

ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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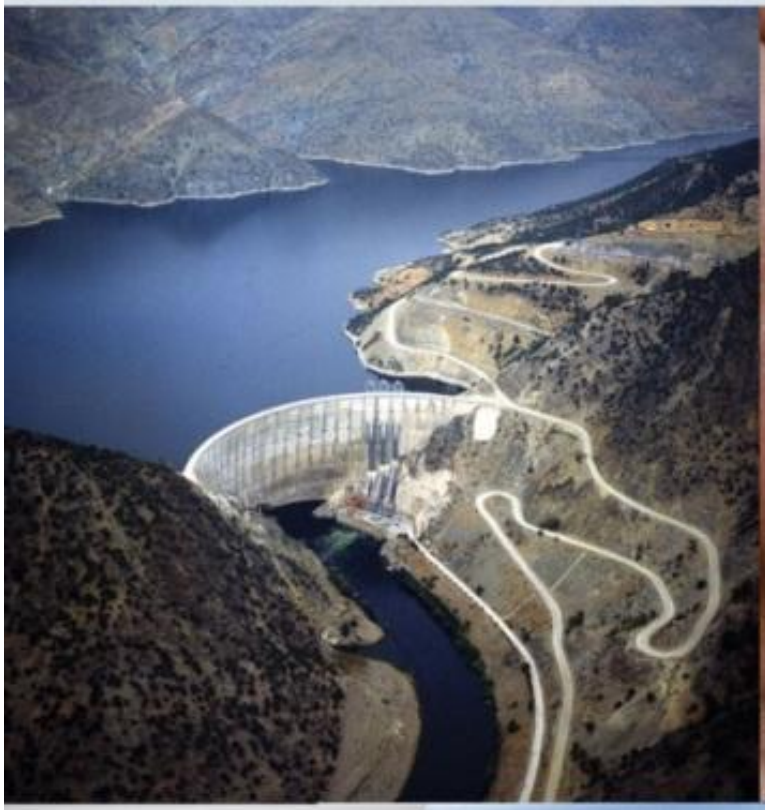



Issue 127

ORSAM WATER BULLETIN

06 May 2013 – 12 May 2013

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❖ Turkey progresses in harmony with EU Water Framework Directive

Within the scope of Turkey's negotiations with the EU on the environment chapter, ongoing since Dec. 21, 2009, Turkey is required to integrate the EU Water Framework Directive into its water-related policies, regulations and laws due to its candidate status.

There are two main processes of harmonization in the directive, which is one of the difficulties encountered by Turkey in its harmonization efforts. The first process of harmonization is the adoption of EU legislation and its implementation, while the second process is infrastructural investments by both the public and private sectors required for full harmonization. For these processes, there are two primary documents that constitute the initiative. The first document is the Accession Partnership document, which has short-term and medium-term targets in line with the Copenhagen criteria for EU candidate countries. The first Accession Partnership document for Turkey was prepared in 2001, and it was deemed suitable for Turkey to launch efforts in line with harmonization with the 2003 Accession Partnership document, with the water quality legislation that is found within the short-term objectives mentioned in the Accession Partnership document. It was concluded that 12 EU directives on water quality should be handled. Also in 2005, 2007 and 2009, the Accession Partnership document for Turkey was updated. The second document is the national program titled "Turkish National Program for the adoption of the Aquis" in response to the Accession Partnership document. In the national program, water legislation was handled along with environmental issues.

Within the harmonization process, many changes have taken place regarding water resource management in our country since 2003. In order for Turkey to close the Environment Chapter, the process of implementing the Water Framework Directive is supposed to be completed and implemented while basin management plans, one of the most important objectives of the directive, should be prepared.

In hydrological terms, Turkey, which has 25 river basins, primarily prepared a wastewater action plan and river basin protection action plans (RBPAPs) for 25 basins within the process of preparing basin management plans. The river action plans for 11 basins have been completed, while those for 14 others are expected to be completed by the end of 2013. In order for basin management plans to be

implemented, regulations related to water quality and quantity have to be strong, but there are gaps in this field, and a newly established Directorate of Water Management has been carrying out efforts in this regard. As a first step, steps on chemical and biological monitoring have been taken.

