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WATER

Additional Resources for Achieving the MDG* for Water

1 oktober 2004, Position paper van EMF

* United Nations Millennium
Development Goals

1. Fresh Water Scarcity

- a. The global annual renewable and for humanity accessible fresh water supply on this planet is approximately net 12,000 km³ per year whilst present withdrawal for human use is about 4,000 km³ per year. So, globally, no scarcity.
- b. The annual renewable water supply originates from evaporation of seawater from the world's oceans. In fact our planet is the largest solar energy driven desalination unit on earth with an output of + 45,000 km³/year or + 130 billion m³/day.
- c. Due to substantial variations in climate, seasons and population density, regional accessible water availability is far away from the global average. The result is that in a great many specific part of the world there is severe scarcity, mainly in developing countries. In 2000 an estimated 1.1 billion people lacked access to safe water supply and 2.4 billion to proper sanitation. If nothing is done these numbers will increase in the next decades.
- d. Global water withdrawal for human use covers drinking and sanitation water (+ 10%), irrigation water (+ 70%) and water for industry (+ 20%). These percentages differ greatly per region.
- e. All over the world groundwater levels are decreasing, leading to salinity, and rivers and lakes are being depleted and polluted as regional withdrawals are exceeding renewable supply. Meanwhile, economic and ecological costs for securing fresh water are increasing.

2. What is being done about it

- a. Multinational organizations and institutions, such as UN affiliated agencies, World Bank affiliated agencies, World Resources Institute, World Water Council and its affiliate the Global Water Partnership have been analyzing, presenting and developing targets towards combating scarcity since 1977.

Resolutions and Action Programs have been initiated, of which important examples are:

- UN Marla del Plata Action Plan (1977),
- Chapter 18 of Agenda 21 (UN, RIO, 1992),
- UN Millennium Declaration on Millennium Development Goals (UN, 2000),
- World Water Council Study of Global Water (2000),
- Outcome of the UN Earth Summit on Sustainable Development (Johannesburg, 2002)
- G8 Water Action Plan (2003).

- b. Chapter 18 of Agenda 21 formulated 7 main action programs with an estimated annual cost of 55 billion US\$ per year for the period 1993 - 2000 in order to have in place by 2000 established national action programs and sustainable use of renewable water resources.

This would be the basis from where to achieve all the subsectoral targets by 2025. There are no records showing that the annual amount of 55 billion US\$ from

1993 - 2000 has been made available and national action programs as foreseen were hardly in place by 2000 in the mostly affected countries.

- c. The World Water Report "A Secure Water World", presented at the World Water Forum in The Hague in 2000 presented 7 challenges, resulting from previous resolutions and action plans and concluded that from 2002 an additional annual amount of around 100 billion US\$ would be needed to achieve a satisfactory global water situation in 2025. There was no reference to the failure to meet the targets of Agenda 21, chapter 18.
- d. The UN Millennium Development Goal (MDG) for Water, formulated in 2000 for drinking water and in 2002 for sanitation water and adopted by all United Nations Member States pledging to, in 2015:
 - Reduce by half the number of people without sustainable access to safe drinking water.
 - Reduce by half the number of people without access to basic sanitation.

3. Where do we stand?

- a. The World Panel on Financing Water Infrastructure, chaired by Michel Camdessus produced a report "Financing Water For All" for the Ministerial World Water Conference in Kyoto 2003. The report states that allowing for the expected growth in population, reaching the UN Millennium Development goals would entail providing drinking water to an additional 1.5 billion people (1.0 billion urban, 0.5 billion rural) and basic sanitation water to an extra 2 billion (1.0 billion urban and 1.0 billion rural) by 2015. Based on the required additional 100 billion US\$ per year mentioned in the World Water Report, the panel recommends how this could possibly be financed. When one reads the chapter on "The roots of the problem" in the executive summary of the report, one can not escape the notion that resolving the fundamental weaknesses and sector-specific risks facing the implementation and the financing of the ambitious UN Millennium Development Goals for water, will be a formidable if not impossible task. The very great number of measures to be taken, as proposed in the 53 pages report to finance the MDG for water are overwhelming. When the report states that by 2006 most of the necessary measures proposed should have been implemented, and results should start to appear, this seems an overoptimistic viewpoint. The outcome of the report presented to the Ministerial Meeting in Kyoto in 2003, was not incorporated in the Ministerial Declaration and merely referred to as being acknowledged.
- b. Later in 2003, the G8 Summit meeting in Evian produced a summit document "Water, a G8 Action Plan" referring to the Ministerial Conference in Kyoto and listing 3 major chapters: 1. Promoting good governance, 2. Utilizing all financial resources and 3. Building infrastructure. The texts are conveying the known messages that have been repeatedly published in previous documents and offer little

news, except that in this document no dates, no targets and no financing commitments are indicated.

