Securing tomorrow’s water

Kiyo Akasaka
OECD Deputy Secretary-General

Every Thursday at noon the Esplanade de la Loge water fountain outside the cathedral in the city of Valencia along Spain’s Mediterranean coast Formula one thousand years, it is believed, the court has told on displays affecting the irrigation of the olive lands known as martas, which nourish the lemon trees, the oranges and other crops that give this region its distinctive scents and flavors, and let many, livelihoods as well.

Water is basic to life, it is essential for health, agriculture, tourism, and the maintenance of key ecosystems. Today access to and the management of water resources have become global issues, affecting social and political relationships across the world.

UN estimates suggest that by 2025 some 1.8 billion people will be struggling to make a living in countries or regions afflicted by "absolute water scarcity." This means without action, water shortages will worsen and there will simply not be enough water available, particularly in more arid areas to maintain food production, or to meet household, industrial or environmental needs.

Most countries in the Middle East and North Africa already fall into this category. Rising populations, growing industrial production and consumption in emerging and developing countries, food set to lengthen the list of countries experiencing such scarcity, with Pakistan, South Africa and large parts of India and China set to join it by 2025. Climatic variability, particularly in many semi-arid regions, further complicates the situation.

Then there is also the very pressing issue of health. Take diarrhoea. In a developed country this disease is easily cured with a little salt and a glass of water. In many developing countries, however, it is the number one killer of children, due mainly to a lack of clean water.

It is against this background that the job of achieving the water targets under the Millennium Development Goals and agreed in 2002 at the World Summit on Sustainable Development must be set. Halving the proportion of people without sustainable access to safe drinking water and sanitation by 2015 will be a monumental task.

While access to water in poor countries is a very grave concern, the challenge of providing safe water is also a major issue in developed countries. In fact, the OECD Enforcement Strategy of 2001" adopted by OECD Observer No. 235 March 2000. 11
Uneven access

<table>
<thead>
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<th></th>
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The urban-rural divide in access to water and sanitation services is substantial across the world. In some countries, the urban-rural divide is particularly stark, with urban areas having much higher levels of access to water and sanitation than rural areas. This can be seen in the data shown in the table above.

In countries where water and sanitation services are provided by the government, the urban-rural divide is often more pronounced. In countries where water and sanitation services are provided by the private sector, the urban-rural divide is often less pronounced.

The urban-rural divide in access to water and sanitation services is a major challenge for policymakers and development organizations. It is a challenge that needs to be addressed in order to achieve the Sustainable Development Goal (SDG) 6, which aims to ensure access to safe and affordable water and sanitation for all by 2030.

In order to address the urban-rural divide in access to water and sanitation services, policymakers need to take a multi-pronged approach. This approach should include:

- Investing in infrastructure: This includes building new water and sanitation facilities in rural areas, as well as upgrading existing facilities.
- Strengthening institutional capacities: This includes improving the capacity of local governments to manage water and sanitation services.
- Providing financial support: This includes providing financial support to rural households to help them access water and sanitation services.
- Promoting demand-side management: This includes promoting behaviors that help to reduce water demand and enhance water efficiency.

By taking these actions, policymakers can help to reduce the urban-rural divide in access to water and sanitation services, and help to achieve the SDG 6.

For more information, please see the OECD (2008) report, Inchoosing: Public Goods for Global Inclusion, which provides a comprehensive analysis of the urban-rural divide in access to water and sanitation services.
cross-subsidized by other, seemingly more lucrative fees. Traditionally, as costs for water supply and sanitation were minimized, service charges alone were typically insufficient to fund the operation and maintenance of such systems. Water tariffs, therefore, were kept artificially low.

In general, if water usage were reflected in the true price of water, farmers would face a choice: either to stop grazing on their water resources or shift to agriculture producing less water-intensive crops. Some countries are already doing this, and are experiencing cultivation of crops that are more water-intensive than others.

Recent progress in reducing subsidies in water use, as well as farmers' prices for water, could be achieved. This would allow water to be utilized more efficiently, and could lead to increased productivity and more sustainable water use. However, the success of such efforts may depend on the willingness of farmers and consumers to accept the higher prices, and the government's ability to regulate and control the market.

