

A DECISIVE DECADE FOR THE FUTURE OF MANKIND

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World Water Vision: Making Water Everybody's Business

This World Water Day marks an important date for me. It was ten years ago today, at the Second World Water Forum in The Hague, that the World Water Vision was launched. The Vision report prepared with the collaboration of thousands of people throughout the world told us that continuing to manage the world's water resources as we were doing in the Year 2000 was unsustainable. The Vision foresaw that by acting to change our practices, in 2025 we could be living in a world with a population of 7.5 billion people where everyone would have access to safe water supplies. Agriculture would produce enough food so that no one need go hungry. Reduced global consumption by industry would accompany substantially higher economic activity in the emerging and developing countries. Similar concern for freshwater and the environment would have reduced the volume of waste from human activity and led to the treatment of most solid and liquid wastes before their controlled release into the environment.

The Vision did go on to say that some countries could lag in their development of representative political and social systems and as a result large parts of the world would need further efforts to raise living standards and improve the quality of life for all living things.

3rd Edition United Nations world Water Development Report

Ten years alter I found myself Content Coordinator of the 3rd Edition of the United Nations World Water Development Report. As this report was published a year ago at the 5th World Water Forum in Istanbul, it is worthwhile recalling what it says.

Water-related crises

The report noted that the news media were full of talk of crises – in climate change, energy, food and troubled financial markets. These arise against a background of continuing poverty for a large part of the world. Unresolved, they may lead to increasing political insecurity and conflict. They are linked to each other in many ways, not least of which is through their links to water resources. All the decisions we make about these crises will affect water; e.g. the energy crisis led to a knee-jerk reaction by some: “Let's grow our fuel!” but this response did not take into account the land and water required, or

the impact on food production and prices. It was not recognised that solutions to these crises include decisions we make about how we manage our water.

Demand for energy – for heat, light, power and transportation – is increasing rapidly. According to the International Energy Agency, the world will need almost 60% more energy in 2030 than in 2002, with economic growth in developing countries driving most of the increase.

There are many potential causes for the steep food price increases we observed in the spring of 2008. These include:

- Rising demand – from population increase and shifting diets.
- Droughts
- Cost of agricultural inputs – which were rising with energy prices at that time
- Agricultural land being used for biofuel.

The contribution of the global financial crisis was as yet unknown.

We have always been subject to climate variability, and still do a poor job of managing it in many places. It requires major investment to avoid losses as illustrated by impacts on GDP in Ethiopia and Tanzania. In Ethiopia a World Bank study showed that over a 12 year period up to 38% of GDP could be lost and poverty increased 25% through unmanaged climate variability.

Budgetary spending on infrastructure is often cut during periods of financial tightening, although for governments that can afford it, investing in infrastructure can help counter an economic slowdown. Justin Lin, Chief Economist, World Bank has said that “Aggressive government spending worldwide on infrastructure and other public projects is likely to be more effective than broad tax cuts in supporting global economic growth.” Given the importance of water to development, water infrastructure would seem like one of the first places to invest.

Possible consequences of ignoring the importance of water

What will happen if we continue to ignore the importance of water in resolving these crises? The possible consequences were well-described by Ban Ki-moon, UN Secretary-General, 2008:

“Ten years ago – even five years ago – few people paid much attention to the arid regions of western Sudan. Not many noticed when fighting broke out between farmers and herders, after the rains failed and water became scarce.”

“We can change the names in this sad story. Somalia. Chad. Israel. The occupied Palestinian territories. Nigeria. Sri Lanka. Haiti. Colombia. Kazakhstan. All are places where shortages of water contribute to poverty.”

Competition for water exists at all levels and is forecast to increase with demands for water in almost all countries. In 2030, 47% of world population will be living in areas of high water stress. Competition for water and shortcomings in managing it to meet the needs of society and the environment call for enhanced societal responses through improved management, better legislation and more effective and transparent allocation mechanisms.

Increasing demand for water threatens the sustainability of fragile ecosystems, especially in areas of high water stress. Population growth, increasing consumption per capita and climate change will increase stresses in regions already stressed.

External forces affecting water resources and uses

Alongside the natural forces affecting water resources are new human activities that have become the primary ‘drivers’ of the pressures affecting our planet’s water systems. These pressures are most often related to human activities and economic growth. Our requirements for water to meet our fundamental needs and our collective pursuit of higher living standards, coupled with the need for water to sustain our planet’s fragile ecosystems, make water a unique challenge. The drivers examined in WWDR3 include:

- Demographic (population growth and distribution)
- Economic (globalization, rising cost of food and energy, trade and “virtual water”)
- Social (lifestyles and consumption patterns, poverty, education, culture and values)
- Technological innovation and dissemination (environmental R&D, renewable energy, information and communications technology, biotechnology and GMO’s, bioenergy, nanotechnology)
- Policies laws and finance (finance being the missing link)
- Climate change

An in-depth examination of these forces requires a paradigm shift, moving the focus from water itself to development and the role water plays in development.