4. What can we do?

Present projections, action programs and goals are mostly top-down and macro-level oriented, involving traditional sources of water and finance. As it seems highly unlikely that the MDG's for water in 2015 and 2025 are physically, financially and politically attainable, additional, alternative resources need to be explored. In general options to improve availability of water could be tabled in the following sequence of preference:

- Re-duce (demand) save
- Re-pair (infrastructure) high return
- Re-coup (rainwater harvesting) low cost
- Re-use (waste water treatment) reducing withdrawal
- Re-cover (groundwater) renewably
- Re-invent (technology) improving efficiency
- Re-source (sea and brackish water) enhancing resource base
- Re-group (IWRM) making the right choices

Alternative resources options involve:

- large scale desalination (urban areas)
- small scale desalination (rural areas, islands)
- rainwater harvesting (rural areas, islands, cities).

Although recent publications (2002) on the water issue by major institutions (UNDP, UNEP, UN-Habitat, WRI, WB, WWC, GWP, IUCN, etc.) do hardly devote attention to the alternative resources, a few signals have appeared since then:

- In the declaration of the World Summit for Sustainable Development (WSSD) in Jo'burg in 2002 a plan of implementation was adopted (chapter 26) containing the following:
Support the diffusion of technology and capacity-building for sustainable and cost-effective of seawater.
- At the UNEP Ministerial conference in Korea, March 2004, declared:
Alternative and cost effective technologies such as rainwater harvesting and (sustainable) desalination should be explored and promoted and the transfer of appropriate technology increased.

5. Alternative options details

a. Large scale desalination

Although until recently large scale desalination was mainly applied in energy rich, cash rich regions, and/or areas with severe freshwater scarcity, in the last 5 years capacities and plans for seawater and brackish desalination have spread to many more areas such as: US, Spain, UK, Pakistan, India, Singapore, Taiwan, China, Australia, Mexico etc. Decreasing desalination cost (< 0.50 US\$/m³), efficient energy use (including waste heat), and combined

power/desal units, will increasingly become competitive with increasing traditional water supply costs. The world's large-scale desalination capacity is presently expected to increase from + 30 million m³/day, today to + 60 million m³/day in 2015, which means annual investments of 2 billion US\$. Most of these projects are publicly financed but recent trends are more toward public/private financing. The projected capacities would cover about 4 to 5% of the total fresh drinking and sanitation water use. However, the urban population in megacities may reach 5 billion in 2025 and as the majority will be living near the coastlines of the world, this will most probably lead to a stronger increase in desalinated water supply in the coming decades. This notion is illustrated by what President Musharraf pronounced in his speech at the groundbreaking of the power and desalination plant of DHA Karachi on August 20th 2004:

The President pointed out that in view of population growth in the country in the next 25 years, drinking water will be in scarce supply. He said we do not add the water requirement for drinking purposes when we assess water requirements for irrigation purposes. "I shudder to think what will happen after 25 year", the president remarked. "Certainly, the direction is desalination plants all along the coastline to convert the sea water into drinking water." He said the river water will be inadequate because we need those for irrigation. Therefore, desalination plants are a new direction which we have to take in the future.

EMF proposes that a programme of awareness raising will be developed informing decisionmakers, UN agencies, NGO's, and the general public about the desalination option and its role in future integrated water resource management.

The programme should include the advantages and disadvantages and emphasize that desalination is an option that should be investigated when all other options are not sufficiently providing the required water security.

As the disposal of the brine by-product of desalination is a matter of concern regarding the environmental impact, it is essential that this issue be professionally addressed and resolved if the desalination option is to become a part of the solution for water scarcity. Although solutions have been found, the disposal issue has so far been mostly neglected.

