

# Water in **Schlossplatz** with Maude Barlow, Peter Bossard, Sascha Müller- Kraenner et al.

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All human life depends on water and air. The sustainable management of both is a major challenge for today's public policy makers. This issue of Schlossplatz<sup>3</sup> taps the streams and flows of the current debate on the right water governance.

Open any newspaper nowadays and you are likely to read something about the rising price of oil and its implications—a new all-time high, costs to consumers and producers, record profits for the oil industry, and new conflicts about access to oil resources. Often such articles cite “peak oil” as a possible root cause of the disturbing trends. The idea of “peak oil,” around since the mid-fifties, refers to the moment in time when the rate of global oil extraction reaches its maximum. After this point, the rate of production will decline steadily. If consumption does not fall, or even increases, prices must also rise. Whether we have already passed “peak oil” or not, the threat of a global energy crisis is eminent.

Recently, the concept of “peak water” has also been gaining ground. As global populations continue to grow, more food has to be produced, putting additional pressure on water resources. Climate change, pollution and inefficient water management further reduce the amount of freshwater available. Is “water the next oil?” asked MIT professor Sarah Slaughter in a recent blog entry.

There are some signs that this comparison is accurate. Though water generally remains very cheap across the world—maybe too cheap—water prices have risen sharply in many municipalities, for instance by 25 percent in parts of the US. Furthermore, because access to water is crucial to public health and economic production, it has become an increasingly common motivation behind many international conflicts—yet another similarity to oil.

However, unlike oil, water is not a primary energy source. If managed properly and used sustainably, water will never run out. In fact, the amount of global freshwater is sufficient for everyone. Yet, 1.1 billion people worldwide do not have access to safe drinking water. About one third of the world's population lives in countries which are facing water stress. But water is not “peaking”—it is unevenly distributed. Power asymmetries, poor infrastructure and poverty are the major reasons belying insufficient freshwater supply.

This situation calls for a global shift towards fair and sustainable water governance. But how? This is the underlying question of this issue of Schlossplatz<sup>3</sup>. We have collected perspectives, opinions and case studies on water issues from various experts from the public and private sector and civil society. Their focuses differ—local, regional, transnational, global—as well as their proposed strategies.

Looking at the poor record of large infrastructure projects in developing countries, PETER BOSSARD argues the case for a small-scale approach. According to him, focusing on small farmers, decentralised water storage and low-tech, labour intensive solutions is the most efficient means of alleviating water stress locally. Similarly, JENNIFER ORGAN calls for micro solutions to fight Aids in Zambia, an endeavour in which access to safe drinking water plays a crucial role.

Public or private provision—what is the best way to ensure a consumer- and environment-friendly water supply? This is a question MAUDE BARLOW has grappled with for over 20 years. For her, there is a human right to water. Supplying it for profit is therefore out of the question. Even more so, because privatised water provision consistently neglects poor consumers. Taking the opposite point of view, the World Bank's JAMAL SAGHIR supports a privatised water sector in developing countries, but only if there are tight checks in place to avoid corruption. Accountability and transparency are of crucial importance, as water delivery comes close to a natural monopoly in many countries.

Taking a middle-of-the-road approach to the public or private debate, DAVID PEARSON and RANDI OLSON try to find a compromise. They look for ways in which the public sector can more effectively learn from the private sector's superior ability to implement innovative and cost-efficient water services that comply with environmental standards.

On the demand side, sustainable water governance has to support responsible and efficient water consumption. CARLOS GUIZAR RIVAS shares his experiences setting-up educational programmes in Naucalpan, a municipality in Mexico, where he worked to increase the awareness and knowledge of the local population. GARETH WALKER takes a more global approach. He describes how the concept of “embedded water” could be applied to increase transparency in global water consumption and distribution.

“Institutions matter” could be the common slogan of SASCHA MÜLLER-KRAENNER, who discusses the water issues embedded in the Israeli-Palestinian conflict and NICOLE KRANZ, HOLGER GERDES and CORNELIUS LAASER who manage a project in the Amudarya river basin in Central Asia. The fair management of transnational water can be a threat to stability, but at the same time a stepping stone towards peace and prosperity—provided the right institutions are in place.

Water at our doorsteps—as Schlossplatz<sup>3</sup> is a Berlin based magazine, we took the opportunity to look at the German capital's watery side. Going against the flow of sound intuition in the context of global water stress, SOPHIA ARMANSKI explains why it may be rational for Berliners to consume more water instead of less. In another reversal of trends, JÖRG WELKE, RALF STEEG, and SALLY BELOW explain how city rivers can be cleaned up to increase citizens' quality of life and attract investors. Using state-of-the-art sustainable technology, Berlin's Spree could become a public swimming pool again by 2011.

The debate on the right water policy is on. It is inherently connected to the ‘big questions’ of our time. How to manage peaking energy resources? How to feed a growing population? How to mitigate climate change? Water is at the core of all of these questions. We hope that this issue of Schlossplatz<sup>3</sup> provides you with a multi-faceted perspective on water governance and—last but not least—an entertaining read! We are looking forward to your comments, criticism and feedback.

The editors of Schlossplatz<sup>3</sup>



The changing face of Schlossplatz, former address of the Hertie School of Governance.

### About us

Schlossplatz<sup>3</sup> is a policy magazine run by a student team at the Hertie School of Governance (HSoG). Every term, we decide on a current topic that cuts across sectors and policy areas. Subsequently, we enter into a dialogue with each other and with experts from academia and practice.

The result of this dialogue you hold in your hands—the fifth issue of Schlossplatz<sup>3</sup>. In our alumni section, we introduce you to some of the HSoG's graduates who have just entered the world of work—in Washington, Maputo and Berlin.

Our campus spotlight section shares some recent HSoG experiences; for example, our move into a new building, from the Staatsratsgebäude to Friedrichstraße.

In fact, with the move our name “Schlossplatz<sup>3</sup>,” which referred to the old address, has lost its original meaning. But we have decided to keep it. Over the course of its two and a half years of existence, Schlossplatz<sup>3</sup> has become a brand. As is the case with all successful brands, the name now refers to an abstract place—a Schlossplatz or city square—on which thoughts and ideas meet, connect and reform—to the power of three!

## Think Small:

## Towards a New Water Strategy

by PETER BOSSARD

The large-scale infrastructure approach to water supply has consistently failed to achieve its objectives in low-income countries. Peter Bossard argues that small-scale water projects can reduce poverty more effectively, and at a lower cost.

In March 2009, 15 thousand water experts from 150 countries will meet in Istanbul for the 5th World Water Forum. They will face a huge challenge: Worldwide, 1.1 billion people do not have access to safe drinking water. More than 2 million children die from dirty water and inadequate sanitation each year. The high-level World Commission on Water has warned that half of the world's population will suffer from severe water stress by 2025.

The international water establishment's response to this challenge can be summarised as "Big Is Beautiful." Governments, industry and the World Bank have so far attempted to expand global water supply by investing in large dams, canals and irrigation systems. In the last fifty years, they have built more than 40 thousand large dams at a cost of approximately \$20 billion per year. In countries such as Ghana, Paraguay, Zambia and Zimbabwe, large dams were built in an effort to transform and modernise whole economies.

### The "Big Is Beautiful" approach has a modest track record.

The "Big Is Beautiful" approach has a modest track record. Modern irrigation systems help produce approximately one third of the world's food supply. Hydropower dams generate roughly one fifth of the world's electric power. Simultaneously, such projects have caused massive social and environmental collateral damage. According to the independent World Commission on Dams, an estimated 40 to 80 million people have been forced off their lands because of

dam construction. Dams have also fractured river systems such that today freshwater habitats are the ecosystems with the highest threatened species rate.

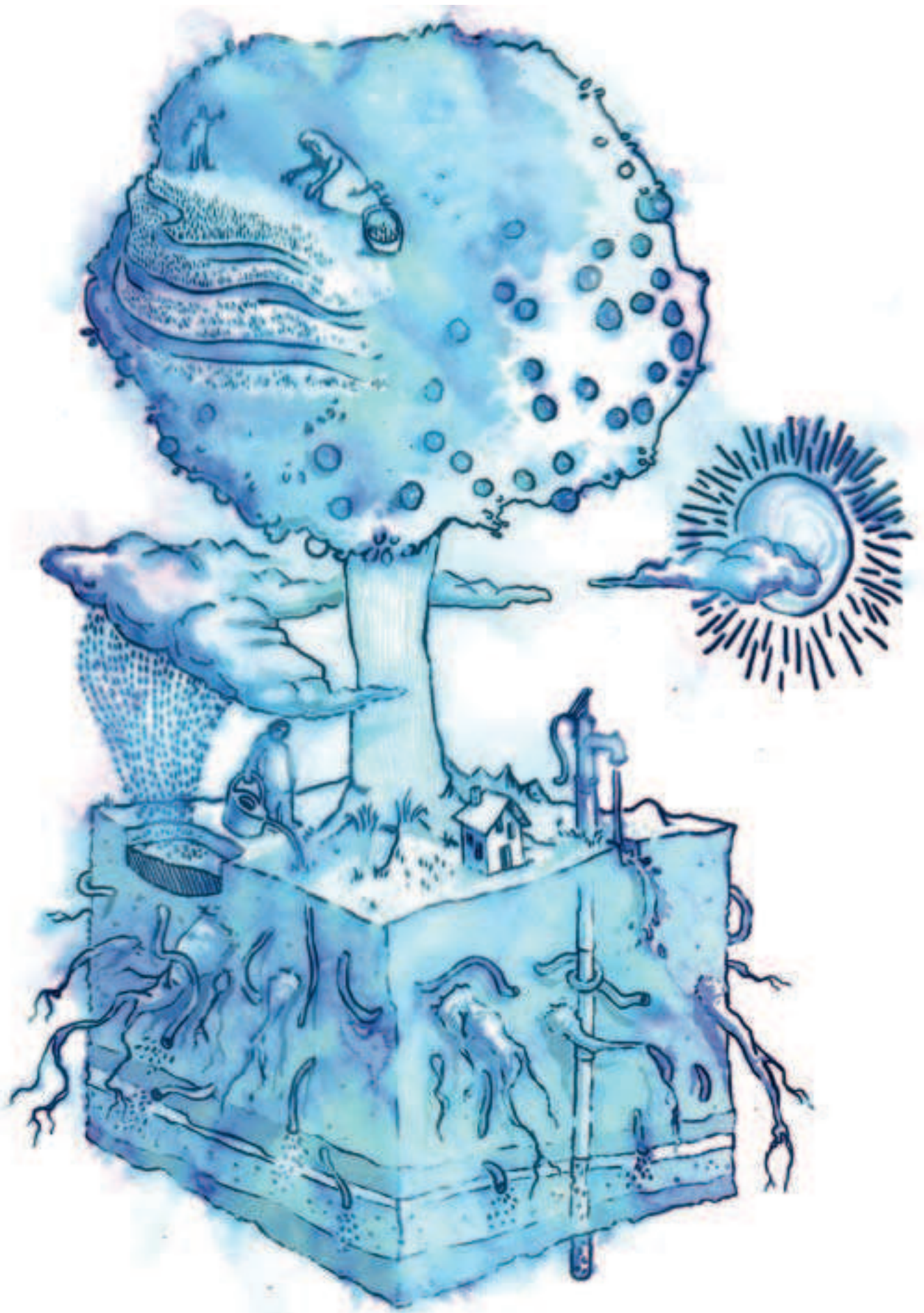
#### Big infrastructure fails the poor

Bureaucrats, the dam industry and the World Bank seem to take the World Commission on Water's "gloomy arithmetics of water" as a mandate to build more large dams and irrigation projects. The Turkish government, one of the world's most active dam builders, will try to push this message at the World Water Forum in Istanbul. Yet, while large, top-down water infrastructure has brought services to the middle classes, it has consistently failed the poor.