The economic dimension of water management is closely linked to the management of water use in agriculture. The availability of water for irrigation is crucial for the agricultural sector, which accounts for a significant portion of the global water use. Ensuring that water is used efficiently and sustainably is crucial for the long-term viability of agriculture and the economy.

As a basic economic principle, water should be treated as a valuable resource and charged for in a way that encourages efficiency and prevents wasteful overuse. The cost of water should reflect the scarcity of water, the cost of delivering it to consumers, and the environmental impacts of its use. This will encourage farmers to use water more efficiently and to adopt more sustainable practices.

References:

Water and farms
Towards sustainable use

Kevin Parris and Wilfried Legg, OECD Directorate for Food, Agriculture and Fisheries

Both consumption and pollution of water by agriculture are becoming serious concerns. Yet, water resources can be used more efficiently in producing food and fibre, while minimizing pollution and supporting ecosystems. How to achieve this depends on mindset and societal goals, as well as institutional systems and structures. And that means government.

A widely held view is that developed countries lack water, and farmers need to pay more attention to issues like water management and quality. If only that were true. Rising production of thirsty crops and livestock have brought severe strain on water resources everywhere, including the richest countries. Consider the US, which is one of the world’s largest agricultural producers.

Three, original agriculture has been depleting groundwater resources beyond renewal-exchange rates for several years in some regions. For example, in the High Plains (Ogallala) aquifer, which irrigates more than 20% of US corn crop, the water level has fallen, and is close to depletion in parts of Kansas. In the Texas Panhandle, water depletion now poses a serious threat to the sustainability of the agricultural and rural economy.

The US is by no means the only developed country faced with such a problem. In France, also one of the world’s leading agricultural exporters, the share of groundwater use rose from 10% in the mid-1960s to 17% by mid-1990s. In fact, OECD agricultural water use has increased more rapidly than for other uses over the past decade, accounting for 9% of total water use. This reflects a 6% expansion in the irrigated area in agriculture, in particular for cereals, horticultural crops, live stocks, and improved pasture.

Projections over the next decade suggest that demand for water from irrigation will continue to rise, notably in countries where irrigated farming provides the major share of agricultural production, such as Australia, Mexico, Spain and the US. This means stiffer competition for water among other uses, too. Moreover, the growing incidence and severity of droughts as a result of climate change, is raising the pressure on irrigated farming in many dryer and semi-arid areas.

Agriculture alone in total groundwater utilisation is above 20% in some OECD countries, and farming now serves as an increasing share of its supplies from deeper underground aquifers. Use of groundwater

While farms can act as guardians of the environment, in too many cases the opposite is happening. by irrigators it is well above reasonable rates in some regions, which is threatening the economic viability of farming in those areas.

The dilemma in rice farming can be a basic and a basic for the environment. Over-extraction of water resources by agriculture has damaged some aquatic ecosystems and has harmed recreational and commercial fishing. On the other hand, farming systems can bring environmental benefits to water catchments by providing habitat for fish, while reducing flooding through provision of

Photo: OECD/Robert M. Winkler
Who pays?
Water prices per cubic metre in selected countries, late 1990s

<table>
<thead>
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<td>Canada</td>
<td>0.00195</td>
</tr>
</tbody>
</table>

Note: Some countries are listed in columns, others in rows. Figures are for household water for domestic and industrial use. Water is not free.

Source: OECD

Farmers often pay very low prices for water delivered and used compared to households or industry.

According to the UK Environment Agency, agricultural water pollution costs around £3.35 million per year, affecting drinking water and aquatic ecosystems. This accounts for around 40% of total water pollution costs in the UK.

The costs of losing water quality in agricultural areas are standard for environmental and recreational uses would obviously be higher than for drinking water in many OECD countries. Given the widespread eutrophication of rivers and lakes in farming regions, the damage to aquatic organisms from pesticides.

Agricultural ammonia pollution of estuaries and costs also becomes a more pressing issue, as this creates algal blooms that damage marine life.

Legislators can limit water pollution, but they are not enough. Policies that provide subsidies linked to production and pollution of water in most OECD countries. Although the quality of farm water is usually inferior, farmers often pay very low prices for water delivered and used compared to households or industry.