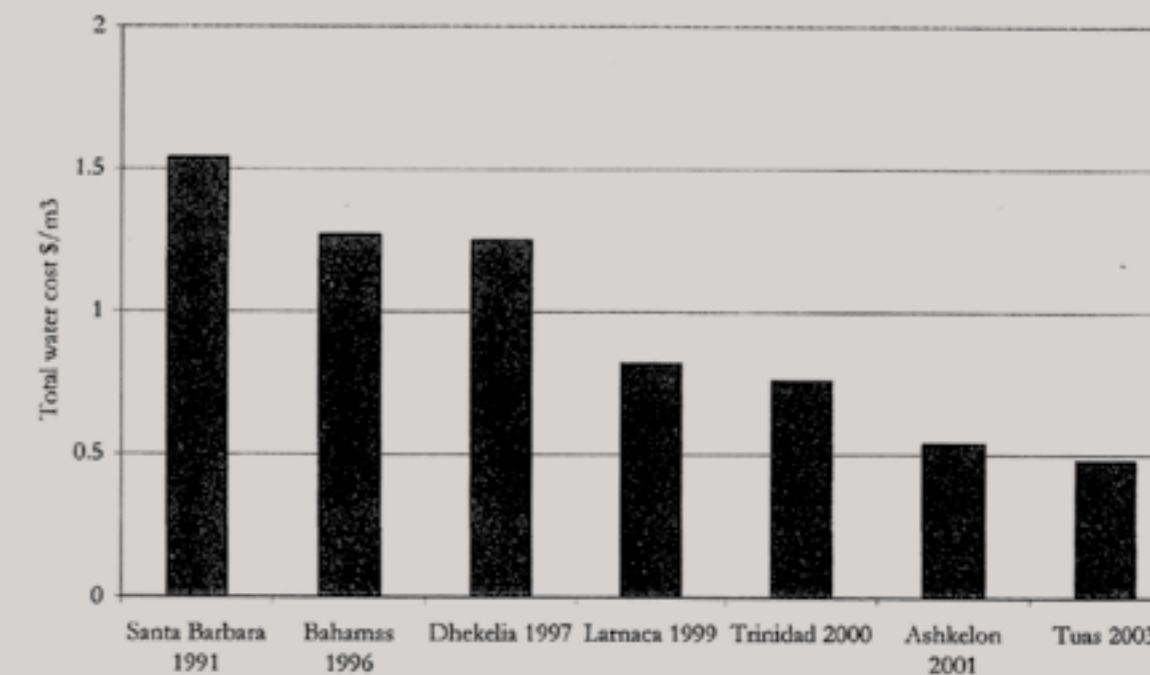
EMF proposes that the desalination industry jointly develop a technically, economically and ecologically acceptable procedure to handle the brine byproduct of desalination as part of an internationally agreed environmental assessment methodology for desalination plants.

Tabel 1.1. Indicative annual investment in water services for developing countries

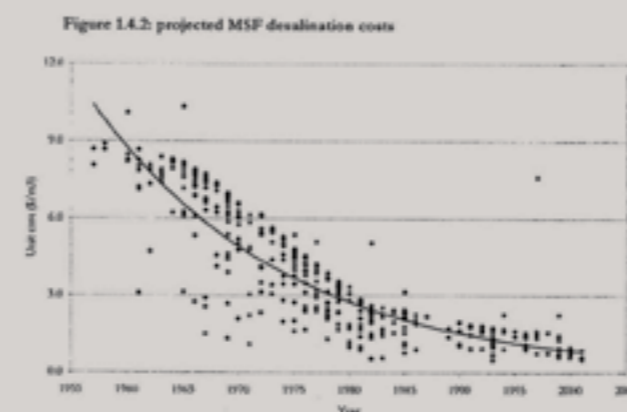
	Annual costs	
	Today	2002-2025 (billions of US\$)
Drinking water	13	13+
Sanitation and hygiene	1	17
Municipal wastewater treatment	14	70
Industrial effluent	7	30
Agriculture	32.5	40
Environmental protection	7.5	10
Total	75	180

Source: GWP, "Towards Water Security: a Framework for Action", and John Briscoe, "The financing of hydropower, irrigation, and water supply infrastructure in developing countries," in *Water Resources Development*, (Vol. 15, no. 4, 1999). Figures include 15% allowance for O&M.