Centralised water projects primarily target farmers on the most fertile soils, industry and urban populations. Yet, the majority of the world's poor do not live in cities and fertile floodplains. As the UN Millennium Project states, the "epicentre of extreme poverty" lies among the more than 500 million small farming families. Most of these families are not connected to modern irrigation, piped water supply, or the electric grid. They miss out in centralised water development projects. "The scarcity at the heart of the global water crisis," the UN Development Programme argues in its 2006 Human Development Report, "is rooted in power, poverty and inequality, not in physical availability."

The UN Millennium Development Goals aim to halve







PETER BOSSARD is the Policy Director of International Rivers, an international environmental organisation based in Berkeley, California. He has worked on strengthening the social and environmental standards of governments, financial institutions, and the private sector since the early 1990s. He was closely involved with the World Commission on Dams, and has coordinated campaigns to stop destructive infrastructure projects in many countries. Bossard studied at the universities of Zurich, Minnesota, and the West Indies, and holds a Ph.D. from Zurich University.

global poverty by 2015. Global water policy needs to be fundamentally revised if these goals are to be attained. Small farmers, who produce two thirds of the world's food on rain-fed lands, must be brought to the centre of global water policy. They need support for decentralised water storage, the sustainable use of groundwater, and the development of affordable, low-tech irrigation systems.

#### **Better alternatives**

The World Bank claims that most "cheap and easy options" in the water sector have already been exploited and that new efforts to build high-risk projects such as large dams are needed instead. Nothing could be farther from the truth. There exists a wide variety of proven, feasible and affordable low-tech solutions to improve the access of the poor to water.

In Rajasthan, an arid state in Northern India, the Tarun Bharat Sangh social movement is building thousands of small reservoirs to harvest the region's rare rainfalls. The reservoirs serve agriculture and recharge groundwater at the same time. As a consequence, three rivers which previously ran dry have become perennial again.

International Development Enterprises (IDE), a research and development group has devised cheap treadle pumps which allow millions of small farmers to harness groundwater for the irrigation of their plots. IDE has also developed an affordable system of drip irrigation, a method which delivers water directly to the root zones, boosts yields and saves half the water in the process.

Farmers in more than thirty countries are also experimenting with a new way of planting rice, in which the seedlings are not permanently covered with water. This new method requires more work, but less seeds, water and chemical inputs, and produces more abundant harvests.

Rainwater harvesting and treadle pumps, drip irrigation and rice intensification combine traditional and new forms of technology. What these approaches have in common is that they are labour intensive and cheap. The treadle pumps cost \$25 and the drip irrigation kits a mere \$3 for a small plot. Manufacturing water-efficient rice does not require imported goods, but

instead creates local jobs. External support is primarily needed for the development of further appropriate techniques, and for promoting them in remote rural areas.

Based on his experience in many countries, Paul Polak of IDE estimates that an investment of \$20 billion in appropriate water technologies for small farmers could lift 100 million poor families out of poverty by

## **Small farmers must be brought to the centre of global water policy.**

2015. The high-tech approach is much more expensive. In Rajasthan, supplying water costs \$2 per person with local reservoirs, and approximately \$200 per person through the ominous Sardar Sarovar Dam. Irrigating a hectare of land costs \$3,800 through the Sardar Sarovar Project, and \$120 through treadle pumps. Yet governments and financial institutions have so far mostly ignored the low-cost solutions.

Decentralised, low-cost approaches to water supply are commercially and politically less attractive options. They offer few export contracts, political prestige and spoils for corruption. Yet they are an effective means for reducing poverty and can be implemented immediately. All that is currently missing for a change in global water policy is political will.



## How to Avert a Global Water Crisis

The interview with MAUDE BARLOW  
was conducted by Shaughn McArthur in February 2008

World-renowned water campaigner and author Maude Barlow sees water as a human right—fundamental to our very survival yet systematically in jeopardy by the neo-liberal agenda.

Schlossplatz<sup>3</sup>: You recently published the book “Blue Covenant”. What is it about?

**Maude Barlow:** I talk about a covenant of three parts. One is a covenant with the earth to protect and conserve water and watersheds—to stop taking the lifeblood of the earth for granted. A second covenant is for water for all—not based on a model of charity and digging wells but on solidarity and justice. The third covenant is democracy. We are fighting for a United Nations covenant on the right to water because we do not believe in the right to make profits from water while people are dying from a lack of it. So the covenant is a pledge that as nation-states, as a society, and as a species, we have to stop destroying fresh water.

Why do you call it “an inconvenient truth of water”?

I am borrowing the phrase from Al Gore and others who were finally able to push through the message that greenhouse gas emissions are causing global warming and creating even greater environmental disasters. But what I find missing in the debate is an analysis of water: our abuse, pollution and displacement of water is one of the major causes of climate change. I argue that water has to be factored in when analyzing the problem of global warming.

*Who are the big drivers behind water privatisation internationally?*

The “big players” is an ideology: the development model known as the Washington Consensus. That ideology has been basically bought by most senior politicians in most of the first world, certainly by the World Bank and by large parts of the UN, and certainly by the World Water Council—we call them the “Water Lords.” The elite political and corporate thinkers refuse to look at the model’s failures. Even the development agencies of the global north have bought into this privatisation model. The World Bank and other important players manufactured consent in the global south for private water. Yet public water has

*You refer to water as a human right. But is it not precisely this view of water that causes consumers to be wasteful in their use of it?*

We have said that massive privatisation into the hands of big corporations is not the answer, because they will be just as wanton as any group of people would ever be, but in a more systemic and organised way. Hence, we call for very strict regulation of the commons. I think there should be laws against over-using the commons and a prioritisation of water use; first for nature and people, and then for agriculture and industry. We will have to charge for water, but this should be done by governments so that revenues can flow back into infrastructure repair and source protection.

*Many economists would argue that the private sector is better suited than the public sector to price water efficiently.*

A whole chapter in my book unravels the myth that private corporations deliver water more efficiently than governments. Certainly, many governments in poor, non-existent or failed states cannot deliver water to their people at the moment. But where governments are running good public systems, they are running them more efficiently, more equitably and for a lower price per person than private corporations. Over the fifteen years that the World Bank was promoting—well, rather forcing—water privatisation in the global south the amount of funding for water services actually decreased. Northern development agencies actually decreased the funding for these essential services, because they relied on the private sector to invest in these projects. But the private sector by and large did not. They are targeting their water services at countries that have a growing middle and upper spending class while ignoring the poor. So, many of the poorest communities in Africa have not had water funding because there is no profit to be made. I think the greatest condemnation of the privatisation model is that the net amount of water coming from the global north in those years decreased while the needs grew exponentially.

As nation-states, as a society,  
and as a species, we have to stop  
destroying fresh water.

not only been the norm in the north, it also helped build the kind of public health and financial stability that allowed countries to build their economic engines. But that is being denied to the global south. If you cannot control your basic resources you cannot determine your own economic future, so a lot of this is about who decides on the fate and direction of the global south—if the north or northern corporations control their resources, they also control their politics.

*How do bilateral and multilateral trade agreements affect governments’ abilities to control national water resources?*

Water was placed as a good in the very first free trade agreement in the world, which was the Canada-US Free Trade Agreement, the predecessor to NAFTA, which became the model for all bilateral agreements and the structure of the WTO. The agreement basically says that once countries start exporting water commercially they cannot turn the tap off; future generations cannot reverse the decision to turn water into a tradable good. Water then became an investment and a good under NAFTA. That means that if a corporation in a NAFTA country has any interests that involve water in another NAFTA country, they have rights to that water. For example, extracting



MAUDE Barlow is the National Chairperson of The Council of Canadians, Canada's largest public advocacy organisation, and the co-founder of the Blue Planet Project, working internationally for the right to water. She serves on the boards of the International Forum on Globalization and Food & Water Watch, as well as being a Councilor with the Hamburg-based World Future Council. She is also

the best-selling author or co-author of sixteen books, including *Blue Gold: The Fight to Stop Corporate Theft of the World's Water* and the recently released *Blue Covenant: The Global Water Crisis and the Coming Battle for the Right to Water*.

one unit of oil from the tar sands in northern Alberta requires three to five units of water. This has resulted in a huge outcry that this is environmentally unacceptable. While a Canadian company would have to obey national legislation that regulates the use of water, an American company—and 50 percent of the companies operating in Alberta are American—could sue the Canadian government under NAFTA for changing the rules. Canada would have to compensate these companies into the billions of dollars.

Public water has helped build the kind of public health and financial stability that allowed countries to build their economic engines. But that is being denied to the global south.

*At the WTO there has been a push to include water under the General Agreement on Trade and Services. What consequences would this have?*

It would again mean that if a municipality in any of the WTO countries were to bring in water privatisation they would be pretty well stuck with that privatisation. Atlanta, Georgia is a good example. It signed a twenty year contract with Suez. After two and a half years they said, "this is a fiasco and we want you out." Under the terms of the GATS—if it were ever to pass—they would never have the right to do that. So these trade agreements basically operate to constrict what governments can do.

*Imagine you had a captive audience of all the top policy-makers from government and the big international institutions. What would you recommend to avert the water crisis, or is it already too late?*

Well, it is too late for the people dying today of water-borne disease, but not for the world. My recommendations are to give up on a model that has proven to be flawed—and they know it. At the World Water Forum in Mexico City two years ago there was an admission, by the United Nations and the World Bank, that their privatisation models were failing and that the Millennium Development Goals had not been met. In order to succeed, they need to turn to better governance and a non-profit system of water delivery. If the World Bank has enough money to give to Suez to come in and set up a water system it can just as easily give that money to the public sector. So I think we need to get the basic formulas right on a set of principles that water does not belong to anyone but to the earth and all species. It is a fundamental human right. I think it is terribly important that we put that notion at the centre of our thinking. We know about the problems and we know the solutions. The earth has an amazing capacity to regenerate if we do things right. But if we keep thinking that we are above nature and refuse to adapt to the reality of a world in which water is growing more scarce while the demand is growing exponentially, then we are going to hit the water wall. I think in the end we are going to have to challenge the whole premise of economic globalisation and market-based capitalism. We have to realise that there is a limit to what the earth can take and that we have taken more than we should and we have got to stop.



## Murky Waters:

### Perspectives on Governance and Corruption

by JAMAL SAGHIR

The water sector in developing countries is corruption-prone, resulting in underperformance. Jamal Saghir reflects on how to improve governance and accountability.

Improving governance and addressing corruption are important factors for enhancing aid effectiveness and helping to ensure that the poor benefit from interventions in developing countries. There is a growing recognition, however, that such concerns have largely been undertaken at the project level, not at the broader sector level, and that this gap must be addressed more thoroughly.

With only a selected number of studies having been carried out to assess corruption in the water supply sector, there is a general lack of clarity surrounding its precise impact on the provision of services in most developing countries. Like other infrastructure, the water supply has characteristics of a natural monopoly which make it prone to corruption. Supplying water services, particularly in large urban areas, is not only dependent on the construction of infrastructure, involving contract bidding and negotiation, but also requires that companies have the technical capacity to plan and operate complex systems for water distribution, pumping, collection and treatment. In

developing countries, the water supply sector may also be subject to high levels of individual discretion and weak monitoring of decision-making processes; these limit transparency and may benefit the financial interests of different stakeholders.