There is evidence that the global climate is changing and that some of the change is human-induced. Climate change is a fundamental driver of changes in water resources and an additional stressor through its effects on external drivers.

Economic losses are higher in the richer countries although they are better prepared to cope, but the impact as a percentage of GDP is far greater in poor economies. The challenge of dealing with the impacts of climate change, and taking account of the other external driving forces, is compounded by the lack of information and data.

Some progress has been made

Yes, some progress has been made, such as in the realm of access to drinking water. The world is on track to meet the MDG target for drinking water; sub-Saharan Africa is not. Access to sanitation, however, is lagging. And many countries are not on track to reach the MDG target.

Investment is lagging

Investment flows to uses with the highest financial rate of returns. Currently, water often gives very low returns for very long payback periods, primarily because of the way the sector is governed. It is not surprising that new investors are not eager to enter the water sector. Yet public investment in infrastructure also is declining. And so the needs of the water sector go unmet.

Ultimately, there are only three sources of financing: tariffs, taxes, and development assistance and philanthropy. Efficient operations and effective use of available funds are essential to get the most of the limited funding available and to attract new investment.

History shows a strong link between economic development and water resources development.

Abundant examples can be drawn of how water has contributed to economic development and how development has demanded increased harnessing of water. Such benefits came at a cost and in some places led to adverse environmental and social impacts.

What is surprising is why there is not more investment. Because it pays!

For example in the USA, 1\$ invested in water infrastructure by the USACE from the early 1930s (in response to the global recession) until the end of the century produced benefits estimated at 6\$. WHO has recently reported that each 1\$ spent on safe water supply and sanitation has brought benefits valued at between 3\$ and 34\$, depending on the technology and the region.

The paradigm shift

Managing water resources is essential to social and economic development, poverty reduction and equity and to achieving the Millennium Development Goals. Specialists and managers in the water domain, or “water box” – supply and sanitation, hydropower, irrigation and flood control – have long been aware of this. But often we have had a narrow, sectoral perspective that blinds many decisions on water. And we do not make the decisions on development objectives and financial resources needed to meet these broader objectives.

These decisions are made or influenced by leaders in government, the private sector and civil society. In other words, they are made by people “outside the water box”. These leaders must recognize water’s role in attaining their objectives and act accordingly.

Actions are being taken by some

The report recognises that many successful actions are already being taken around the world to meet the challenges described. Water managers are improving the way they carry out their tasks of collecting information; planning; creating the necessary institutions and capacity; designing, building and operating the works; and contributing to raising the needed financing.

The Uganda water utility provides an example of how water managers, in this case from the water supply and sanitation sector, have created conditions that could be attractive for investment by increasing efficiency levels and effectiveness in their management approaches. As a result of their efforts they have:

- Multiplied the number of house connections constructed per year by a factor of 8;
- Multiplied the total number of house connection 3.5 times;
- While reducing staffing by 25%;
- So that the number of employees per connection became 1/5 of the number at the outset;
- Increased income 3.5 times
- Went from being a drain on government resources to being a net income generator.

Actors ‘outside the box’

WWDR3 describes measures being undertaken by actors in government, the private sector and the community working outside the water sector:

- Promoting win-win scenarios by creating space for change
- Promoting win-win scenarios through cooperation and knowledge
- Sustaining change: changing habits through awareness
- Ensuring sustainable financing

The Zambian government, recognizing the importance of water for development, linked the water resources management plan to the National Development Plan. Linking these was seen as fundamental to poverty reduction and achieving the Millennium Development Goals.

Meeting the challenge

The challenges are great the report says, but the unsustainable management and inequitable access to water resources cannot continue – because the risks of inaction are even greater. Leaders inside and outside the water domain have critical, complementary roles. Water is essential to sustainable development. Leaders in government, the private sector and civil society must learn to recognize water's role in obtaining their objectives.

The donor community could incorporate water into the broader frameworks of development aid and focus assistance on areas where it is needed most.

The chief executives of the UN agencies, following the example of their joint discussions of and collective responses to climate change, could convene to examine the role of water, water systems and water management in development and environmental services, providing direction to agencies and advice to member countries.

WWDR3 concludes by saying that inaction is not an option. The challenge can be met. Some are doing it. Leaders in the water domain and decision-makers outside it must act together, now!