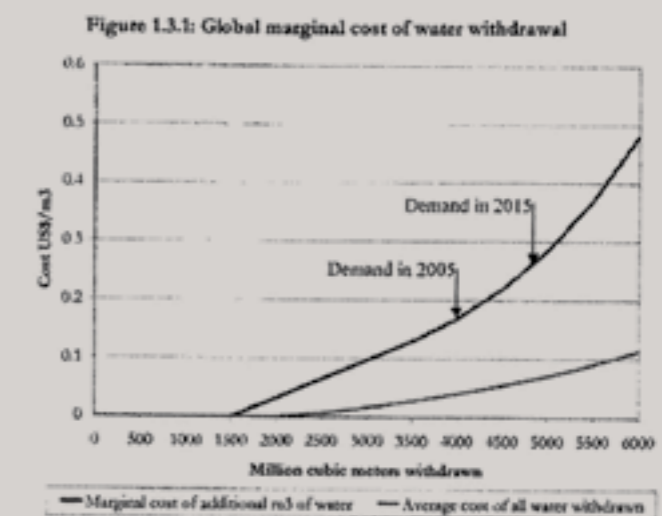
Figure 1.4.1 Desalination cost trends: Reverse Osmosis



Projected MSF desalination Costs



Global marginal cost of water withdrawal



b. *Small scale fresh water supply*

Whereas in water action programmes emphasis has until recently been mostly on larger scale facilitation for water supply, equal attention should be devoted to a small scale approach. This could be characterized as follows:

large scale	small scale
top down	bottom up
centralized	decentralized
infrastructure	stand alone
high tech	appropriate tech
institutional	community
macrofinance	microfinance

The following technologies offer small scale applications:

- **Appropriate and sustainable desalination technologies**, making use of solar heat and/or windpower, with capacities of between 0,1 and 5 m³/day are today available at cost prices between 500 and 25.000 US\$ per unit, delivering fresh water at a cost price level between 1 and 5 US\$ per m³, or 0.1 and 0.5 cents per liter. These capacities and cost prices are affordable for many communities and for horticulture without the need for extensive infrastructure and making use of microfinance.

With microfinance having become a mature institution over the last 10 years, serving as many as 60 million families (or 300 million people) all over the world, it would offer an additional financial resource in local currencies at grass root level for water procurement. In order to assess the sustainable use of brackish groundwater the selected regions should make use of international groundwater experts.

EMF proposes to start up a programme for evaluating and disseminating existing small scale fresh water technologies for water scarce rural areas in developing countries, in combination with experienced professional microcredit institutions, and in concertation with multinational agencies, such as WB, WWC and GWP.

- Appropriate and sustainable rainwater harvesting and storage.

Anil Agarwal from India, a great promoter of rainwater harvesting stated:

*“Rain is decentralised.
So is the demand for water.
Why can ‘t we decentralise the supply”*

The chairman of the United Nations Commission for Sustainable Development (2003), Broege Brende, made the observation that:

“Rainwater harvesting could help up to 2 billion people in Asia alone”.

In fact the rainwater harvesting and storage techniques including devices to maintain drinking water quality, are able to make freshwater available in rural areas at cost prices of between 1 and 2 US\$ per m³, or 0.1 and 0.2 US cents per liter, excluding rainwater collecting and storage equipment.

Here also the microfinance mechanism could very well handle the financing required for this technique. UNEP has recently convened a meeting to develop a partnership among global networks and institutions in order to promote rainwater harvesting at high level decision making processes. The meeting intends to prepare an input on rainwater harvesting for consideration at CSD 13 and other international fora and to discuss and shape a work programme for collaboration.

Specifically, the meeting shall integrate Rainwater Harvesting with IWRM as a strategy for fulfilling the Agenda 21, the Millennium Development Goals and the Johannesburg Plan for Implementation. This could be an interesting example of how the desalination issue could be promoted as well. As small scale solar heat based desalination depends on the sun and rainwater harvesting on rain, the two techniques could be applied in combination in order to secure year-round fresh water supply.