The size of the water supply market in developing countries also lends itself to corrupt practices. Esti-

### Corruption exacerbates neglect of operations and maintenance of water infrastructure.

mates suggest that \$15 billion is invested in water supply and sanitation services in developing countries each year, whereas in order to reach the Millennium Development Goals the figure would need to increase to \$30 billion per year.

Corruption leads to the misallocation of sector finances, which exacerbates neglect of operations and maintenance of water infrastructure. There are many ways that this occurs: for example, by contractors not complying with contracting procedures, using low-quality or inappropriate materials, following inappropriate technical designs, including selection of technology, or through poor supervision and technical monitoring during construction. The consequence is all too often substandard service delivery and inordinate increases in required operation and maintenance costs. This perpetuates a cycle which discourages investments and impedes system expansion to low-income communities.

Addressing corruption within the water supply sector is not simply a matter of rooting out bribery, kickbacks or nepotism, nor of solely identifying guilty individuals. It is also about improving the larger governing structures in which key players of the sector operate. Measures proposed to promote greater degrees of financial accountability and transparency within the water sector, however, may well be resisted by those benefiting from the status quo.

Programmes to improve governance and address corruption within the water sector can prevent individuals from engaging in corrupt practices by increasing the likelihood of detection and enforcing the use of disciplinary sanctions. Such programmes could include public disclosure requirements, civil society oversight policies, ways for the public to report suspicions of corruption, and publicised financial and political sanctions levied against culpable individuals. In formulating such measures, it is important to create public awareness that corruption in the water sector results in inefficient service at excessive prices.

These programmes should also reward exemplary actions. When analysing how to improve governance within the water sector, it is important to focus not only on the corrupt practices and perverse incentives that need to be addressed, but also on those behaviours that improve transparency and accountability. These need to be encouraged, promoted, and replicated. Incentives tied to the creation and implementation of frameworks that hold providers accountable,

## Water and Corruption: A Destructive Part

Transparency International's Global Corruption Report 2008 (GCR) was launched at the United Nations in New York on 25 June. The report focuses on corruption in the water sector, and its grave implications for sustainable development and poverty reduction. With more than 1 billion people worldwide lacking guaranteed access to water and more than 2 billion without adequate sanitation, the report is critical in identifying the relationship between the water crisis and corruption.

Corruption in the water sector puts lives, livelihoods and sustainable development at risk. The poor pay with their health as scarce or polluted water supplies increase vulnerability to disease. It is estimated that in developing countries, 80 percent of health problems can be linked to inadequate water and sanitation.

Corruption in irrigation critically undermines efforts to respond to the world food crisis. The current food crisis has triggered commitments around the world for massive new investment in irrigation systems. In India, a country at the centre of this crisis, corruption is estimated to add at least 25 percent to the cost of irrigation contracts.

Climate change increases pressure on water dependent communities: it is estimated that by 2020 between 75 and 250 million people in Africa alone will be exposed to increased water stress due to climate change. As water becomes scarce, corruption becomes more lucrative and likely; a lethal combination that is expected to hit the poor hardest.

With this understanding, TI's Global Corruption Report moves forward with practical recommendations for change. In recognising the importance of the water crisis, the GCR 2008 argues that not only is tackling corruption a moral issue, but it is essential for human and economic development, our energy and food security, as well as for political stability and environmental sustainability.

To download the full report visit: [www.globalcorruptionreport.org](http://www.globalcorruptionreport.org)



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for example, are one method of accomplishing this within government. This could include management performance agreements to clearly define the expectations placed upon providers, identifying an oversight body while ensuring that a designated service provider is sufficiently autonomous to be able to achieve its objectives. The role of incentives also holds for service providers. Accountability for the delivery of requested services by consumers can be managed through a merit-based system that rewards managers for their performance against contractual obligations.

To heighten consumer demand for greater integrity from government and utilities, information on current service performance and future improvements is needed. Although specific governance tools are highly context-specific, there are several practical methods for increasing information flows. These include requiring providers to issue reports on performance progress, using citizen report cards or surveys, and defining rules for providing consumers with information on request through a customer service department.

Improving awareness of expected service could be accomplished by issuing comparative information on providers in other cities or towns, facilitating consumer participation and exposure to regulatory decision-making processes, and building capacity and sector knowledge of journalists.

To move forward with governance and anti-corruption requires an analysis of many of the tools described in the literature, and more in the way of accessible, sector-specific knowledge and guidance for practitioners. A first step to tackling this is to adequately document, assess, and share the successes and challenges of different sector-specific approaches currently being developed and used to inform future planning. This involves the use of quantifiable indicators to gauge progress in implementation and the resulting impact in water supply services, defining a framework for regular review of indicators through reporting channels and audits, and defining opportunities for incorporating lessons learned into existing programmes.

Taken together, these proposals will help to fight corruption in the water sector in developing countries, even though they will not magically translate into good governance overnight. Nonetheless, they are key actions that can give the poorest and most marginalised people in developing societies the access they need to a precious commodity that is essential to their lives.

**It is important to focus on those behaviours that improve transparency and accountability.**

[The opinions in this article are those of the author and do not necessarily reflect those of the World Bank, its Executive Directors, or the countries that they represent.]



Looking at the Amudarya river basin in Central Asia, Nicole Kranz, Holger Gerdes and Cornelius Laaser from Ecologic elaborate on how their NeWater project assists with the development of new water governance tools in transboundary river basins.

## A River Runs Through It: Transboundary Water in the Amudarya Basin

NICOLE KRANZ, HOLGER GERDES and CORNELIUS LAASER

The main challenges to sustainable water management today are water pollution and scarcity, occurring on all levels, from the local to the transboundary. As has become clear in recent years, both are increasingly driven by global environmental developments. Important drivers are climate change and population dynamics, as well as economic factors. This situation calls for a flexible water management approach.

In that respect, transboundary river basins pose a particular problem. Firstly, access to water is determined by power asymmetries between riparian states. Secondly, local conflicts over water management are even more knotty at higher, transboundary levels, as uncertainties regarding water management options and strategies increase.

The EU-funded NeWater project, a joint effort of more than forty international research institutes, aims to advance the understanding of adaptive water management in different national and regional contexts. It develops and applies tools to establish a new water management paradigm.

One of the cases investigated by NeWater is the Amudarya basin in Central Asia. Originating in the Pamir Mountains, the Amudarya was once one of two major tributaries of the Aral Sea. Intensification of agricultural irrigation during the Soviet era, particularly the expansion of cotton monoculture, severely depleted available water resources and triggered a continuous flow of pollutants into the Aral Sea. The adverse impact on the regional environmental system has yet to be brought under control. One result is that the Amudarya no longer reaches the Aral Sea, running dry several kilometers before the former estuary.

After the collapse of the Soviet Union in the early 1990s, the fate of the Aral Sea and the management of the Amudarya river basin fell into the hands of Tajikistan, Turkmenistan and Uzbekistan. After years of isolation and internal conflict, Afghanistan, upstream, is now also gradually re-assuming its participation in the management of the river. The Amudarya is crucial for economic activities in all these riparian countries. Thus, it has emerged as a contested object in hydro-diplomatic relations. The only way to ensure sustainable development in the Amudarya river basin seems to be a regional approach which integrates ecological considerations as well as the impact of climate change, while taking into account economic and political instabilities in the region.

ECOLOGIC is a Berlin- and Brussels-based private not-for-profit think tank for applied environmental research, policy analysis and consultancy. Founded in 1995 as an independent, non-partisan body, it covers the entire spectrum of environmental issues, ranging from traditional ones such as nature conservation and climate and energy to the integration of environmental concerns into other policy fields such as foreign and security policy.



CORNELIUS LAASER, a researcher with Ecologic, focuses on sustainable water resource management, especially in connection with the European Water Framework Directive. Recently this involved projects on monitoring water quality, water scarcity, and on the impacts of using biomass for bioenergy on water resources. Cornelius Laaser holds a diploma in Geo-ecology from the University of Potsdam.

NeWater's work in the Amudarya basin follows a two-fold approach. In analyzing the water governance structures, researchers work for a better understanding of both the barriers to and the opportunities for more adaptive water management practices. Based on these findings, NeWater intends to develop tools and instruments to facilitate the transition to new management approaches.

## The only way to ensure sustainable development in the Amudarya river basin seems to be an integrative regional approach.

It is of crucial importance to foster cooperation among actors at multiple administrative levels in the different countries, all of which follow different national water management strategies. Until now, the structure and responsibilities of authorities at the regional level lack transparency, and fragmented approaches are hampering efficient information exchange. Consistent monitoring data on water quality and quantity are missing. However, comprehensive and accessible knowledge of the hydrological and ecological situation in the river basin is a prerequisite to the fair allocation and management of water resources across borders, as well as for preparing for future challenges caused by changing boundary conditions.

NeWater aims to identify ways in which deficits in the current institutional settings can be alleviated. In this context, the project aims to improve formal organisational structures of institutions in the region to allow for more adaptive water management at the transboundary level. This process also includes international donors, which play an important role in fostering transboundary collaboration on water resources in Central Asia.

To achieve its objectives, NeWater focuses on shared learning experiences and capacity-building for water managers and policy-makers. NeWater researchers have engaged with a wide variety of actors and stakeholders in the basin so as to jointly develop possible solutions for the most pressing issues. Activities have involved stakeholders from different countries (Turkmenistan, Tajikistan and Uzbekistan), different administrative levels (regional, national, local) as well as various areas of expertise (science, administration, farming, nature conservation). In following this approach, NeWater hopes to create awareness of the joint responsibility for the river and to initiate learning processes and foster inter-linkages among those in charge of managing the river at different levels.



HOLGER GERDES has worked as a researcher with Ecologic since September 2007. His work concentrates on the monetary valuation of environmental goods and services. The Water Framework Directive and the EU Emissions Trading Scheme are the focus of his research activities. Gerdes holds a Bachelor in European Studies from the University of Maastricht and a Master in Environment and Resource Management from the Free University of Amsterdam.



As a Senior Fellow with Ecologic and a PhD candidate at the Collaborative Research Centre 'Governance in Areas of Limited Statehood' at Berlin Free University, NICOLE KRANZ is involved in various research and consulting projects in the environmental policy arena, mostly related to international water governance. She holds a Diploma in Environmental Science from Carolo-Wilhelmina Technical University in Braunschweig, Germany and a Master in Environmental Management and Policy from the Bren School of Environmental Science and Management at the University of California, Santa Barbara.

Common answers need to be found to common problems. These include technical issues, such as deteriorating irrigation systems, and environmental degradation which continues at increasing speed. Obstacles are numerous as well: different legal frameworks for governing water, different economic and cultural situations and traditions, fragmented and overlapping administrative responsibilities and, most importantly, a lack of political will and stability in the region.

Faced with these paramount challenges and the increasing politicisation of water issues in the region, promising signals are hard to find. Still, creating a common understanding of the issues is a first step towards possible solutions. For example, decision-makers and stakeholders came together at a workshop held in Tashkent in April 2008 to discuss how to clarify responsibilities, improve information exchange and enhance water monitoring. Likewise, the international donor community maintains a strong commitment and is currently identifying best-practice approaches for funding.

The NeWater project contributes to the development of a new take on water management issues in the region. It remains to be seen if and how the small steps initiated by NeWater are able to trigger larger changes in the long run, and how that will improve the situation of the region's ecosystems as well as for those depending on it for their livelihood.

NeWater aims to identify ways in which deficits in the current institutional settings can be alleviated.



## A Waterway Towards Peace?

The interview with SASCHA MÜLLER-KRAENNER  
was conducted by Andrea Schilling and Michael Weber in April 2008

The Israeli-Palestinian conflict is about power, identity and geopolitics. But it is also about water. As Sascha Müller-Kraenner explains, sustainable cross-border water management is a potential stepping stone towards peace.

