers the period until 2010. One specific objective under the first focal area (cohesion) is to: Strengthen synergies between social cohesion and environmental protection through greater integration of projects aimed at reducing poverty and managing sustainable natural resources. The second focal area (regional integration) mentions the exchanges of good practice with a view to adjusting to, and mitigating, climate change. But there is no further detailed mention of water sector investments under the indicative programme.

[63] THEMATIC STRATEGY FOR THE ENVIRONMENT AND SUSTAINABLE MANAGEMENT OF NATURAL RESOURCES, INCLUDING ENERGY (ENRTP), 2007.
[64] European Commission: Latin America Regional Programming Document 2007-2013. 2007. Page 5.
[65] European Commission: Latin America Regional Programming Document 2007-2013. 2007. Page 7.

Annex III

The Andean Regional Co-operation Strategy

An indicative allocation of € 50million has been earmarked for the (Bolivia, Columbia, Ecuador, Peru) in the period 2007-2013 under the financing instrument for development co-operation (DCI). The strategy paper states that „the protection of the environment is of major importance both to the Andean Community (CAN) and to the EU, in particular because of the very rich biodiversity which the countries of the Andean Community possess. Poor management of natural resources results in greater environmental deterioration and leads to increased health and social problems, among others. On the other hand, if sustainably managed, these resources have the potential to reinforce the economy. The environment is particularly important in fostering regional integration as most environmental challenges are not confined within the borders of a single country and therefore provide a good incentive for countries to co-operate. Efforts to address environmental concerns at CAN regional level by the Andean Community itself are being stepped up, partly through inclusion of the environment as a sub-sector in the Integrated Social Development Plan. In line with the Joint Declaration resulting from the 4th World Water Forum in March 2006, it is in the context of the focal sector for social and economic cohesion that environment protection co-operation should be considered in the CAN regional programming. Beyond that, the environment should be given greater priority in the political dialogue between EU and CAN. The priorities are climate change, water, biodiversity and forests."[66] This focal sector of social and economic cohesion – including environment as stated above – will absorb 40% of the total funding.

Annex IV

DCI Thematic Programme on Environment

The new Development Co-operation Instrument (DCI) adopted in 2006 includes five thematic Programmes for 2007-13, one on environment: "Environment and sustainable management of natural resources including energy". The Thematic Programme for Environment and Sustainable Management of Natural Resources including Energy (ENRTP), is based on the Communication from the Commission of 25 January 2006 on External Action. DCI sets aside an indicative amount of €804 million for the ENRTP for the period 2007-2013. The indicative amount for the period 2007-2010 is € 469.7 million. This includes € 85.5 million for two new initiatives related to climate change and renewable energy, with multi-annual implications, announced by the Commission in its 2008 Annual Policy Strategy, namely an increase of 50 million Euro for the Global Climate Policy Alliance**,** and an increase of 35,5 million Euro for the Global Energy Efficiency and Renewable Energy Fund (GEEREF).

The strategy will be implemented through a combination of different mechanisms, in particular calls for proposals, direct agreements, joint management, and tenders for services. The ENRTP has the following priorities:

- assisting developing countries to make better progress on integrating environmental sustainability (the neglected 7th MDG) in decision making and thus underpin achievement of all the Millennium Development Goals by building capacity, supporting the involvement of civil society and developing innovative approaches;
- promoting implementation of Community initiatives and agreed commitments (including those under Multilateral Environmental Agreements) on environment and sustainable management of natural resources, including resource efficiency, energy at international and regional level and across national boundaries;
- improving environmental integration and promoting coherence in EU policies affecting third countries through methodological work and enhancing expertise;
- promoting EU environmental policies abroad by strengthening international environmental governance, negotiation and monitoring, assisting the operation of Multilateral Environmental Agreements (MEA) and other processes,
- supporting coherent international policy development across the three pillars of sustainable development and

[66] European Commission: Andean Community Regional Strategy Paper 2007-2013. 2007. Page 19f.

- promoting EU energy policies abroad, in particular sustainable energy options in partner countries and regions by support for policy development and through innovative funding mechanisms.

Although environmental problems occur at all levels, the ENRTP will mainly focus on the global, regional and trans-boundary level. Countries at different stages of development need different approaches. Almost all developing countries face the problems of poverty and environmental degradation. However, emerging economies also face similar environmental challenges to industrialised countries and need particular attention with respect to certain issues, notably ecosystems protection, including biodiversity and water resources, pollution, climate change and energy efficiency. Multilateral Environment Agreements are autonomous institutions with Secretariats which are accountable to the Parties, including the EC and its MS. The EC currently belongs to over 50 MEAs. The most important for the ENRTP are the Climate Convention and Kyoto Protocol; the Biodiversity Convention and the Cartagena Protocol on genetically modified organisms, and the Desertification Convention (the Rio Conventions); the wastes and chemicals agreements (the Basel, Rotterdam and Stockholm Conventions and the Montreal Protocol); the Aarhus Convention on access to information and public participation; and the Barcelona Convention on the protection of the Mediterranean.