Conclusion

- **A substantial contribution to achieving the MDG can come from**
 - Desalination of seawater and brackish groundwater
 - Harvesting, storing and preserving rainwater
 - Application of microfinance
- **A World Wide Multistakeholder Campaign is required to promote these practices for megacities and rural communities in water scarce areas near coastlines and on islands**

Literature

1. Water Today and Tomorrow, Prospects for overcoming scarcity, Allerd Stikker, *Futures 1998*
2. Desal Technology can help quench the world's thirst, Allerd Stikker, *Water Policy 2002*
3. Desalination Improvements Spice Investment Potential, Allerd Stikker, *Sustainability Business Investor - Worldwide 2002*
4. Financing water for all, Michel Camdessus, 2003
5. Desalination Markets 2000 - 2015, A Global Assessment & Forecast, *Global Water Intelligence Publication 2004*
6. Enhanced water resource base for sustainable integrated water resource management, Else Boutkan, Allerd Stikker, *UN Natural Resources Forum 2004*

Summary

Financing water for all the roots of the problem

There is general agreement in expert presentations to the panel that the water sector's problems arise partly from weaknesses in governance and partly from risks specific to the sector.

These factors apply in varying degrees in different parts of the sector – urban water supply differs from irrigation and hydropower, for example.

In the realm of governance, the main problems are:

- The apparent low priority given to water sector issues by central governments.
- Confusion of social, environmental and commercial aims.
- Political interference.
- Poor management structure and imprecise objectives of water undertakings.
- An inadequate general legal framework.
- Lack of transparency in award of contracts.
- Non-existent, or weak and inexperienced regulators.
- Resistance to cost-recovering tariffs.

The main sector-specific risks, which apply to all commercial financial sources, whether from the private or public sector, are:

- Project profile: capital intensive with high initial investment and long payback period.
- Low rate of return.
- Foreign exchange risk: mismatch between revenues in local currency and finance in foreign currency.
- Sub-sovereign risk: decentralised water agencies with service responsibility but lacking financial resources and credit standing.
- Risk of political pressure on contracts and tariffs, with weak and inconsistent regulation.
- Contractual risk: projects of long duration entered into on the basis of poor initial information.

Country (“sovereign”) risk is also present as a general constraint on international finance, not limited to the water sector. Very few emerging markets have investment ratings that enable them to raise funds on attractive terms. Water projects have the additional disadvantage that there is a high minimum size of project finance, due to the size of legal costs and the terms for water projects. International project finance has large returns to scale because of the legal, financial and due diligence costs associated with it. Many water projects may not be viable for project finance because they fall below the minimum size for it.

G8 Evian Summit 2003

Water - A G8 Action Plan

As water is essential to life, lack of water can undermine human security. The international community should now redouble its efforts in this sector. Good

governance needs to be promoted and capacity must be built for recipient countries to pursue an appropriate water policy, and financial resources should be properly directed to the water sector in a more efficient and effective way, in order to achieve the goals of the Millennium Declaration and the Plan of Implementation of the World Summit on Sustainable Development (WSSD) in the water and sanitation sector, and to reverse the current trend of environmental degradation through the protection and balanced management of natural resources.

We are committed to playing a more active role in the international efforts towards achieving these goals, on the basis of the Monterrey consensus and building upon the outcomes of the Third World Water Forum and the Ministerial Conference held in Japan in March 2003. With this solid foundation and in response to the needs and priorities of partner countries we will take the following measures individually and/or collectively, particularly taking into account the importance of proper water management in Africa, in support of the New Partnership for Africa's Development, as stated in the G8 Africa Action Plan.

1. Promoting good governance

- 1.1 We are committed to assisting, as a priority, countries that make a political commitment to prioritise safe drinking water and basic sanitation as part of their strategy to promote sustainable development, including poverty eradication, in their efforts to:
 - develop comprehensive plans for the integrated management and efficient use of water resources;
 - develop an institutional framework that is stable, transparent and based on the rule of law, respecting fundamental human needs and ecosystems conservation, and promoting local empowerment and appropriate cost recovery approaches;
 - establish clear objectives and, where appropriate, develop and evaluate performance indicators.
- 1.2 We will support these countries' capacity building efforts to develop the skills necessary to provide efficient public services, seeking to help partner countries to:
 - develop appropriate legal, regulatory, institutional and technical frameworks;
 - strengthen basic and further professional training institutions in water management, or create them, where necessary.
- 1.3 In view of the importance of river basin management, we will reinforce our efforts to:
 - provide assistance for the development of integrated water resources management and water efficiency plans;
 - support better management and development of shared river basins;
 - promote river basin co-operation throughout the world, with a particular attention to African river basins.
- 1.4 We offer to share best practice in the delivery of water and sanitation services including the role

of stakeholders and the establishment and operation of partnerships, whether public-public or public-private, where appropriate.