In the US, for instance, farmers pay on average around $0.05/m³, compared with $0.50/m³ for industry. In France, the respective figures are $0.02/m³ and $0.50/m³, and for Japan $0.05/m³ for farmers and 1.00/m³ for industry. At such low prices, farmers have little incentive to become more efficient in their use of water.

Even if the subsidies were removed, there would be a question of who pays. Property rights to water are often ill-defined in agriculture, which means some farmers may be able to take water off the ground or from wells on their own land, which creates legal and inefficiencies in the system.

In short, for many OECD countries, agricultural pollution costs are now a matter of concern. Policies and actions are being taken to address this problem, but there is still a long way to go.

OECD Observer, No 254, March 2009
Agriculture

succeeded to general levels, to improve the management of scarce both for farming and to support aqua ecosystems. Second, they should improve water quality. However, water quality, indicators to improve water management. A third measure is to identify the precise property rights attached to water withdrawals, water pollution and ecosystem processes.

Also, clear division of responsibility in water management should be established. with a commitment from governments to respond to necessary actions properly, especially given the challenges related to climate change and climate variability. Policymakers should coordinate actions with stakeholders, like water users and local authorities, to bring water use more efficient and efficient performance where competition is limited. They should also encourage the capacity for farmers, authorities and communities to participate in the design and delivery of policies for water management.

Developed countries are at last waking up to the realization that, far from being abundant, water is a fragile resource and that the right trade and policy signals must be put in place. They are starting to address the issues, but for many countries it is still a long way to go.

References


A quality conundrum

Peter Borkey and Brendan Gillespie
OECD Environment Directorate

Achieving the Millennium Development Goal on water should not only require extension of access, but also maintenance of existing infrastructure. Too. It is a long-term challenge.
In extreme cases, policymakers may have to consider the trade-off between providing better water for some, or some quality water for all. 

Water quality tests at intake into the network may show only a limited number of samples that are below sanitary standards, that water eventually becomes contaminated as it flows through the distribution network. This comes out of the tap but is not necessarily what goes into the system. 

The main reason for discrepancies between the official UN statistics and other available data or this subject in the EECAs is that statistics of the population on water access in the early years of the 21st century are not readily available to inform policymakers. 

A much broader issue that affects policymakers is the need to improve water infrastructure. For example, the costs of providing water and sanitation services can be quite high. 

However, these indicators paint an overly optimistic picture. Extensive urban infrastructure built in the Soviet era provides only a small share of the population with in-house tap water connections. But today much of it is in such a deteriorated condition that it does not provide sustainable access to safe drinking water to very many people. Also, data gathered by the OECD and other bodies suggest that the situation has been deteriorating significantly over the past 15 years. 

Leakage, continued supply and actual water quality are all problematic areas. The water distribution network should be high leakage, reflecting the poor condition of pipes, as well as perhaps illegal water abstraction. Similarly, continuity of supply has been deteriorating. And while water quality tests at intake into the network may show only a limited number of samples that are below sanitary standards, that water eventually becomes contaminated as it flows through the distribution network. This comes out of the tap but is not necessarily what goes into the system. 

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**WATER**

**Quality**

other, especially where pollution is widespread, until changes would need to be accompanied by improvements in service quality to generate sufficient willingness to pay and by social measures to support the poor, such as direct subsidies to consumers.

However, even removing current bills and raising prices will not be enough to amount to the need for higher public spending on the water sector. In some countries, this may mean doubling the 4% of public budgets devoted to the urban water sector alone. Competition for funding from other social and economic sectors will often make this difficult to achieve. In extreme cases, policymakers may have to consider the trade-off between providing better water for some at the expense of water for all.

In the future, service rates of at least 70% of the population, less than the 40% now considered a poor standard, could be achieved if existing urban utilities were scaled back. That might mean that any chronic users connected to an unreliable low-grade water supply may be better served if they could fetch water from safe municipal standpipes.

Even at a very poor countries, domestic rather than external financiers will continue to be the dominant source of finance. Official development assistance for EECG countries is currently at just $50 billion a year, and even if it increased significantly, would still remain a small part of the $388 billion in overall funding that is required for operation, maintenance, and improvement. On the other hand, even if the bulk of the additional funding were to come from domestic financial sources, as has happened in the new EU accession countries. Private operators are generally keen to become involved in water and sanitation projects where they can contribute loans—fudge management and financing contracts, but they have been reluctant to bring in the needed finance.