Evaluation[67] of the former environmental investments of EU development co-operation states that as alternatives to the current approach of using relatively short-term projects, consideration should be given to making greater use of the sectoral policy support programmes, trust funds, and co-financing with the Global Environment Facility, and to funding projects and programmes over longer time periods. These longer-term options are considered to be particularly important for environment and natural resource management projects where project sustainability is frequently a challenge.
The general experience is that, even when environmental objectives are integrated into national strategies for achieving the MDGs, they do not feature prominently enough to ensure that even modest investments are made to insure against expensive environmental degradation. Moreover, the benefits of environmental protection tend to be long-term and it is difficult to reconcile them with the short planning horizons dictated by the need to achieve economic development for poverty reduction.

As a response the challenges identified in the evaluation, the 2007-2010 multi-annual Indicative Programme proposes the following priority themes:

I. Working upstream on MDG7: promoting environmental sustainability
II. Promoting implementation of EU initiatives and helping developing countries to meet internationally agreed commitments
III. Improving expertise for integration and coherence
IV. Enhancing environmental governance and EU leadership
V. Supporting sustainable energy options in partner countries and regions.

Although a mix of different approaches is envisaged (support for public private partnerships, innovative market-based policy instruments, facilitation of policy dialogue, co-ordination and consultation processes, leveraging private sector equity support, promoting effective participation of scientists and experts from less affluent countries, disseminating results to decision-makers, and encouraging regional co-operation between governments, non-governmental organisations and the private sector), on a more general level, calls for proposals will be the preferred instrument for co-operation activities with civil society and local community partners.
Although water related investments can be made under all the 5 priority actions, the second one specifically identifies the core management costs of the EU Water Initiative.

[67] See: European Court of Auditor's Special report No 6/2006 on the environment.

Annex V

The EU Water Initiative (EUWI)

At the 2002 World Summit for Sustainable Development in Johannesburg (WSSD), the EU launched a Water Initiative (EUWI) designed to contribute to the achievement of the Millennium Development Goals (MDGs) and WSSD targets for drinking water and sanitation, within the context of an integrated approach to water resources management. The EUWI is conceived as a catalyst and a foundation on which future action can be built to contribute to meeting the water and sanitation MDGs.
The EU is committed to contribute to achieving the following international goals:

- To halve by 2015 the proportion of people who are unable to reach or afford safe drinking water and the proportion of people who do not have access to adequate sanitation
- To establish national water resource management plans by 2005

The main goals of the Water Initiative will be to:

- reinforce political will and commitment to action,
- promote improved water governance, capacity-building and awareness,
- improve the efficiency and effectiveness of water management through multi-stakeholder dialogue and co-ordination,
- strengthen co-ordination through promoting river basin approaches, and
- identify additional financial resources and mechanisms to ensure sustainable financing

The EUWI is an attempt to focus increased attention on water-related issues, embracing a broad selection of stakeholder interests and concerns, for purposes of social and economic development and protection of the environment. Its immediate actions are to:

- develop an overview of the situation of different regions and countries with an analysis of major gaps and accompanying organisational, knowledge and financial needs,
- prepare a co-ordinated action programme with a long term-financial strategy providing concrete benchmarks and building blocks until 2015,
- establish a monitoring and reporting mechanism to measure progress in implementation and to steer further action, and prepare a work programme for the following years, with specified targets and responsibilities.

But there is an inherent contradiction between EUWI or the Water Facility and the need for alignment with country led priorities which presents a challenge for the EU in promoting water in development aid.

V.(a) The African component of EUWI

A Strategic Partnership Agreement was signed by the African Union and the European Union during the launch of the Initiative. Its implementation in Africa will take place in close co-ordination with the African Ministers' Council on Water (AMCOW) and NEPAD. Integrated Water Resources Management is playing an important role here. France is piloting the Integrated Water Resources Management (IWRM) component of the EU Water Initiative. The other "Africa" component, which deals with "access to water and sanitation" is being steered by Denmark. Both focus on sub-Saharan Africa. The IWRM, steered by France:

- focuses on watersheds, both at the national and transboundary levels;
- takes into account entire water resources for the whole water cycle (surface water and ground water).