2. Utilising all financial resources

In line with the Monterrey Consensus and the WSSD Plan of Implementation, bearing in mind the different needs of rural and urban populations, we are committed to:

- 2.1** Give high priority in Official Development Aid allocation to sound water and sanitation proposals of developing country partners. This can be a catalyst to mobilise other financial flows;
- 2.2** Help mobilise domestic resources for water infrastructure financing through the development and strengthening of local capital markets and financial institutions, particularly by:
- establishing, where appropriate, at the national and local levels, revolving funds that offer local currency;
 - appropriate risk mitigation mechanisms;
 - providing technical assistance for the development of efficient local financial markets and building municipal government capacity to design and implement financially viable projects;
 - providing, as appropriate, targeted subsidies for the poorest communities that cannot fully service market rate debt;
- 2.3** Encourage international financial institutions (IFIs) to give the necessary priority to water;
- 2.4** Promote cost recovery with “output based aid” approaches to ensure access to services for those least able to afford them;
- 2.5** Promote public-private partnerships (PPPs), where appropriate and suitable, particularly by:
- inducing private-sector investments and encouraging use of local currency;
 - facilitating international commercial investment and lending through use of risk guarantee schemes;
 - encouraging the harmonisation of operational procedures;
 - facilitating the issue of national and international tenders;
- 2.6** Apply, on a voluntary basis, tools for development assistance for water and sanitation projects that may include such financing mechanisms as: concessional financing consistent with international rules on financial aid, project financing, micro and meso-financing and debt for investment swaps;
- 2.7** Encourage financing of sound irrigation practices;
- 2.8** Improve co-operation and co-ordination between donors, seeking better synergy among our various initiatives.
- 3. Building infrastructure by empowering local authorities and communities. We will do our utmost to support partner countries to develop and improve water and sanitation related infrastructure, tailored to different needs, by such means as:**
- 3.1** Helping build, among other things, local water management systems in rural areas, and water and sewage facilities in urban areas, through efficient use of public resources and promotion of PPPs, where appropriate;

3.2 Promoting community-based approaches, including the involvement of civil society in provision of water supply, sanitation and hygiene;

3.3 Encouraging the use of adapted technologies at the household level on a self sustaining basis for the provision of basic sanitation and safe drinking water, including point of use water treatment which has been found to be cost effective in meeting the needs of the poor;

3.4 Reinforcing the skills and knowledge of different actors in the water sector, particularly local governments and relevant actors of civil society, acknowledging the vital role women play in local communities;

3.5 Promoting the incorporation of capacity building elements for each co-operation project, specifically in the form of “learning by doing”;

3.6 Strengthening South-South co-operation.

4. Strengthening monitoring, assessment and research

4.1 In collaboration with all stakeholders, we will promote co-ordination of mechanisms for information sharing and monitoring by utilising existing UN and other systems and the network of websites established at the Third World Water Forum Ministerial Conference, and will encourage relevant international organisations to operate them.

4.2 We will support strengthening water monitoring capacity in partner countries to complement existing monitoring efforts.

4.3 We will support the development of mechanisms for collaboration in water-cycle related research, and enhance research efforts in this area.

5. Reinforcing engagement of international organisations

5.1 We underline the need for the United Nations to take a key role in the water sector. We stress the importance of reinforcing co-ordination within the UN system, and between the UN system and the Bretton Woods institutions, the regional development banks and various stakeholders.

5.2 We request the World Bank, in consultation with other IFIs, to study and recommend necessary measures to implement the following proposals: made by the World Panel on Financing Water Infrastructure:

- using their financing instruments in a more flexible manner to allow loans directly to sub-sovereign bodies, where appropriate;
- developing guarantee and insurance schemes for risk mitigation;
- addressing the issue of sovereign and foreign exchange risk coverage.