Nonetheless, at least levels, external financiers are undertaking financial and governance reforms in the water sector. Solid capacities, and bringing internationally accepted discipline and good practices.

![Graph: Safe to drink?]

% of population using improved drinking water, 1990 and 2002


Multilateral organisations can also step up their efforts, such as the Environmental Action Programme Task Force set up by environment ministers from the 15 EU states, the Economic Commission for Europe in 1993 for EECG countries. Action under this framework, and supported by the OECD, includes the development of practical codes and approaches to support legal and institutional reforms, as well as assistance to improve the financial situation of the water sector.

With a range of committed players involved and the right local, much can be done to achieve the development goal that really counts—of the sustainable quality and delivery of healthy water.

**References**


17th-19th November 2005, Veneto, Attirum
Three years ago, before the 3rd World Water Forum in Kyoto, we wrote that while the Millennium Development Goal of halving the population without access to safe drinking water by 2015 was feasible, it would be a tall order, particularly against a background in which bilateral development aid from OECD countries had stagnated or fallen. Have matters improved as we move closer to the deadline? There are some encouraging signs, but probably not where it matters most.

Some of the difficulties with water aid have been outlined before. Most notably at a seminar called ‘Water for the Poor’, held during the Stockholm World Water Week in August 2001. For a start, water supply and sanitation had not been incorporated in the UN’s poverty reduction strategies, and could therefore not attract financing through these mechanisms. Another problem was a lack of viable projects, mainly because water projects were generally considered as risky, causing resistance among programme managers in donor agencies, accountable for their portfolios. Furthermore, funding of projects in countries most in need had been constrained as aid was conditional on governance reforms. Aid had been targeted, not to the poorest communities where the water needs were greatest, but rather to large areas where the criteria for donor success were in place.

The latest data from the Development Assistance Committee (DAC) of the OECD tend to reflect this pattern. There is some positive news, insofar as these data show a sharp increase in the allocation of Official Development Assistance (ODA) to water supply and sanitation in 2004. DAC member bilateral ODA commitments to the water sector amounted to US$3 billion that year. Multilateral donors’ commitments also increased, with a total of US$1.8 billion in 2004, reversing the downward trend since the middle of the 1990s (see graph).

A closer look at the trend in aid to the water sector shows that allocations are in fact set by a handful of large donors and are targeted at a relatively small number of countries. As much as three quarters of total bilateral aid to water supply and sanitation in 2000-04 was extended by Japan, Germany, the United States, France and the Netherlands (see table). More than half of these allocations were directed to...
There is no sign that donors have been stepping up their efforts for water compared with other sectors.

Asia. The share of recipients in Sub-Saharan Africa was just 13% in 2000, but it grew to 26% by 2004. A modest increase at best over the last few years.

An ever-clear fact at the trend reveals that much of the 2004 increase in aid is largely explained by the ODA programme of reconstruction in Iraq By 2003 Japan reported large new commitments in China, Vietnam, Eritrea, Tajikistan, and Kazakhstan.

Net is there any sign that donors have been stepping up their plans for water compared with other sectors. In fact, the share of ODA in water supply and sanitation in DAC member total spending on ODA dropped from 9% in 2000-2002 to 7% in 2001-02, where it remained in 2003-04.

Still, every drop counts and, in fairness, DAC members’ bilateral ODA disbursements to water supply and sanitation have increased slightly, from US$1.5 billion in 2003 to US$2.2 billion in 2004. On the other hand, over a half of these amounts relate to projects committed before 2000. The main recipients include many of the countries listed in the table as well as Egypt, Turkey and the Philippines. There, large infrastructure projects started in the second half of the 1990s are still ongoing. They have not received any notable new commitments since then.

But there is a final note which policymakers have to take seriously. In the water sector, more aid is used to finance investments in infrastructure. Projects are long and average take at least eight years to implement. That is a long lead time, particularly as the deadline for the MDG on water has been set for nine years from now. Any strategy and possible mobilization of aid to water supply and sanitation to reach the Millennium Development Goal of water must take this seriously into account.