What progress has been made?

Comparing the state of water management at the time of the Vision with that of WWDR3 it would seem that little has changed in the ten years since the Vision report. Is this really the case? If so, why has there been so little progress?

There has been some progress

As WWDR3 noted there has been some progress. At the Johannesburg Summit in 2002 the world's leaders recognised the importance of IWRM. A significant percentage of countries have put in place water resource management (WRM) plans, strategies and legislation. Globally we are on track to meet the drinking water objectives of the MDGs. This reflects increased investments in that sector following the report of the Camdessus Panel in 2003. At least among water managers, there is increased knowledge of the stock and quality of groundwater in most regions of the world and how its conjunctive management with surface waters can contribute to meeting the challenges. Industry is increasingly aware of its dependence on water and implementing water conservation and pollution reduction plans. Approaches to gathering such data using satellite technology and modelling have been developed and will facilitate monitoring trends even if not being precise in absolute terms. Led by the 2030 Water Resources Group, a private sector driven movement is underway to raise the importance of the water with senior government officials, emphasising that the investments required are not enormous

compared to the benefits. Community action is often producing better results than government. Public contribution to decision-making is taking root, facilitated by new information technologies. Some of the less wealthy countries are making progress that is better than the global average by establishing financially and politically autonomous, effective and efficient institutions.

But not enough

We are not on track globally to meet the household sanitation targets. In many countries where sanitation is provided at the household level, the collected wastes are discharged to the environment without treatment. Global data on progress in water supply and sanitation, such as it is, mask the lack of progress in many countries, especially the poorest. The MDGs do not reflect the important role that water resource management must play in meeting them, including the basic objective of poverty reduction through economic development. WRM strategies and legislation are often not translated to action through institutional, financial and cultural change. Investment in water infrastructure continues to be single purpose in most places. Abuse and uninformed use of groundwater continues. Where there are processes for public participation, leading actors from business and government are often not fully involved. In an era when we need to know more about water resources and their uses, we are collecting less data. People knowledgeable about the impact on water resources of decisions and developments in other sectors are not at the table when these important issues are being discussed.

The Vision will not be achieved

The Vision report described world water resources and their management at that time. Through scenarios it looked at what could be achieved through the use of economic and technical solutions. Coming to the conclusion that cultural or behavioural change would be required as well, it described steps that could be taken to arrive at a vision sought by the thousands of participants. It assumed that it would take a few years to get the message out and understood, and a few more to put in place the strategies and policies to start action. Ten years later, based on the information contained in WWDR3, there is disappointing progress at national and global levels. It is clear that the World Water Vision will not be achieved by 2025.

A rapidly changing world poses threats and offers opportunities

In the meantime the world is changing at an apparently accelerating pace. Climate change is now a fact. Technological change is being accompanied by changes in cultures, society and governance.

Cultural change

With respect to the latter, I quote at length some of the changes during the first decade of this century as seen by columnist Anand Giridharadas in the International Herald Tribune, issue of the weekend of December 5, 2009.

“The human population became majority-urban 'for the first time, defined ever less by the tight weave of village society and ever more by the city's anonymity, Anonymity thrived in the workplace, too, with the growth of outsourcing and off-shoring, which chopped large tasks , like making an iPod into tiny pieces performed in different countries by colleagues who might never meet. Such virtual connectedness quietly became ordinary around the world: We grew comfortable with virtual mate-seeking, virtual business meetings, virtual friends and friending, virtual trading of credit-default swaps

“It dawned on the West in these years and America especially, that its pre-eminence and specialness could end.... Vigour and energy seemed to transfer to a resurgent third world, which began to export not just things, but also innovations like a \$2,000 car. Western politicians found themselves pledging to discover jobs that other countries could not do for less; fewer and fewer were found”

He notes that during the decade public and private purpose blurred. Governments worldwide outsourced public duties - in the case of the United States, even warfare - to private firms, while private firms turned to public coffers to socialize their risks.

Market dogma saturated the former socialist world, where governments imposed capitalism from above. In a positive development, a new culture of ethical consumption offered the promise of serving public ends through private buying.

He then goes on to point out the 2000s were in so many different ways about a present financed by the future. The future financed an archipelago of indebtedness from Dubai to Iceland. On one hand the world's poor were taught, to much celebration, to take micro-versions of the loans that addict the rich. Some of the decade's most impressive new companies commanded huge valuations in the present based on future hopes, not present-day profits. On the other, there was growing awareness that present human consumption levels amounted to a massive redistribution of wealth from future generations to ours.