Schlossplatz<sup>3</sup>: How has water shaped the Israeli-Palestinian conflict?

**Sascha Müller-Kraenner:** Water really is a scarce resource in the Mediterranean basin. It will become even scarcer in the next 100 years due to climate change. This will make water one of the limiting factors for sustainable development in the region. Conflicts about water resources have erupted frequently over the last decades in the Israeli-Palestinian conflict. So far, Israel has had the upper hand. As a result, it has access to about 90 percent of the water that runs through the aquifer under the West Bank, thus under Palestinian territory. The situation is similar for water coming from the Jordan valley.

*So, Israel uses water as a geopolitical tool?*

I would not go as far as that. When Israel won the Six-Day War in 1967 it also gained control over water resources. So it is the other way around: water was not used as a geopolitical tool but water access has always been a part of the geopolitical conflict.

*Where is the water being extracted from?*

Looking at the hydrological situation, we see that the water comes from the mountains in the North, for example the Golan Heights and the border between Lebanon, Syria and Israel. From there, several smaller rivers flow towards the Sea of Galilee. The so-called National Water Carrier transports the water from the Sea to Israel's industrial and agricultural centres.

*Are there environmental impacts?*

Yes. Only a small trickle of water, contaminated by pesticides and other pollutants, reaches the Jordan River. It represents only about 10 percent of the water that had been leaving the Sea of Galilee in biblical times. Less water in the Jordan River has reduced the Dead Sea's water level by 25 metres. It used to be a fascinating ecosystem with well-adapted species, but now it really is a dead sea not supportive of any kind of life anymore.

*What are the consequences for the people living in the area?*

Water leaving the Sea of Galilee is not enough for the villages in the Jordan River valley, which has always been a centre of agriculture. Today the situation is different on each shore. The Israeli side is supported by their water supply system, but on the Palestinian and Jordanian side there is a tremendous lack of water. Add to that a high concentration of salt in the soil and the basis for agriculture is no longer given.

*What does reduced water access mean for the Palestinians?*

The Palestinians have two problems: their political self-determination and how to shape their economic development. Here water comes into play. One idea in

*How is the water issue perceived in Israel?*

Currently, there is a lively public debate. One side wants to keep control over water resources to maintain the Western lifestyle to which Israelis have become accustomed. But this lifestyle requires much more water per person than the conditions you find in the West Bank or around the Gaza Strip allow for. Consequently, others, mainly from civil society and environmental organisations, argue that sustainable water management should take this specific context into account.

*Can cooperation in water management help solve the broader conflict?*

Well, water will always be a scarce resource in the region, even under peaceful conditions. Any future political arrangement therefore has to include a common management of water resources. A common water management system could be a way of building cooperative structures and trust. This has happened in other parts of the world before. For example, the first cooperative agreement between Germany and France after the Second World War was the International Commission on the Protection of the Rhine. You also have successful water basin agreements around the Zambezi River in Southern Africa.

**Water was not used as a geopolitical tool but water access has always been a part of the geopolitical conflict.**

the Oslo Peace Agreement in 1995 was to transform Palestine into an exporter of agricultural products. But the treaty parties forgot to think about including fair water arrangements in the agreement. Without water there can be no agricultural exports.



SASCHA MÜLLER-KRAENNER is the European representative of The Nature Conservancy, a leading US-based environmental NGO. From 2003–2006, he was the Heinrich Böll Foundation's Director for Europe and North America, and head of the foreign and security policy programme. Müller-Kraenner is also one of the founders of and a senior adviser to Ecologic, a non-profit centre for environmental

policy located in Berlin. He has published on international relations, European integration and environmental diplomacy. His latest book on energy security, *Energiesicherheit. Die neue Vermessung der Welt*, was published in March 2007.

You have been involved with the 'Good Water Neighbourhood' project. What is its role vis-à-vis water issues underlying the conflict?

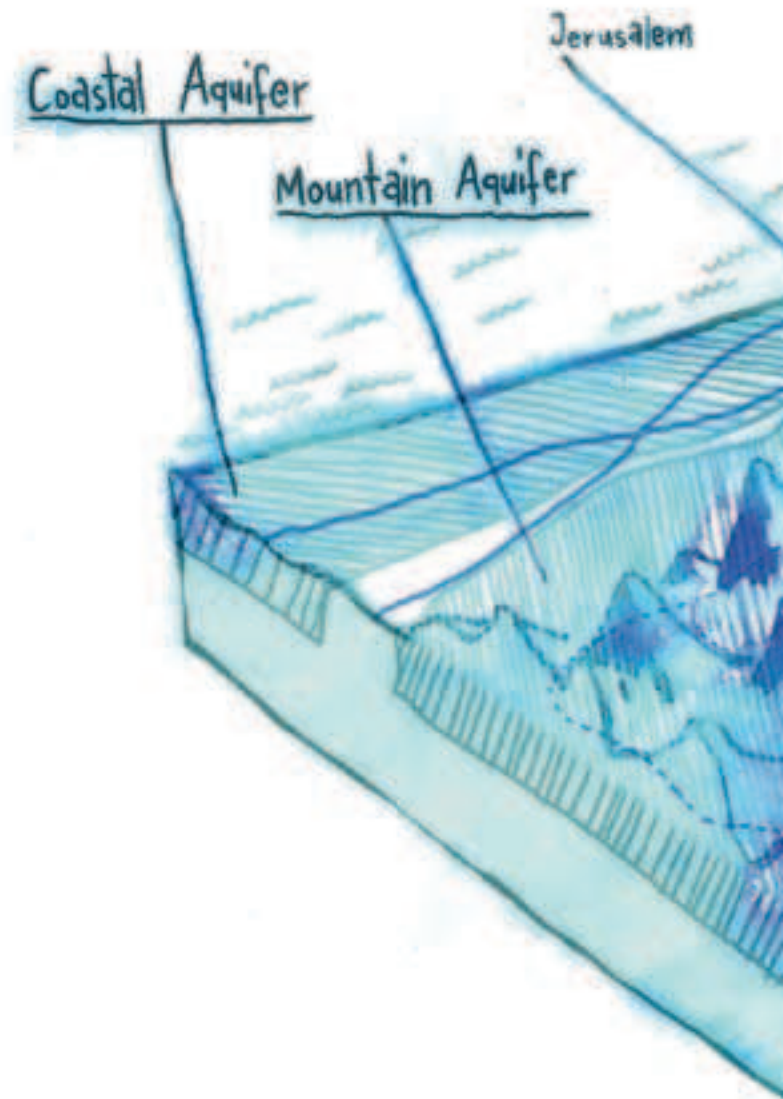
The 'Good Water Neighbourhood' project by Friends of the Earth Middle East is in my opinion a good model for broader cooperation in the region. It is one of the few NGOs that includes activists from both sides of the fence: both from Israel and Palestine, but also from the neighbouring Arab countries. It has its roots in the EcoPeace project from 1994, an initiative that was created during the Oslo peace negotiations by environmental organisations from Israel, Palestine, Jordan and Egypt in order to address the environmental problems around water in the region and to use this work to foster political cooperation that goes beyond water.

Ideally, what would common water management look like?

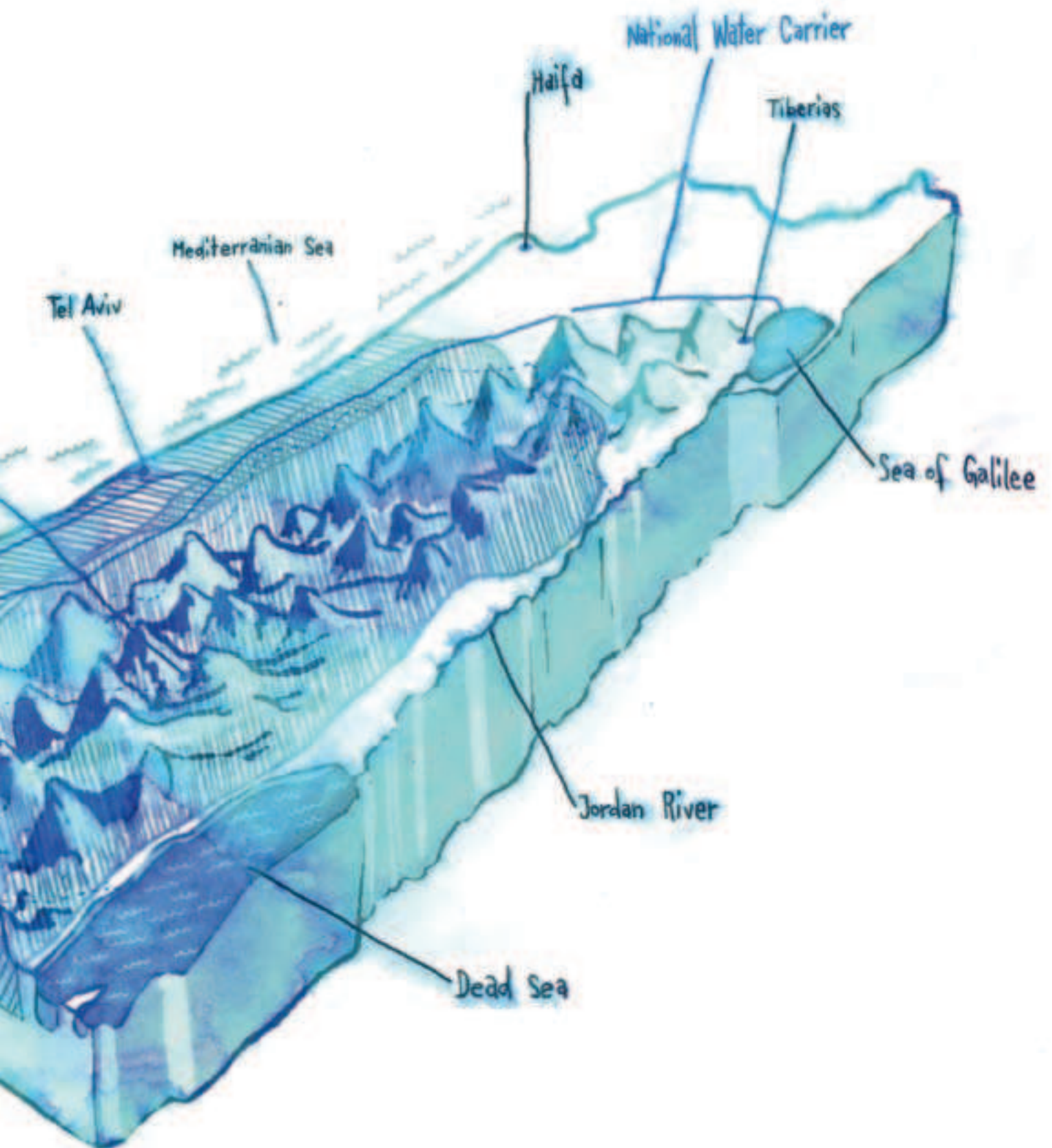
I think there are two basic requirements: one is a cooperative system of river basin management that includes the municipalities and the economic actors from all different ethnic and political groups. Secondly, the way water is used must change. Agriculture uses 60 percent of the water available in a dry region with tremendous population growth.

So, must a successful peace agreement include water management?

The economic perspective for the Palestinians is one major precondition for a stable peace. Since water is a central factor for their economic development, its allocation must be addressed. Also, any long-term strategy must include provisions outlining how to preserve or regenerate the natural infrastructure. Of course, this is true for the whole Mediterranean region. The EU should put water on top of the agenda in the framework of the Neighbourhood Policy.