References

Notes: The statistics of the Development Assistance Committee (DAC) of the OECD, whose members account for some 80% of global

**Watering development**

Trends in ODA to water supply and sanitation, 1972-2004: 5-year moving averages (except where marked annuals), constant 2003 prices

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Note: Non-conventional flows.

Source: OECD DAC, Cadez-Kaplan/Speth on Aid Activities

Main donors and recipients of bilateral ODA to water supply and sanitation, 2000-04, annual average commitments in US$ millions, constant 2003 prices

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Source: OECD DAC, Cadez-Kaplan/Speth on Aid Activities
H₂O eau

Bordeaux is known everywhere for its fine, expensive wines, but what about its drinking water? According to a recent survey of water charges...

Salt of the earth

As the oceans covers three quarters of the surface of the earth, little wonder people see it as a possible source of freshwater. That basically means desalinating it to make it at least clean enough for agriculture and even good enough to drink. How does it work?

Desalination is the cheap option, responsible for most desalinated water, but a newer filtering process using membranes, called reverse osmosis, now accounts for nearly half the world’s capacity to turn ocean into freshwater.

Desalination is another easily overlooked cost: the sewage network can account for the equivalent of $1.8 billion, the survey finds, with sewage treatment plants at some $4.5 billion.

Against this background, France’s water charges might not seem too high. For low-income families, since measures are in place to help with affordability and to prevent vulnerable households from being cut off, the overall net price would not be much more than for instance the automat.

Making water safe is a constant battle, not least in rural communities facing cut-off from agriculture. Official test results are often issued with household water bills. One for 2004 in a village in Picardy stated that while the water standards were met for nitrates, they were near the levels for total contaminants, such as pesticides. Cleaning this up will demand new investment, the local authorities say.

Most households would probably agree that if the outcome of this investment was a reliable supply of safe drinking water, a reasonable water bill would be a small price to pay. "Château de la poupée" seems as to remain an excellent bargain for some time to come - BJC.

Don’t forget the coastal waters!

Martha Crawford Hieke, OECD Environment Directorate

Most public debate about water concerns freshwater. Yet coastal zones are coming under increasing pressure, too. Time for renewed action.

Most people know the story of the Dutch boy who saved his country by plugging a leaking dyke with his fingers until help arrived. For the Dutch, the story had a happy ending, but millions of people living on the world’s coasts were not so lucky in the past year. First, the tsunami in December 2004 killed over 180,000 people in southern Asia, devastating coastal communities in Indonesia, Sri Lanka, Thailand, and the Maldives. Then hurricane Katrina struck the south coast of the US in August 2005, bringing with it a storm surge that caused catastrophic damage along the coasts of Louisiana, Mississippi, and Alabama, and flooded about 80% of the city of New Orleans. Although Katrina was the costliest ($US75 billion damages, and counting) and deadliest (1,437 deaths) hurricane in US history, there may well be more like it in the future.

How much these increasingly devastating coastal weather patterns can be attributed to...
Global warming is a major debate. But beyond that, there is the issue of sea level rise—over 1870, according to some climate research—which comes along with many other consequences such as increasing severity of coastal storms and increased flooding downstream. Moreover, recent research has raised the spectre of a collapse of the polar ice sheets, causing a possible further sea level rise of 5-9 m.

In other words, water challenges do not just concern freshwater. Indeed, in the future, many coastal populations will likely face a greater threat from sea water encroachment and storm flooding than increased water supplies. The world’s coastline stretches for 162 million kilometers, and nearly half (81%) of it is located in OECD countries, mostly reflecting the long coasts of Canada, the U.S., Mexico, and Australia. Most important coastal zones (i.e., areas with 100 km of coastline and 100 m of sea level) are home to 1.2 billion people, or a fifth of the world’s population. Overall, average population density in coastal zones is three times higher than the world average, and in recent decades the overall growth of coastal populations has outpaced that of inland populations.

Such a concentration of people in coastal areas brings with it three major challenges. First, how to manage growing environmental pressures from land-use change, pollution, aquaculture, etc., so that they do not compromise the natural buffering capacity of coastal areas? Second, how to organize coastal settlements in order to minimize the population at risk from sea level rise, severe storms and other extended effects of climate change? Third, how to balance the often conflicting demands for use of the marine coastal zone for a range of economic activities, including shipping, mineral extraction, tourism, fishing and aquaculture?