One final quote from Giridharadas: “We have imagined truth to come from what the ancients wrote, our ancestors believed, and what repeatable experiments established. But truth became social- truth as what we collectively think it is, with the most important truths being those 'about us. The idea of professionally produced, neutral, paid-for

information about situations not related to the self, suffered. Blogs, YouTube, Facebook, crowd-sourcing, and Wikipedia filled the void. "Yes, You," Time Magazine said when it made "you" the person of the year in the middle of the decade. "You control the Information Age. Welcome to your world."

Humans changing the natural world

The Vision report highlighted that in the 20th century, the world population had tripled, but water use for human purpose had multiplied six times. Since then the population continues to grow and water use continues to rise even faster, driven also by increasing consumption with increasing income as part of the population manages to lift itself out of poverty (even while the numbers living in absolute poverty increases). While water consumption increases, water pollution also increases, not just from municipal waste but perhaps more importantly from agricultural drainage and industrial pollution. Pollutants that don't settle to the bottom of lakes and rivers eventually are carried to the oceans – the final sink for our waste just as the atmosphere is for the greenhouse gases humans produce. The WWF Living Planet 2008 report points to an impossible situation. If present trends continue, it will take the equivalent of two planets to meet global demand.

Globalisation

Whether these are trends that will last, this analysis gives food for thought. One factor that seems to be common to both the challenges and solutions is the trend we call globalisation.

Joseph Stiglitz, former chief economist of the World Bank and Jeffrey Sachs, President of the Earth Institute at Columbia University, have proposed similar frameworks to address the issue of equitable and sustainable socio-economic development through restructuring global financial and trade systems and addressing poverty wherever it is found. In his book *Making Globalisation Work* after extensive analysis he concludes that:

“For much of the world, globalisation as it has been managed seems like a pact with the devil. A few people in the country become wealthier; GDP statistics, for what they are worth look better, but ways of life and basic values are threatened. For some parts of the world the gains are even more tenuous, the costs more palpable. Closer integration into the global economy has brought greater volatility and insecurity, and more inequality. It has even threatened fundamental values.”

He says it does not have to be like that. He suggests an approach that he considers is the only one that will actually work, is morally right and economically viable: coping with globalisation and reshaping it. He recognises that the task will be long and arduous. Unfortunately, it seems that those knowledgeable about water have not reached Professor Stiglitz, for while he recognises the negative impacts of climate

change, he does not appear to be aware of the critical role water resources play in development.

Nevertheless, I, like Stiglitz, believe that the unacceptable conditions I have described can be changed – using the same tools that were available when the World Water Vision was originally written: technology, economics and value changes. The rapid changes of the last decade make it more possible to do so.

Managing water under risk and uncertainty

There is a centuries old saying that “Change is the only constant”. Today we are beginning to understand that this constant is exponential! We are approaching singularity, the point where change is happening so fast that past and future exist at the same time. Of course, there may be a tipping point we don’t see and Nature ONLY will tell us when we have passed it. We are getting warnings now, but these don’t tell us what may cause it or when it will happen. The taking of responsive and responsible decisions is becoming increasingly difficult. It now requires not just knowledge of where we are and of past trends but, anticipating the uncertainties of the future, how to avoid decisions whose impact we will later regret.

4th UN World water Development Report

Recognising this, the 4th edition of the World Water Development Report will address the question of managing water under conditions of uncertainty and risk. The report will be based on a review of the current state of water resources and their use and the challenges to be overcome in its management. It will then address the possible impacts of external forces based on a deeper analysis than in the previous report. The objective will be to define the range of risks and uncertainties which may be faced by decision makers. Finally it will review tools available to both we who are involved directly in the development and management of water resources, and to those whose decisions determine the conditions under which water is to be managed.

UN-WWAP World Water Scenarios

Charting Our Water Future, the report of The 2030 Water Resources Group, (sometimes referred to as the McKinsey report) suggests a tool that will help decision-makers to make financial and economic decisions using the limited data that is available. The report points out however that low institutional capacity, policy and cultural barriers and the high number of stakeholders from whom action may be needed may make it difficult to implement technically feasible solutions. The trade-offs decision makers will have to face need to consider the implications on everything from impact on growth and jobs to the implications for trade and geopolitics. Thus useful as it is the approach offered by The 2030 Water Resources Group must be supplemented with scenario development tools that will enable decision makers to take decisions with an appreciation of whether these

decisions will work in all of the most likely scenarios for the future of society. These tools should work at levels from global to regional, national and basin levels as appropriate for the decisions to be made. The World Water Assessment Program has launched a project to produce these tools. The World Water Vision was the vision of a water secure world that participants in the exercise wanted. Has our vision changed? If not, how can we harness change to get there? If it has, what is it?