## On Wells and Pumps:

### The Role of Water in the Fight Against HIV

by JENNIFER ORGAN

Water, sanitation and hygiene play a central role in areas with high HIV prevalence. Jennifer Organ reports on her study conducted in the Copperbelt region of Zambia, where she interviewed HIV infected people.

Sub-Saharan Africa is the world's region that is most severely affected by HIV. A total of 22.5 million people are living with the virus, which makes for an average prevalence rate of 6.1 percent. In Zambia, over one million adults have Aids, giving this region the fourth highest adult prevalence rate in the world.

The disease, along with its well-known resulting health issues, has affected families' abilities to generate income and access healthcare facilities. A household faced with the loss of a breadwinner often encounters financial difficulties which can ultimately reduce its access to food and water.

The World Health Organisation recommends a minimum of 20 litres of water per person per day for drinking, cooking, and personal hygiene. This figure should increase in HIV affected households for a number of reasons. People living with HIV often

Recent studies suggest that many infections that lead to sickness, diarrhoea and malnutrition stem from poor sanitation, reduced access to water and poor quality drinking water. This risk is related not only to a generally weakened immune system but also to the necessity of HIV-positive people to earn income for food and health care, as well as carry out their daily chores and activities.

How HIV-affected households cope with increased water needs is also an important issue. Some families may find it affordable to contribute to the upkeep of a community borehole, others rely on hand pumps and wells that experience dry periods, with rivers and streams becoming more frequently used in the absence of rain. There is a significant increase in journey time when collecting water in the dry months, time that could be better spent in farms, schools or homes. Even in the wet season, one in six households uses free but polluted rivers as their main water source. This is not only because local wells and boreholes run dry and break, but also because pumps are left in a state of disrepair due to the expense and labour required to keep them working under intensive use. In addition, as Leya Banda, a mother of two and grandmother of six, explains, using constructed water points can be time-consuming: "we must queue for a long time to use the borehole; one person may bring many containers to fill. The queues are too long

### Simple measures can be taken to protect and improve the reliability of man-made water points.

suffer from diarrhoea, which increases the need for re-hydration. HIV increases susceptibility to opportunistic infections and repeated illnesses can lead to a loss of strength and reduced mobility, which in turn reduces a household's capacity to collect water. As a result, water and sanitation needs are heightened in HIV affected communities, and should be integrated into a holistic approach to tackling the disease.



JENNIFER ORGAN holds a BSc (Hons) in Development Studies from the University of East Anglia and an MSc in Engineering for Development from the University of Southampton. This study is based upon research for her postgraduate dissertation carried out in Zambia with Action Against Hunger UK (AAH) and their partners CINDI. Jennifer is currently managing a water and sanitation programme with AAH in Uganda. The full report *HIV and Water: Working for Positive Solutions* is available from Action Against Hunger UK. Email: [info@aahuk.org](mailto:info@aahuk.org) Web: [www.aahuk.org/documents/WaterandHIV.pdf](http://www.aahuk.org/documents/WaterandHIV.pdf)

and the pumps break easily because many people use them [...] we collect water from the river because it takes less time than waiting for the queue.”

Despite these difficulties, simple measures can be taken to protect and improve the reliability of man-made water points. The installation of an ordinary bucket and winch would make lifting water much easier and reduce the burden of this daily chore. By building a raised headwall and cover, well contamination from surface water and debris can be prevented and would reduce the danger of injuries. Animals grazing close to the water are a major source of contamination: fencing and overflow drains prevent animals from polluting water points. This ensures the sustainability of the water points, and allows safer maintenance and cleaning.

It is also important to involve community members in the planning of the project cycle. Public consultations enable both communities and implementing NGOs or governments to build on local knowledge and technologies and emphasise durable, affordable and sustainable systems. Coordination with local NGOs, women’s groups and care programmes also provides added value, particularly when working with the community in managing water point maintenance through trained staff and pump-minders.

Having considered the water needs of HIV affected communities, one point is clear: water and sanitation projects should not be considered mere add-ons to HIV projects, but rather be an integral part of an effective holistic approach to fighting the disease. More emphasis must be placed on durable, affordable and sustainable systems to prevent further breakdowns in areas already susceptible to water shortages, as reliable water points are essential to prevent further illness and to reduce the burden of water collection. HIV/AIDS projects must go beyond the direct impact of the epidemic; they must be adapted to cater to the broader needs of those affected.

### **The Daily Quest for Water: Zambia’s Water Girls**

Cecilia is 65 years old and cares for her two grand-daughters Elizabeth (10) and Beauty (11). The girls’ parents have died—victims of the HIV pandemic spreading across this region—and Cecilia is their primary guardian.

Sitting on the floor of her small house, Cecilia explains how difficult she finds it to send the girls to the river when the hand pumps are broken and the wells are dry. They must wake at four o’clock in the morning and walk the 1.5 hour round trip down to the river to bring back two 10-litre containers, where they know the water is polluted.

Cecilia fears for the girls being out in the early hours but she does not have the strength to go herself. As a result of the physical strain and school commitments, the family will use the minimum amount of water for cooking, cleaning and washing, which will further increase the risk of disease being spread amongst the family.

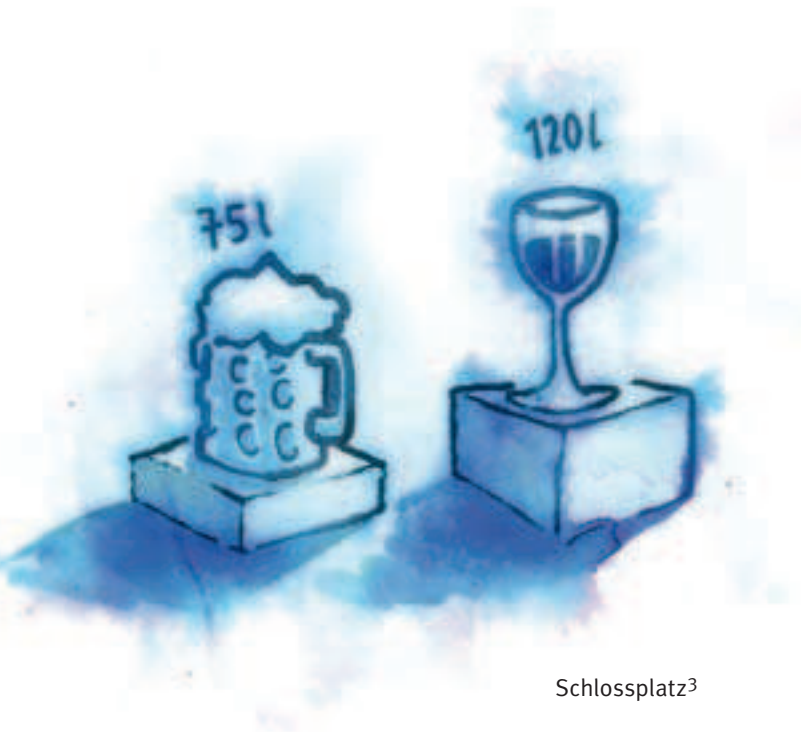
Carbon foot-printing is a novel way to increase awareness of personal carbon emissions, but can the same concept be applied to our individual water consumption? Gareth Walker outlines the innovative concept of “embedded water” and analyses its potential for the governance of water consumption.

## Tracing the Water Footprint

by GARETH WALKER

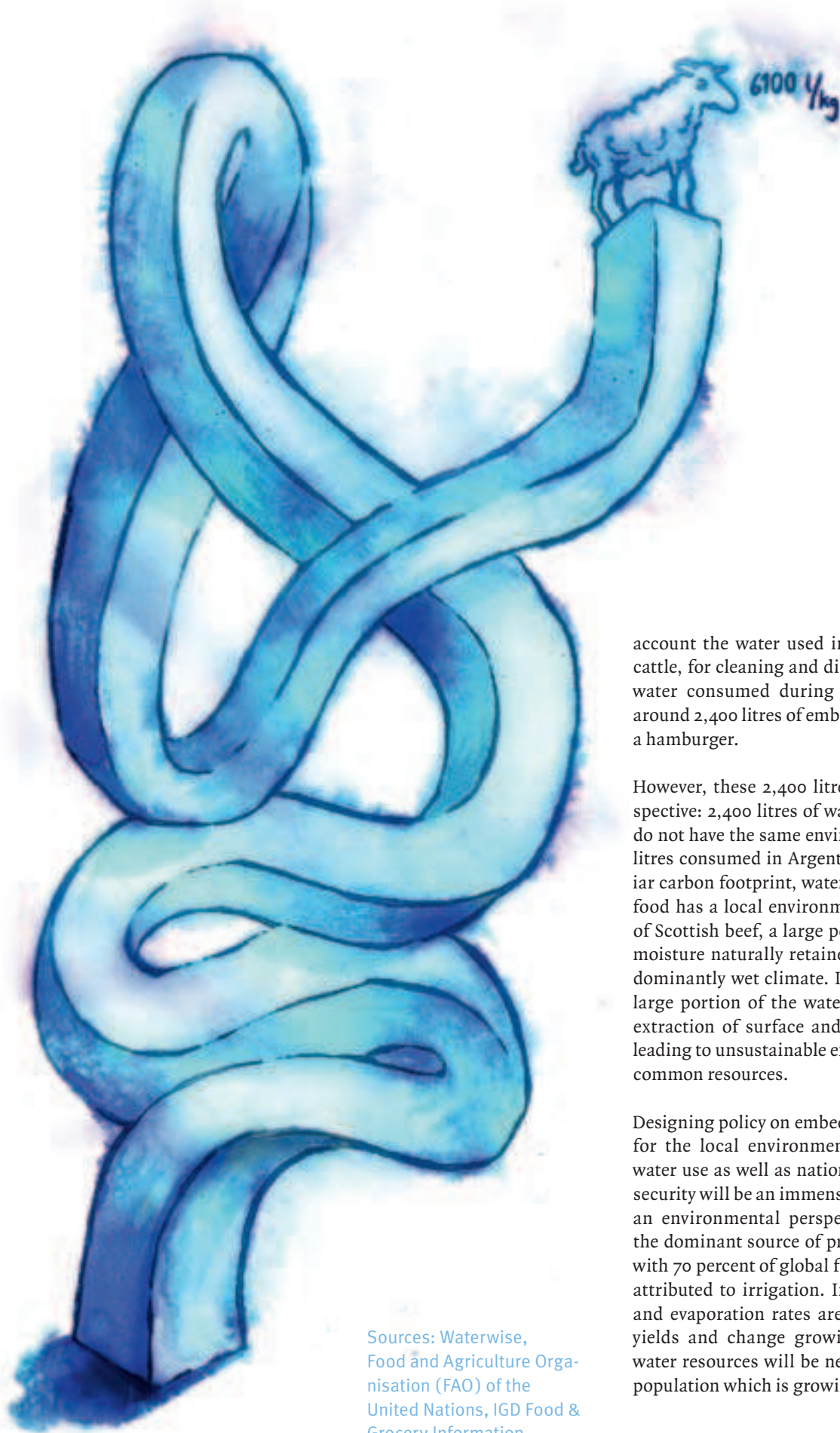
Waterwise UK recently conducted a survey asking respondents to estimate their water consumption. Approximately 60 percent of respondents estimated they consumed 50 litres or less a day. According to Ofwat, the economic regulator for the water and sewage industry in England and Wales, the actual figure for domestic use is three times as high: It stands at 150 litres of water per day. But you also find other figures if you dig a little deeper: as much as 3,400 litres of water consumption per day per person. The difference between 3,400 litres and 150 litres is “embedded water” which is an estimate of the amount of water consumed in producing a good.