Oceans cover 71% of the world’s surface, but as human populations continue to grow, what once appeared to be a limitless resource is now in need of more responsible management. Two-thirds of the world’s fossil fuels are transported by tanker, and maritime cargo shipping has been growing for decades. The risk of accidents or illegal discharges has climbed proportionately. Meanwhile, cruise ships carry a greater number of tourists every year, and produce millions of litres of sewage and wastewater, and tons of solid waste. Pollution events like the dumping of ship waste at sea to harmful algae blooms, oxygen-depleted “dead zones,” shellfish bed closures, and the destruction of animal life. Also, as offshore oil and gas fields reach the end of their lives, pollution discharges per unit of production are rising, introducing the risk of damaging fisheries stocks through exposure to endocrine disrupting chemicals.

In short, nowhere are the environmental pressures associated with climate, demographic and economic trends felt more strongly than in the nexus of our coastal zones—both in land and offshore.

Nowhere are the environmental pressures associated with climatic, demographic and economic trends felt more strongly than in the nexus of our coastal zones.

What if anything, can policymakers do to manage these intensifying pressures and help people to adapt to them? Difficult questions need to be answered. For example, should coastal communities dominated by storm surges be rebuilt as before? If not, what constraints should be imposed? To what extent are major investments in coastal protection justified? Can we “internalize” more of the environmental costs of shipping, fishing, aquaculture and tourism for policies and users to pay rather than lowering the tab for others to pick up? Finding answers to such questions will require being as forthright about coastal management objectives as we are about, say, labour standards.

As long ago as 1993, an Agenda for Action was issued at the World Coast Conference in the Netherlands. It called for coastal states to identify their objectives for coastal zone management, and begin implementing programmes to achieve them. It also called for strengthening the capacity of developing countries to manage coastal resources, through development assistance. Twelve years on, major events have illustrated that there remains considerable room for progress.

If we were to hold a World Coast Conference today, what might a new Agenda for Action contain? Technical experts might call for imposed protection of major storms and tsunami. With better flow of information across borders. Emergency management experts might call for strengthened regional capacity to respond to large-scale coastal disasters. Policy experts might call for innovative economic or regulatory mechanisms to encourage more sustainable development of our coastal settlements and resources.

Twenty-four OECD countries hold a major direct stake in the future of coasts, and even the six landlocked member countries are concerned, through their foreign assistance or trade. Indeed, three of these—Belgium, Luxembourg, and Slovakia—are small merchant marines. Is it not time we mobilised our collective energies and expertise to put a new agenda into action?

Recent events have demonstrated that coastal zones are on the frontline when it comes to dealing with the consequences of climate change and sea level rise. With so many people living on that front line and so many economic activities located there, will we find the sense of urgency we need to develop innovative policy approaches, nationally and internationally? The price of inaction would be destruction on a scale that no little Dutch hero could stop.

Reference:

OECD Observer No. 291 March 2007
The private water sector is larger than many people think, with thousands of businesses working every day, for the most part, to implement government policies. Are these businesses doing enough and how might they do more?

The challenges involving clean water and sanitation have to be addressed locally or regionally at the watershed level. Transporting fresh water is not only costly for any other option. And yet, with achievements falling short of the mark and difficulties intensifying in a great many places, international organizations and transnational corporations are growing increasingly concerned about water and wastewater issues.

Aquafed—the International Federation of Private Water Operators—was set up in 2005 to facilitate dialogue between the international community and companies in the water industry. It brings together over 700 water service providers operating in 30 countries worldwide. Its members are eager to play an active role in meeting common challenges by sharing their experience in the field available to international organizations. Because water supply and wastewater treatment are public services that inevitably give rise to multifaceted policy debates, Aquafed members are also keen to influence understanding of what private companies actually do, and of what governments can ask of them.

There is a large number of private operators involved in the area of water, some with international scope, such as Aquatech Water or Aguas de Bilbao. Large companies are only the tip of the iceberg, though, as local operators, while less well-known internationally, are more numerous. The World Bank has identified some 10,000 small enterprises in developing countries. Between the two extremes lies a full spectrum of local businesses, of all sizes.