Situating Portugal in this context of change

Portugal has made progress since 2000, joining a few countries that have made similar progress in Europe and elsewhere. The impressive list of measures adopted in Portugal was fully described in the opening session. The biggest challenge still remains. This excellent set of legislation and policies must now be used by decision makers at the regional and national level to ensure planning and execution of sustainable management of both the demand for and the valuable but constrained resource itself. This will require setting priorities for investment and making trade-offs both within Portugal and with neighbouring Spain.

From what I have heard in this meeting concerning progress in water management and adaptation to climate change, I believe your country offers more. It can contribute by providing leadership and working with those in other countries to ensure recognition of the roles that water and new approaches to water management must play in achieving the goal of equitable and sustainable lives and livelihoods for all, through equitable and sustainable management of water.

A Resumé

I would like to resume the three main points I have made in this talk.

1) Water is essential to sustained socio-economic development

Safe drinking water and sanitary living conditions are essential to good health. Food production, also essential to good health, depends on the right inputs from soil, nutrients and pesticides, but is not possible without an adequate supply of water of suitable quality. Jobs in industry depend on water for energy production and industrial processes. A sustainable healthy environment, essential to human well-being as well as to the survival of other species, is dependent on a proper water balance in the ecosystem. Water resources are distributed unevenly in space and time, with many regions of the world already lacking a sufficient supply to meet current needs let alone provide for development of the populations living in them while respecting existing ecosystems. Equitable and sustainable socio-economic development requires equitable and sustainable management of the planet's water resources.

2) Everyone's input is essential to equitable and sustainable water management
Charting our Water Future says "There is little indication that left to its own devices, the water sector will come to a sustainable, cost-effective solution to meet the growing water requirements implied by economic and population growth". WWDR3 talked about this as "Getting out of the water box". If 'water sector' refers to we scientists and other water professionals attending this meeting, it is not because we have not identified solutions to many of the problems, but because we are not those who make the decisions on the investments required or on the requirements to be met. These decisions are influenced or made by individual citizens, citizen organisations, the private sector and government at all levels. We need to be at the table when they are taking their decisions.

3) Exponential change and increasing uncertainty offer opportunities as well as challenges

Human society is going through rapid change thanks among others to exponential development of communications technology. There are now more cell phones than toilets in most countries. We are moving towards what can be imagined as a global brain, to which each of us contributes knowledge. Most humans seem to have always lived by a chain of values, expressed well by Maslow. We want first to survive another day, then to satisfy our basic needs. This done we begin to have needs for our comfort and finally to those of our higher personal development. Always there have been a few who managed to be satisfied without some or all comfort. We call them 'saints'. In 1994, Kidder, in *Shared Values for a Troubled World* postulated that societies across the globe share a number of values: Love, Truthfulness, Fairness, Freedom, Unity, Tolerance, Responsibility and Respect for Life. Are these disappearing? Do we want them to disappear? What is the vision we want of the world in 2040? At the rate at which the world has changed in the past decade, the next one could be decisive for the future of mankind!

Moving forward

I am a water person. We are water people! (how many in audience?). We have technical expertise and we can develop solutions. We must interact with people making decisions in a multitude of other fields so that they and we understand the interrelationships. But we have to be more than water professionals or specialists in other fields. We have to be fully human. Be part of human society. There are no strangers in our world, only brothers and sisters we have not met. We must feel part of the complex ecosystem in which we are one species. We know that water is essential to the survival of this complex system. Perhaps it is for this reason that the management of water resources is, for many of us, a true passion.

Water

I wish to close by quoting from a translation of a poem:

Water was the primeval substance of Creation.

Through water God vanquished chaos.

All cultures have talked of the gods and goddesses of the seas and rivers: the water nymphs, mermaids, and sirens of the sea.

Water comes out of the earth as a spring, moves as a river, remains stationary as a lake.

It is the sea in its eternal serenity and endless movement.

It transforms into ice and steam.

It moves upward through evaporation and downward as rain, snow or hail.

Water is soft, but stronger than stone. It creates shapes: valleys, coasts, and grottoes.

Water frightens, threatens, injures and destroys people and their facilities by means of floods, storms, tides and hail.

Without water there is no life¹.

These few words translated from the German poet Böhme remind us that water permeates and is the source of all life in Nature, including that of the human species.

I have a dream of a water secure world, for my children and grandchildren, and yours!
And for the living species who share this planet with us.

Let us together build the foundation to make this dream a reality.

Thank you.

¹ Inspired by Böhme 1988; as quoted (translated from German) in World in Transition: Ways toward sustainable management of freshwater resources. German Advisory Council on Global Change (WBGU)