Embedded water is similar to the concept of carbon footprinting. Pioneered by professor Toney Allen at King’s College London, it is a potential tool in estimating the environmental impacts of a product and the nature of its market. For instance, taking into









Sources: Waterwise,  
Food and Agriculture Orga-  
nisation (FAO) of the  
United Nations, IGD Food &  
Grocery Information

account the water used in crop production to feed cattle, for cleaning and direct consumption, and the water consumed during processing, we consume around 2,400 litres of embedded water when we enjoy a hamburger.

However, these 2,400 litres need to be put into perspective: 2,400 litres of water consumed in Scotland do not have the same environmental impact as 2,400 litres consumed in Argentina. Unlike the now familiar carbon footprint, water used in the production of food has a local environmental context. In the case of Scottish beef, a large portion of the water used is moisture naturally retained in the soil due to a predominantly wet climate. In the case of Argentina, a large portion of the water is provided through the extraction of surface and groundwater, potentially leading to unsustainable extraction and disputes over common resources.

Designing policy on embedded water which accounts for the local environmental and social impact of water use as well as national and international food security will be an immensely challenging task. From an environmental perspective, crop production is the dominant source of pressure on water resources with 70 percent of global freshwater extraction being attributed to irrigation. In addition, future rainfall and evaporation rates are projected to reduce crop yields and change growing patterns, and further water resources will be necessary to feed the global population which is growing steadily.



In naturally arid or densely populated nations, the local environment may struggle to provide the water necessary to local food needs. In such cases it may make sense to rely on imported food, and therefore embedded water, from an environment which can afford to produce it. Indeed, certain Middle Eastern countries have accepted this and made a conscious decision to rely on food imports. This trade of embedded water may also help to explain why the predictions of “water wars” have so far not come true—trade has compensated for local scarcity.

But there also is another dimension: affluent populations often prefer water-intensive products such as meat or fruits out of season. Frequently these are imported from water-scarce regions where labour is cheap and environmental regulations weak. The result: the satisfaction of one country's demand at the expense of another's environment and citizens. From the denial of water to Sub-Saharan communities in order to irrigate flower plantations for European supermarkets to the infamous environmental disaster of the Aral Sea due to cotton irrigation—embedded water provides a means of describing the global “shadow market” of water consumption and tracing the international impact of water-intensive products.

How then could and should the concept of embedded water be applied in governance? In the context of growing media rhetoric on the looming “water crisis,” it is tempting to use embedded water and the alarming figures it produces to argue the case for protectionism. However, the embedded water concept has an ambiguous relationship with any environmental or moral imperative; it is a factual commentary which can subsequently be interpreted in any number of ways. Taking all aspects of extraction and trade into account, the focus on embedded water will therefore not simply be one of reducing a calculated value (as is frequently the case with carbon), but on the dynamics described by this “shadow market”.

As the current debate on the global food price boom continues, the concept of embedded water plays an implicit and important role in explaining the recent food price trends. Whilst there are a number of processes which contribute to food price increases, the following four are most often referred to:

1. The rising price of oil which increases the input costs of food production
2. Below average crop yields due to adverse weather conditions and climate change
3. Changing food consumption preferences in increasingly affluent South-East Asian economies
4. Additional demand for food crops for bio-fuel production



GARETH WALKER is responsible for research development and publication at Waterwise, a non-profit organisation whose aim is to decrease water consumption in the UK by 2010. Prior to joining Waterwise, he worked with the Stockholm Environment Institute producing a vulnerability analysis to climate change in South East England for the EU ADAM project. Gareth holds a Bsc in Physics and Philosophy of Science from King's College London and an Msc in Water Science, Policy and Management from Oxford University.

With the exception of the first item, embedded water plays a role in each of these processes. As mentioned above, climate change is likely to change the distribution of soil water globally, as well as alter the nature of the hydrological cycle. Changing global food preferences are likely to translate into increased demand for meat products which in turn puts additional pressure on water resources. According to the UN Food and Agriculture Organisation, China's per capita demand

## A potential tool for a fairer and more transparent water governance.

for meat has already risen from 20kg per year in the 1980s to a current 50kg. Finally, the International Water Management Institute has estimated that 400 litres of water are needed on average for every litre of bio-fuel produced.

Embedded water does little to explain the entire complex system which governs food prices, but it does provide a valuable and often over-looked perspective on the current upward trend in prices. When hearing of governments restricting rice and grain exports to satisfy their own national stockpiles, and of drought threatening food security in China, it is worth considering the shifts in global water consumption distribution in the coming decade. Embedded water is not only a very suitable conceptual framework for understanding the implications of these global changes but also a potential tool for a fairer and more transparent water governance.

Water resource management is a major concern in Mexico. Building a common understanding amongst the country's diverse populations is a cornerstone in developing sustainable policy. Carlos Guizar shares his experiences in setting up the Water Culture Education Office in Naucalpan Municipality.

## Sustainable Water Management in Mexico: The Educational Approach

by CARLOS J. GUIZAR RIVAS

Water is scarce in Mexico. Recognised by President Felipe Calderon as a matter of national security, water has recently gained priority on the political agenda.

In Naucalpan, a municipality in the centre of the Metropolitan Area of the Valley of Mexico (MAVM), water availability is a consistent problem. Populated by over 900 thousand inhabitants, Naucalpan shares its water resources with 58 municipalities and 16 delegations of Mexico City, inhabited altogether by approximately 19 million people. The municipality contributes almost 1 percent to the national GDP and 9.5 percent to that of its state.

**Any sustainable water policy in Mexico has to take into account huge income differentials among the population.**

During the last 300 years, the MAVM has experienced steady, but largely uncontrolled growth. This has had adverse effects on the area's water resources. Supplied by underground aquifers, rivers, and springs, water often has to travel more than 100 kilometres before entering MAVM. Add to this the cost of overcoming the various altitudes in the region, and water sup-



ply becomes a costly service. Take, for instance, the Lerma-Cutzamala System. A combined piping system that carries water from the Lerma River Basin and the Cutzamala River to the MAVM, it uses 102 pumping stations to overcome physical challenges related to altitude, consuming four thousand KWh and incurring a bill of roughly \$63 million per year.

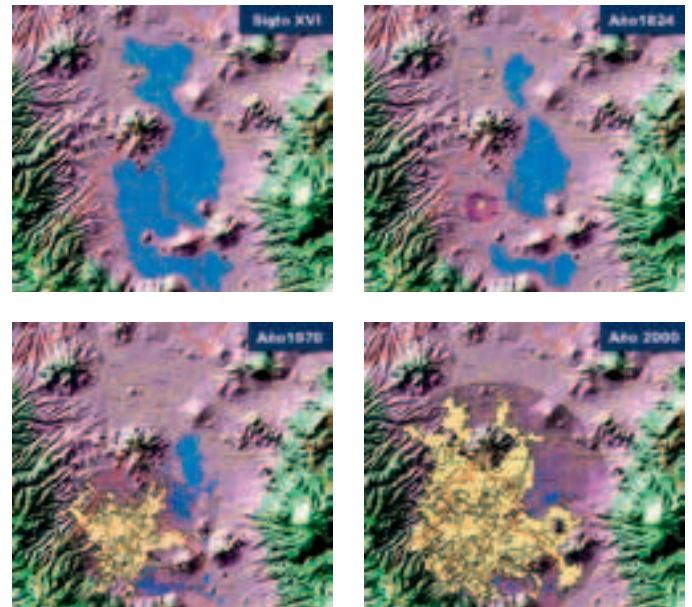
These costs are largely invisible to Naucalpan's inhabitants. Heavily subsidised according to level of income and residential area, water is provided cheaply by public corporations. Thirty to forty cubic meters cost the consumer only 246 Mexican Peso (or \$24). Still, many consumers allow the bills to accumulate because they know that by law water supply cannot be cut, as in the case of electricity and telephone services. At least thirty-five percent of overall water supply revenues are lost, either because people do not pay their bills or because water is lost through leaks in old and poorly maintained infrastructure.

One way to tackle inefficient water use is to increase knowledge on the consumers' side. In 2006, the President of Naucalpan, Jose Luis Duran, asked me to lead the Water Culture Education Office. Looking at the organisation's previous actions, I found that their interventions had not been comprehensive or applicable to all segments of the population. Any sustainable water policy in Mexico has to take into account huge income differentials among the population. While Naucalpan is home to some of the wealthiest residential districts in Latin America, it is also characterised by extreme poverty. Thus, I had our team rearrange the individual programmes according to the living conditions in the municipality.

We came up with four new approaches: First, it was time to realign the team's vision and to create commitment. Second, we would change the strategic perspective so as to include all inhabitants into our work, no matter their social or economic background. Third, we agreed it was essential to promote payment of water services. Fourth, setting up a working network

with international organisations such as the World Health Organization, the World Wildlife Foundation, and UNESCO would increase outreach and our institutional credibility towards enterprises, academic institutions and the general public. Facing limited resources, we decided we would have to include representatives from the public, civic and private sectors.

We divided the outreach part of the programme according to level of education and socioeconomic status, and devised tools to ensure that the issues could be understood by everyone—a student from a private school has a different reality than a student from a public school, as the latter may not even have water at home. We then linked the programmes to each other so that messages about the importance of water, conservation and citizens' personal responsi-



Growth of the Metropolitan Area of the Valley of Mexico since 16th century



CARLOS J. GUIZAR RIVAS is in the Hertie School of Governance Class of 2009. A fellow of the Rafael Preciado Foundation and the Konrad Adenauer Stiftung, he is responsible for developing linkages between the Mexican PAN (National Action Party) and the German CDU (Christian Democrats). He is also a consultant of the Mexican Congress at the Parliamentary Confederation of the Americas on migration topics and has worked as the personal assistant and consultant to the Mexican Federal Representative Patricia Duran. Guizar ran the Education and Water Culture Office at his home municipality of Naucalpan developing innovative programmes with UNESCO, WHO and WWF.

bility could be broadly disseminated, reaching people in their neighbourhoods, schools, working places, while walking on the streets and driving their cars.

This approach to promoting a sustainable water culture was reinforced through visits to academic institutions, hospitals, companies, neighbourhoods and supermarkets, and by organizing forums, summer camps and other engaging activities. Under the “H2O Inspectors” programme, for instance, children between 6 and 12 years old were recruited to promote water culture education amongst their relatives, classmates and in their neighbourhoods. All the inspectors received an official ID and uniform from

**Messages about the importance of water, conservation and citizens’ personal responsibility were broadly disseminated, reaching people in their neighbourhoods, schools, working places, while walking on the streets and driving their cars.**

the Water Culture Education Office, helping them to be recognised wherever they went. They were also invited to attend special forums, summer camps and other activities organised for their benefit.

These activities enabled us to engage the highest possible number of people. Our partners from UNESCO agreed to train teachers and future promoters, using a new activities’ guide book they had edited in collaboration with the National Institute of Water Technology. Furthermore, in order to continuously promote the water issue we created a certification programme for participating academic institutions. We implemented a similar process for companies and enterprises, adapted to their specific perspective and recognizing their efforts and social commitment.

Ten months following its initiation, the programme had established direct contact with more than 116 thousand people in Naucalpan. An additional 50 thousand had been reached indirectly. In total, almost 18 percent of the municipality’s population had met with our efforts to inform their water consumption habits. In the private sector more than 50 companies had been contacted. Through educational facilities we managed to increase the participation of children in the “H2O Inspectors” programme by more than 500 percent.