The smallest among them manage the water supply of a few hundred people in a single place, while the largest handle wastewater for a population of millions spread over multiple locations.

Even if projects involving water are complex and take a long time to develop, there is strong demand in what is now a very dynamic sector. Each year governments consider ways to privatize water systems and services, and management tasks in new urban areas. This has happened recently in many areas of China, as well as in Tenerife in Spain, Selangor in Malaysia, and Algiers in Algeria, etc. In Guangzhou, the province of an international tender for a public-private water management partnership was a Dutch firm that24 RECORDER No. 294 March 2008

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operator, even though its shareholders are
public entities.
The structure of these markets is not clear in terms of evolution, dynamics with respect to new business creations, shareholder turnover and new stock markets listing. Among the major local businesses that have been up or expanded are Manila Water in the Philippines, Putra Water in Malaysia and Aguas Nuevas in Chile. Firms that were once owned by international shareholders have become predominately local in their shareholder base. DESCO in Morocco, Talmin Vezi in Estonia, and ESBIO in Chile are some examples.

In the case of the strongest companies, this gradual development of local businesses can present new international players. Manila Water has now moved into the Chinese and Indian markets, and Aquas Nuevas is exploring a joint venture in India.

Today's drinking water and sanitation problems are widespread, and the need to address them is critical. The challenge is to work together to find solutions that are sustainable, affordable, and appropriate for local needs.

The sanitation sector is a critical component of public health and economic development. Access to safe water and sanitation services is essential for poverty reduction, health improvement, and economic growth.

The private sector can play a significant role in addressing these challenges through innovation, efficiency, and financial resources. However, partnerships that involve government, private sector, and non-profits need to be carefully planned and executed to ensure success.

The role of the government in setting standards and regulations is crucial. Partnerships need to be based on mutual trust and shared responsibility.

References
Assessing the Risks

Barrie Stevens
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Scarcity, pollution, investment, geopolitics: however murky the challenges ahead may seem, meeting them will require the utmost lucidity. And because the future of water is at stake, everyone is involved.

T he county of Kent, known poetically as the 'Garden of England', has offered its water drought since the 1970s. In response, the UK Environment Agency warned in February 2000 that, unless serious water conservation measures were brought in by April, the county could within months witness scenes of people queuing in the streets for water as domestic supplies were being cut off.

Other western and southern European countries face similar water shortages, with all that this implies not only for landscape beauty for gardeners, but also for farmers, farmers, electricity generation, food processing, the production of semi-conductors, and many more industries. Moreover, the fact that 'easy' irrigation is looked to consider tough conservation measures shows just how common the issue of water scarcity and management has become.

What needs to be borne in mind is that, while the earth's surface consists mainly of water, most of that is not fresh. Just 2.5% of the total amount is freshwater, and two-thirds of that is permanently frozen. Collectable sources, mainly from precipitation, about 5000 km


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That seems quite a modest quantity for an expanding global village of some 7 billion people. With growing populations and rising incomes, expanding irrigation, agriculture and urbanisation, the 20th century has seen total water withdrawals and levels of water consumption rise roughly sevenfold. The stresses on this vital natural resource are serious and increasing.

Providing safe water for all is but one side of the challenge ahead. There has been enormous progress in recent decades in improving access worldwide to freshwater supplies and sanitation. For example, between 1980 and 2000, access to adequate water supply in developing countries rose from 73% to almost 80% of the population. But there is still a long way to go.

The Millennium Development Goal on water seems far from being missed for a man, particularly if set too low: is given the WORTHEN view that household access means at least 20 litres per person per day, accessible within 1 km of and person's dwelling. For comparison, per capita consumption rates in the OECD area are 100-400 litres, depending on the country. Over 1 billion people in the developing world still do not have access to safe water and over 2.5 billion people have no access to sanitation. About three-quarters of all diseases and development in Africa and around the globe, polluting some 12,000 km


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The other side of the coin is management and investment, and this challenge concerns everyone. In the developed world, access to fresh water and sanitation is generally not a problem, but infrastructure is all too often old and decaying, and leakage rates often high, ranging from 10% of the total in Austria and Denmark to 33% in the Czech Republic. In London, leakage rates from the mains are expected to be up to 40% of total water supplied.