Regarding transboundary basins, the first actions of the component will concern basins identified by a self-selection process by our African partners. Some €10 million have been earmarked by the Commission to finance feasibility studies or priority actions as part of the implementation of action plans for the first basins to be selected.

The first specific objective of this component is to define a plan of action for the coming years (2004-2006) and in the longer term if possible (the Millennium Development Goals being for 2015). This plan of action concerns both transboundary basins and IWRM national plans. It must be based on the requirements of our African partners.

At this stage, five basins have been selected to begin with by the African Ministers' Council on Water (AMCOW) following a six-month consultation process:

- Lake Chad in Central Africa,
- Lake Victoria with special focus on the river Kagera in East Africa,
- the Orange/Senqu river basin in South Africa.
- The Niger river basin and that of the Volta river in West Africa.

The terms of reference for drafting the funding request (for the €10 million) were revised and adopted by all the partners. The analysis and preparation work in the five basins was carried out in close collaboration with European partners.

V. (b) The Latin American component of EUWI

The Initiative, which has the political support of the Member States and the European Commission, is based on the formulation of strategic associations between governments, civil society and other stakeholders. It is developed through Components of a Regional nature; one of which, headed by Spain, Mexico and Portugal, corresponds to the Latin American area.
This component adds two new general lines of work, other than "Water and Sanitation and Integrated Water Resource Management (IWRM)". One corresponding to the "Prevention of Extreme Water-related Events and Mitigation of their Consequences" and one on "Sustainable Use of Water in Agriculture". Other thematic areas are taken into account as horizontal elements for the development of these lines of work:

- Integration of gender issues and those referring to the indigenous population.
- Intra-regional co-operation and technology transfer at that level
- Education and availability of know-how for the public.

The EUWI Latin America work programme has a detailed paragraph on Integrated Water Resource Management, stating:
There is a need to direct efforts towards clarifying the duties and the roles to be played by each institution with water management responsibilities and to develop permanent training processes for managers and other actors. The institutional framework must allow public participation processes, define the procedures for these, and define the rights and obligations of each one of the actors involved. Any water resource management system must be supported by a complete *information system* on hydrologic-hydraulic and water quality variables. At the present time these systems are unconnected, sector based and incomplete, which means it is necessary to make investment efforts both in the infrastructure of the information networks and in their management and maintenance.

Planning mechanisms, especially for long term planning, are clearly insufficient, and efforts must concentrate on the creation of basin organisations with sufficient technical and operative capacity. These bodies must plan the use of water resources, integrating water users within their structures, and be provided with technical staff that is capacitated to undertake the basin plans. The plans must define the infrastructures necessary to satisfy the needs for different time horizons and different scenarios, agreeing among the main affected parties both the objectives and the instruments to achieve these goals, as well as the budgetary allocations that are necessary and the mechanisms for their financing.

The following lines of action have been identified:

- Institutional and legal modernisation in each country. Special attention must be paid to the creation of basin administrations as the governing bodies of water management. In this respect it is necessary to implement support plans for the setting up of these bodies, and at the same time to carry out projects

for the training of their technical managers, elected representatives and other social actors interested in water management.

- Development of basin management. Implementation in those countries where this discipline does not currently exist and control and monitoring of the strategic planning that is performed in the countries where such programmes have already started up. Adaptation of existing programmes to the future basin administrations and basin development plans. Attention must also be paid to the provision of the technology (measuring and control networks, geographic information systems, etc.) and the legal elements that facilitate ordinary management.
- Creation of mechanisms that facilitate the participation of local actors in the planning of water resource use and of the actions to be undertaken in the basins. This includes communication programmes that seek to favour the visibility of water management, water data information systems, and the implementation of standards and regulatory systems that make this participation possible.
- Strategies and plans to create public awareness at all levels with regard to the importance of water for sustainable development.
- Development of appropriate financing mechanisms for the investments and actions needed in the water sector. While it must be foreseen that investments subsidised by governments will continue to be necessary for some time, in order to put into place the structures for the different institutions, important efforts must be dedicated to studying and implementing specific financing regimes that make up a transparent and sustainable system which, in turn, takes into account the situation of the least privileged levels of society.
- Implementation and operation of quantitative and qualitative monitoring systems for water resources.
- Prepare and apply adequate territorial and environmental planning plans which take into account the location and evaluation of water resources.
- Encourage the development of supranational agreements and programmes for the sustainable use of trans-boundary water resources.
- Make co-ordinated efforts to mitigate natural catastrophes and strengthen information exchange systems that are reliable, continuous and on alert to face emergency situations.

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