All in all, the Naucalpan water culture education programme, still running today, has been a resounding success. Municipalities, cities and states throughout Mexico have begun launching similar programmes in their own jurisdictions. Drawing upon our experience, they have been inspired by an example of how well-designed policies can overcome the obstacles of time and budgets without compromising effect.

Contrary to the mainstream water debate, Berlin's water utility argues for higher consumption. In this article Sophia Armanski, Co-Editor of Schlossplatz<sup>3</sup>, investigates the policy responses required to keep Berliners' feet dry.

## A Sinking Feeling: City-State or City-Swamp?

by SOPHIA ARMANSKI

Berlin's water situation is somewhat of a paradox. The area is not particularly rich in water from above. On average, the city receives 581 millimetres of rain per year, only slightly more than Jerusalem (450 mm) and less than Beirut (600 mm). There are no mountains in the area to feed water into the Spree and Havel rivers. Still, there seems to be too much water below the city. You can see it pooling in the pits of building sites, resurfacing after a long journey through Brandenburg's water system. As some may be aware, Berlin was once a swamp. In fact, the city's name reportedly derives from the Slavic root *brlo* which refers to a place that is, well, wet.

What explains the city's strange origins, still lurking beneath our feet? The answer to this riddle is human activity. Slavic settlers started drying up the wetlands in the 6th century. Over time, an elaborate system of lakes, rivers and canals evolved, ensuring a steady supply of water to the city. Today, Berlin relies entirely on groundwater for its water supply. "This means there is no need to use chlorine or other chemicals for purification as in many other cities, which makes our water quality one of the highest in Germany," says Stephan Natz, head of Berlin Wasserbetriebe, the city's public-private water corporation. Some 70 percent of the city's groundwater is deliberately "produced" by wells installed near rivers. These draw water through the sediment layers, where it is purified by microbiological processes. Waterside filtration is a very simple and unique way of cleaning water. It has been used in Berlin's water system for over a century.

But why is there too much ground water? The reason is a sharp fall in demand. Water consumption in Berlin has decreased by 45 percent in the last 20 years. The city's industries, its biggest water consumers, were shut down after Germany's unification. And since 1994 the population has been declining. Every year, Berliners' water consumption decreases by an average 1.2 percent. Old dish washers and washing machines are replaced with new and extremely water efficient ones. The modernisation wave has been especially strong in the eastern part of the city. Following the decline in consumption, groundwater has risen to its pre-industrial level and started flowing back into the low-lying city.

Berlin's century-old water infrastructure is now far too large for current consumption levels. Some waterworks have already been closed down and most are running below capacity. In the summer months, the sewage system releases a stench as water discharge is not strong enough to "transport" the sludge. To prevent water from fouling and damaging the sewers, additional flushing is necessary, which is inefficient and costly. Strangely, since 1989 Berlin's pipeline system has grown by one thousand kilometres, to reach a total of 18 thousand kilometres, mainly due to residential development. Infrastructural planning proves difficult under high uncertainty about demographic change and future settlement patterns. No one fifty years ago could have guessed that Berlin's population would actually shrink.

In the short run, the only solution is higher water consumption. But households are reluctant to increase their use. The Berliner Wasserbetriebe blames water-saving behaviour. Economising, supported by public information and education efforts, has gone too far, they argue. It is based on a misunderstanding: water is not a primary energy source, and as such it is not "consumed." In fact, about 70 percent of drinking water in the Berlin region is recycled. That is why the Berlin Senate has imposed quality standards that are roughly 30 percent higher than the average.



SOPHIA ARMANSKI is in the Hertie School of Governance Class of 2009 and joined the editorial team of Schlossplatz<sup>3</sup> as chief editor in her first term. Before coming to the HSoG, she studied at the Phillips University Marburg, University College London and Humboldt University Berlin and holds a Bachelor in History and Economics. Her practical experience includes internships at the Süd-deutsche Zeitung in Munich, Germany, at the German Embassy in Kathmandu, Nepal, and at the European Commission in Brussels, Belgium.

Water use also depends on its price. In 1990, water cost €0.69 per cubic metre in Berlin. Today, rates are at €2.14. Some claim these price increases are the result of privatisation. Since 1999, two private corporations, Veolia and RWE, own 49 percent of the Berliner Wasserbetriebe. The municipal water corporation itself, however, cites investments of €200 million per year combined with lower consumption as the cause of the price increase. The less water flows through the pipelines, the higher costs per unit are. Costs passed on to consumers via higher prices further reduce demand. To escape the circle of rising prices and lower demand, the Berliner Wasserbetriebe is lobbying for a base-price model where consumers pay a fixed

## In the short run, the only solution is higher water consumption.

amount per month instead of the current unit-based pricing scheme. But water prices are a contested issue in Berlin. The Senate, the Berliner Wasserbetriebe, private businesses and consumer groups each have their favourite tariff model.

In the meantime, Berliners use 110 litres of water per day. In the eastern part of the city it is as low as 90 to 100 litres. By comparison, water consumption per head in Germany is 129 litres per day. The French use 151 litres, and the average U.S. citizen 295 litres. Thus, the capital indeed is a water saver. Berlin might be heading back to its roots: a wet place.



Berlin's Spree river remains a far cry from the bathers' paradise it was until the early 20th century. Spree2011, a Berlin-based project, proposes state-of-the-art sustainable technology to turn back time.

## Swimming Trunks and Urban Waterways

### May Meet Again

by JÖRG WELKE, RALF STEEG and SALLY BELOW

City dwellers need not go far to see the negative consequences of human interference in the ecosystem. In Berlin, the Spree has been straightened and polluted for over half a century.

But what explains the fact that the Spree, a river flowing through the capital of one of the world's wealthiest countries, has not been revived? After all, Berliners enjoyed bathing facilities along the river as recently as 1925, so what is preventing it from being made accessible again?

The Spree is not a unique case—as in many cities, wastewater is released through mixed sewers built in the 19th century. During heavy rainfalls, the sewers' capacity is exhausted and the mixture of domestic and rain wastewater is discharged, unfiltered, into the river.

The Spree2011 project, a Berlin-based initiative, has developed a new technology to prevent these excess wastewater discharges. It involves the installation of an underwater modular system of interconnected containers at the mouth of the sewers' discharge points and anchored to the river bed. If overflow occurs during heavy rainfall, the system absorbs and stores the wastewater, which can later be pumped to the sewage plant. By virtue of its location and use of innovative materials, the system is considerably more economical and rapidly installed than are conventional concrete rain overflow basins.



The project has so far drawn substantial acclaim. Four research projects have been approved, and there is regular German and international media coverage. Spree2011 was nominated one of the world's top 20 projects by the Zumtobel Group Award for Sustainable Architecture. The public is fascinated by the idea of bathing in a river in the inner city again.

Nevertheless, public support has been subdued by the misgivings of a few decision-makers. Some worry that the containers could potentially hinder shipping, while others object to rusty containers lying in the river. Spree2011 remarks that size and rust should pose no problems, as the installations are no larger than boats moored along the river bank and the highly modern technology is specifically designed to be located under water.

Others argue that it would be impossible to connect the installation with the sewer system and against the increased energy costs of pumping the combined sewerage water back into the water system. Some see little need or demand for additional outdoor space for entertainment purposes, as the current offer is more than sufficient.

While the engineers behind the project concede that it would be complicated but certainly feasible to connect the installations to the sewer system, they also maintain that photo-voltaic cells would supply ample energy for the water transfers; furthermore, numerous substantial investors have expressed their interest in taking advantage of the islands' entertainment possibilities.

In order to place the Spree2010 project on an economically sustainable footing, the company Luri Watersystems GmbH was founded in 2006. Together with the Berlin Institute of Technology, the company has since received a €2 million research grant from the Federal Ministry for Education and Research. This will allow a pilot filtering station to be built and installed in Berlin's eastern port. The planning, which involves four engineering offices, four departments of the Berlin Institute of Technology, the Competence Centre for Water and the Berlin Waterworks, is now in full swing. Construction is scheduled to begin in autumn 2008 and installation in early 2009. Adding entertainment-oriented superstructures (see graphics) to the installations is an attractive option and could be decided later on a case-by-case basis.

Market opportunities for Luritec—the new corrosion-resistant material used for building the containers—are promising. It is being marketed internationally to cities contending with similar wastewater problems. Land-based, conventional steel rain overflow basins are not only more expensive, they also require longer planning and installation periods. Luritec is rapidly installed and, owing to its modular structure, can be transported to remote locations and adapted to different topographies. A handful of municipalities have already shown interest in the technology.

Despite some early objections, the project has been presented to several Berlin decision-makers, garnering a solid network of supporters. Just as the positive effects of clean waterways at one's doorstep have been acknowledged internationally, it has gradually become clear that with a cleaner river, Berlin's quality of life and image will improve, attracting tourists and investors.

The vision of bathing in the river within Berlin's city limits may soon become a reality.



JÖRG WELKE received his Master's degree in Historical Science from Berlin's Humboldt University in 2000. From 2003 to 2006 he was Press Relations Officer of the German section of the International Physicians for the Prevention of Nuclear War (IPPNW). Since 2005 Welke works for Luri Watersystems, the company which launched the Spree2011 project.



RALF STEEG trained as a landscape architect. He has specialised in mediaeval gardens and landscapes, designed a large number of gardens for private and public sponsors and acted as curator of many exhibitions on the theme of "People and Cultural Landscape." Steeg has been working since 2001 together with his partner Klaus Gabrielli and a team of 24 engineers, historians, economists, artists, architects and communications experts on cleaning the River Spree in Berlin.



SALLY BELOW and her agency Sally Below Cultural Affairs offers advice in communication and strategy issues for institutions, enterprises and projects. She contributes to the exchange of ideas through publications, events and public relations. Her sphere of action is the urban space—from architecture to interaction with actual social matters.

Red-tape and lack of knowledge often hamper the public sector's ability to capitalise on innovations in the private sector.

David Pearson and Randi Olsen illustrate a public-private paradigm in which cost and benefit are seldom efficiently equated.

## Creative Solutions in Wastewater Management: Lessons From the Private Sector

By DAVID PEARSON and RANDI OLSEN

Governments justifiably use environmental legislation, municipal by-laws and policing as part of a policy framework to address public health and safety concerns. Especially in view of the current global environmental situation and the well-founded anxiety among young people about what the world will be like when they are old enough to have families, there is a growing consensus that environmental protection and restoration is a core responsibility of government.

The field of wastewater treatment provides numerous examples of how government policies have developed and been applied in the context of feasible budgeting and political grand-standing. Unfortunately, public policy by its very nature is rarely able to keep pace with the ever-more efficient and affordable solutions generated by the private sector. Financing and politics are not the only things standing in the way. Under-education, manipulation of facts, corruption, geography and other factors also play influential roles in preventing the smooth transition of private-sector innovations into the sphere of public policy and practice.

Ideally, water management policies should include all aspects of the water cycle. Under the umbrella of wastewater management, for instance, fall not only the administration and treatment of domestic sewage, but also means to deal with by-products from the sewage treatment processes and potable water production. Take, for example, a remote community or island project which must generate its own drinking water, either through desalination or other processes.

## Public policy is rarely able to keep pace with the evermore efficient and affordable solutions generated by the private sector.