Then there is pollution. Some 2 million tonnes of waste is discharged daily around the globe, polluting some 12,000 km


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Agricultural pollution can also affect quality, bringing its own pollutants, such as lead, in other words, providing safe water means upgrading local water systems and sewage systems, as well as fixing reservoirs and improving treatment plans.
Uneven waters

WATER

| Region | Africa | South America | Europe | Asia | Australia
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Risks

Source: IOC, see references

But while we know many of the problems - political, and public, deduction is needed for action. Without this, the risks associated with water can only increase. In the decades ahead, supplies of fresh, safe water will be subject to even greater pressures. Some will originate from natural causes, others will be man-made. Climate change in the form of sea levels rising, flooding, storm damage, and the acceleration of seasonal effects such as winter's snow and summer's droughts, will reduce the certainty and increase the vulnerability of water resources. Growing seasonal droughts and management of water services not only in developing but also in developed countries. Moreover, using levels of pollution as well as threats to the environment, physical damage, and cyber attacks on critical infrastructure will bring greater risks to water security issues in some countries.

Water will continue to rise, but none of it occurring in the developing world and accounted for almost entirely by urban growth. By 2025, global water withdrawals and water consumption look set to rise to 50% in developing countries and over 100% in the developed world. Added to this, many major water resources are shared among countries. There are now more than 200 international transboundary basins that cover some 45% of the world's population, and 60% of the earth's freshwater volume. A good illustration is the hydroelectric dam on the Rio Grande which is shared by Turkey, Syria, and Iraq.

Water wars are not an immediate prospect, but competition for scarce resources and diminishing water quantity and quality is evident, this can at the very least exert a

Stored freshwater sources represent a modest quantity for an expanding global village of some 7 billion people.

In sum, the population living in water-stressed areas is set to double over the period 1995-2025, and by 2050 some two-thirds of the world's population may experience moderate to high water stress. Regions of particular concern are the Middle East, North Africa, southern Africa, South Asia and parts of China. Many countries in these regions are ill-equipped to deal with these pressures.

However, no country can be complacent about water supply, and certainly not from a financial point of view. For many developing countries, the requirements are substantial, more millions of people quite simply need to have access to safe water and sanitation. This raises key questions about financing, ODA, private sector involvement, and appropriate technologies. But equally important, it raises issues of governance of the institutional changes required to create, modernise and strengthen the legal, policy, and administrative arrangements that govern the sector.

Many of the transition countries face similar governance problems - see article by Peter Forbay. But in terms of infrastructure investment, the challenge for them is not so much to extend existing networks and systems, but rather to maintain and/or replace them. Finally, none would allow developing countries to improvise quickly on the huge socio-economic gains that could be achieved through expansion of provision and basic improvements. It is estimated, for example, that the benefits of halving the proportion of people without access to improved water sources by 2015 would be 9% the losses incurred achieving that target. Universal access to improved water and sanitation services by 2025 would generate an even higher benefit, but even.

Unfortunately, much of the policy interest in recent years has focused on improving the basic needs of developing countries and the transition economies. But the rapidly accumulating problems in the water sector of OECD countries means that it has been taken seriously. While supply networks and treatment systems are largely in place in OECD countries, many of them are aging quite quickly. In North America, for example, many urban water supply systems were built from 1880 to 1910. Without action, the costs of water leakage and pollution can only increase. In keeping with the determination of water utilities, it is estimated that they need to be replaced at a rate of about 2% a year, but actual rates are usually lower, at just 0.03% in London and New York and 0.06% in Munich, for instance.

In addition, the cost of meeting increasingly stringent environmental regulations is set to grow sharply, and for some countries water quality will remain high on the agenda because it is a potentially valuable critical infrastructure. As well as regulation and encouraging better management practices, full cost recovery through appropriate water pricing will also help.

This is a heavy agenda and needs to be tackled quickly. With water scarcity, a seemingly environmental regulations is set to grow sharply, and for some countries water quality will remain high on the agenda because it is a potentially valuable critical infrastructure. As well as regulation and encouraging better management practices, full cost recovery through appropriate water pricing will also help.

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