Here, by-products such as highly concentrated salty brine and various pollutants must also be included in the wastewater management scheme. Sewage pipelines, pump stations, competent operators and other factors have to be taken into account as well. These should be combined within the scope of the project in order to take advantage of water reuse possibilities (i.e. treated wastewater can be used for garden irrigation, industrial flushing, etc.). This can reduce the costs of by-product handling and transportation. The excess sludge from the biological wastewater treatment plant can be de-watered, allowing the recovered biological components to be used as compost supplements for gardens, lawns, and other green areas. The recovered water from the sludge can in turn be led back to the sewage treatment plant in order to increase

the amount of water available for irrigation etc. That way, the demand on desalination plants and/or other water production equipment will be lowered. Optimal energy saving solutions in electrical consumption, labour charges, lorries for transporting sludge and other by-products, reuse of treated materials and especially the environmental sustainability of a given project are criteria largely developed by private companies, but which are slowly being integrated into the overall wastewater treatment framework.

In communities, government funds are used to support local mayors and other decision makers in order to provide “adequate” sewage treatment for communities. The funds come mainly out of the tax base, but can additionally be supported through other government or development programmes. Planning and civil engineers’ offices are tendered, selected or appointed to advise decision-makers on available technologies, draw up environmental impact assessments, and thus identify possible “best” solutions. Community budgets are often limited, yet the price for a relatively “low-tech” plant ironically skyrockets to many times the actual value of the equipment being used—often with very low or even poor purification results.

Within the private context, however, the owner of a resort or special accommodation may be required by law to install wastewater treatment equipment in order to preserve surrounding watershed or wildlife reserve areas. Therefore, a high quality/low impact solution must be selected. The investment price is often what drives the decision, but is typically lower than the price given in a public project.





RANDI OLSEN holds a B.Sc. from McGill University. Since 1983 she has been a partner in Okapi Wildlife Associates Registered, a company providing worldwide consultancy on wildlife research, scientific and marine policy, conservation, and market development for PVS Mull-system wastewater and water treatment technologies.



DAVID PEARSON is a graduate of the University of British Columbia, Canada. Today he manages the export department of the Austrian biological wastewater treatment company PVS.

How can it be that the owners of private enterprises have to comply with government regulation within the relatively short construction period of the property, while a community whose inhabitants create sewage and other wastes on a daily basis goes through debates and delayed tender procedures sometimes lasting in excess of 10 years, without penalty or financial consequences? Multi-million dollar resorts typically have lower pollution values and concentrations than a town of several thousand inhabitants. Yet, while a town could be tied up in procedural “red tape” for decades, the resort will usually have been designed, built, operated, possibly sold etc. within the same time frame. The question is not purely academic; it is a daily reality for technology suppliers which are directly involved in these types of discussions. Surely, there must be some mechanism that could force governmental policy makers to take action on these types of issues in the same timely manner and complying with the same deadlines faced by private developers?

More interaction and tighter coupling are urgently needed to take full advantage of the private sector’s creativity and inventiveness in order to meet the public sector’s responsibility to protect and enhance the environment. Bureaucracy must be reduced to speed up the process of selecting, installing and applying environmental technologies—particularly for public

projects. Through guarantees, penalties and other mechanisms, governments can and should motivate manufacturers to maintain purification standards and come up with new technologies. Working in tandem, the public and private sectors should be able

**Ideally an overall water management policy should include all aspects of the water cycle.**

to ensure the quality and performance of the selected equipment, thus shortening the time-lag between invention, testing and mainstream adoption of new technologies. Working together for a swift adoption of environmentally responsible, sustainable management techniques will assure safe and natural surroundings for future generations.

The first class of the Hertie School of Governance graduated in 2007. This section features three of the HSoG's Master of Public Policy pioneers. What are their experiences on the job market? Here are three voices from Washington DC, Maputo and Berlin.



**Bidjan Nashat**

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*Bidjan, what have you been working on since you left Hertie—I hear you ha've been busy!*

**Bidjan:** From July to August 2007, I wrote a paper on the Iranian nuclear crisis for the Heinrich Böll Foundation in Washington and I ended up working as a consultant for them—reporting to a transatlantic expert round table series on Iran. This work has taken me to New York, Tel Aviv, Istanbul, Moscow and Paris. In September 2007, I also joined the Hertie start up Teach First Deutschland (TFD)! TFD is a non-profit committed to improving teacher training in Germany and is run by a number of Hertie Alumni. I was working on fundraising and government relations. It was the best team I have ever worked with!

*So, what are you up to now?*

**I'm still working with the Böll Foundation and this July I will start a research project on one of the topics dear to my heart—which I have already tackled in my Masters thesis at Hertie—learning from evaluation in development organisations. The study is for the World Bank's Independent Evaluation Group and will look at how NGOs, foundations and the World Bank make use of and learn from evaluations.**

*Sounds like a great job—how did you get it?*

**I talked to friends of mine and had them recommend people in the World Bank to contact, who I then emailed to set up appointments. In the end I attended a conference at the World Bank and had a conversation with evaluation professionals. The most important part was showing up and convincing people face to face—I had a lot of coffees!**

*How have you applied your Hertie experience to the working world?*

**I had a great time combining my internship at the United Nations Office on Drugs and Crime, where I worked in evaluation, with my later exchange semester at Georgetown, where I continued to focus on organisational learning and evaluation, on which I then wrote my thesis. I enjoyed the support I got for doing what I thought was interesting and relevant. One of the most important things from Hertie was the fact that I learned how to understand and communicate difficult topics—it was the memo writing culture—I learned how to communicate with decision makers. It really benefited me at the Böll Foundation and definitely with TFD as well.**

*So how do you find living in Washington DC after Berlin?*

**It is very international—more so than Berlin—but it is much smaller and has less of a creative edge than Berlin. It is definitely a place where decisions get made that affect the whole world and that Hertie graduates should consider. I am also a Presidential campaign junkie—the campaign has convinced me to use attack ads in the Hertie Alumni Council elections!**

*Nicholas Menzies talked with Bidjan Nashat—both Alumni of the Class of 2007—in a café in the neighbourhood of Adams Morgan, (almost the Kreuzberg of) Washington DC.*



**Carolin Moje**

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Carolin Moje: “I have been lecturing development studies and researching post-conflict reconstruction at the University of Konstanz which has been a great change—from student to teacher! I am now really excited to have taken a position with GTZ in Mozambique. I’ll be living in the capital Maputo and working on decentralisation and donor coordination.”



**John Holmes**

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John Holmes: “While I can hardly compete with Mozambique, I am happy to have started a new position in February with the German Institute for Economic Research (DIW Berlin). As the project developer in the Department of International Economics, I’m responsible for managing the institute’s ‘Economics of Security’ projects and for developing partnerships with external organisations. I have also started to help provide advice to the European Commission on its security policies.”

## Campus Spotlight

### What is happening on Campus?

This section explores life at the Hertie School of Governance.

#### Policy Meets Politics

As future public policy makers the interaction with politicians will be a main challenge in our careers. In a new student initiative, we invite young politicians for an on-campus exchange of standpoints to improve our understanding of political action.

Last semester saw a new student-organised speaker series launched at the Hertie School of Governance. Following visits by a number of diplomats for the Ambassador Series, and young practitioners in the YPSilon-Series, Heito Aderhold (Class of 2008) and Sebastian Duwe (Class of 2009) decided to invite ambitious young politicians to the school under the heading “macht morgen—Gespräche übers Gestalten” (Shaping Tomorrow—Discussing policy design).

The aim of the series is for Hertie students to engage in dialogue with practicing politicians. The series hopes to mediate between different approaches to problems and solutions in the political realm and students’ daily public policy point of view. So far, the series has supported the longstanding conviction of its founders that understanding the logic of the political realm, while at times frustrating, is essential to drafting appropriate policy. Without political backing, the chances of implementing any policy are slim; successful policies must be tailor-made to find a political majority.

The series touches topics projected to serve (to be encountered by) students throughout their professional careers, and the personal motivations of the guest speakers. By bringing together a small group of students over wine and salt sticks, we go beyond the usual political talk, avoid mere diplomacy and achieve an intimate insight into the logic of politics.

During this semester Franziska Drohsel (SPD), Evrim Baba (Linkspartei) and Daniel Bahr (FDP) visited the Hertie School, each for two hours of intense and stimulating discussion. The most important thing we have gathered from these speakers so far may seem trivial, but has resonating implications: The focus on winning votes makes addressing long-term issues difficult. The support of experts is not sufficient to see a certain policy through, as long as the greater public cannot be convinced.

The series will be continued with another line-up of interesting guests this fall.

Sebastian Duwe



## A New Public Space for the Hertie School of Governance

As the 2008 fall term begins, the Hertie School of Governance has moved from Schlossplatz to a new location in Friedrichstraße. Jonas Köhler, who has been involved in the interior design of the school's new home, explains the conceptual ideas behind materials, colours and furniture.

*Schlossplatz³: What was the guiding principle—the Leitmotiv so to speak—when it came to renovating the new building?*

**Jonas Köhler:** The Hertie School of Governance will move into a freshly renovated historical building. Originally it has been an office building and this character has been preserved. Yet, it was our goal to adapt it to the needs of an institution of higher education as well as to give the building a recognisable branding. Installations and elements in energetic colours will be used to facilitate orientation and visualise the different components that make up the whole.

*Students often remarked that the atmosphere in the ESMT Learning Center was too cold and uninviting. How did you take this perception into account?*

All work spaces will be equipped with carpets or hard wood floors, the rooms are light and spacious and the furniture is comfortable and unobtrusively colourful. I'm convinced that these areas will provide atmosphere for academic work. For relaxation and to facilitate communication between all members of the school there will be a Lounge right by the entrance. We think of this as a space for recreation as



well as a place for meeting people. Here the furniture with cosy armchairs and the general layout with small niches will provide a welcoming ambiance.

*Many students used the Learning Centre until long after midnight. Will the new building also be accessible 24/7?*

**Yes, every student will be provided with a programmable key that enables him or her to make use of the buildings facilities around the clock.**

*What is now Quartier 110, used to be a ministry in GDR times. Were there still traces of this legacy in the building? If so, how did you deal with them?*

As far as we know, none of the original interior survived the complete makeover the building received in the nineties. However, the building itself has landmark status so that the architectural concept that dates back to the fifties has been preserved. Visitors will be confronted with this on a daily basis—be it when they pass the typical stone façade, be it when they climb the representative staircases.

The Hertie School of Governance is a young, international and interdisciplinary institution of higher education that does not only focus on teaching and research, but also strives to be a forum for public debates. How is this intellectual openness interpreted in this project, given that the School does not have a building of its own anymore?

The new building offers a forum that accommodates up to 200 persons which can be used for public events. Moreover, there is another hall of about twice that size in the same building that can be rented on special occasions. More generally, the School will remain a public space by virtue of its location. The address Friedrichstraße is tantamount with publicness, even though it is correct that the possibilities for symbolic communication are limited—the landmark status of the building only allows for limited outdoor advertising and we also have to take into consideration that there are other parties that rent some parts of the building. Yet, there is going to be a multimedia-panel in the entrance hall that displays the daily schedule. Visitors are also welcomed in person on the first floor and ample signage will allow guests to find their way around the building.

*The interview with Jonas Köhler was conducted by Hannes Klöpfer in July 2008.*

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## Schlossplatz<sup>3</sup> in the Blogosphere

In January 2008, Schlossplatz<sup>3</sup> went online with its own blog. The blog regularly features articles and interviews by prominent policy experts from around the world, as well as contributions from students, faculty and visitors of the Hertie School of Governance. Readers can also comment on articles in the blog, print edition, or other policy topics by emailing us at the address above. You can find the Schlossplatz<sup>3</sup> blog at [www.hertie-school.org/schlossplatz3](http://www.hertie-school.org/schlossplatz3)

## Next Issue

The sixth printed issue of Schlossplatz<sup>3</sup> will appear in January 2009. The topic will be announced on the blog on September 30, 2008.

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