The EU Water Framework Directive, which came into force in December 2000, primarily aims for a "good status" for all ground and surface waters in the EU. Hence, the directive demands that both member and candidate countries make a situation analysis on the quality of their bodies of water. When all the basins of Turkey were analyzed in terms of water quality, it appeared that 20 percent of them were of a good quality while 80 percent were deemed to require management in terms of quantity and quality.

Within this process, preparations for a new water law were brought onto the agenda. As the Law on Water (1926) was unable to meet existing needs, a new water law was needed that would also address the conflict of authority and responsibility in the current water legislation, the gaps in water-related legislation, a growing population, urbanization and the necessity of assessing water not only in terms of quantity but also in terms of quality due to other factors. In this respect, a process was launched to prepare a new water law. Currently, draft work has been completed and opened for discussion, and this new water law, which was reviewed before being presented to Parliament, will further reinforce the implementation of the EU Water Framework Directive and also meet Turkey's needs.

Also, within the scope of harmonization with the directive, the EU and the General Directorate of Water Management have been carrying out projects for many years. In order to implement EU Water Framework Directive No. 2000/60/EC, a MATRA project, "Implementation of the Water Framework Directive," was prepared and launched in Turkey in 2001. The first project focuses on the Büyük Menderes basin and is a pilot project in terms of the implementation of the directive. The project has been finalized and accordingly, a comprehensive water law should be prepared and the authority and responsibilities of relevant organizations should clearly be stated in the new law. A national water resources policy should be established, an integrated water basin management should be implemented in river basins and the private sector, municipalities and the relevant public officials should participate in water management at a regional level. This will be a model to other basins later on. In line with this project, the necessary adjustments have started as mentioned above.

In addition, within the process of harmonization with the EU Water Framework Directive, the General Directorate of Water Management has been carrying out a capacity developing project on monitoring water quality, basin protection action plans and Projects of Capacity Building to Implement a Flood Directive in Turkey to achieve the process.

During the implementation process of the EU Water Framework Directive, Turkey made the necessary adjustments in both its legislation and its organizations to successfully complete the process. With the work on the new water law, river basin management, water quality as well as its water legislation on groundwater and drinking water, Turkey has made progress as noted in the "Progress Report of the European Commission" issued in 2012.

"Turkey progresses in harmony with EU Water Framework Directive", Tuğba Evrim Maden, 12/05/2013, online at: http://www.todayszaman.com/news-315158-turkey-progresses-in-harmony-with-eu-water-framework-directive.html

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❖ Turkey's new Suruc tunnel will be one of the 10 biggest water distribution tunnels in the world

A total of 14,508 meters have been dug in the 17-kilometer Suruç Tunnel, which is planned to be Turkey's biggest water distribution tunnel.

The tunnel, which has been dug for the last two years, will irrigate around 95,000 hectares of arid-like land when finished this autumn. Through the tunnel, 90 tons of water per second are planned to flow from Atatürk Dam, Turkey's biggest, into the Suruç Valley in Southeast Anatolia. The tunnel is expected to make $75 million on average annually, creating around 200,000 new jobs.

"We are planning to start water flow from the tunnel by Oct. 29, Turkish Republic Day," said Numan Doğan Gündüz, 15th district manager of the General Directorate of Turkish State Hydraulic Water (DSİ). He added that 14,508 meters had been dug and cemented so far.

Agricultural productivity is quite low and only dry farming is currently possible in the Suruç Valley. "Over 8,000 farmers will be able to produce more profitable agricultural products after the tunnel is completed.

They could produce cotton and corn instead of less profitable products, like lentils or wheat," Gündüz added.

The planning of the tunnel, which forms the most important stage of the Suruç Valley Pumped Irrigation Project, was started in 1990 but could not be completed for years. The Suruç Valley Pumped Irrigation Project was tendered on Dec. 25, 2008 within the scope of the Southeastern Anatolia Project (GAP) Action Plan and work was physically started on March 18, 2009. The tunnel will be one of the 10 biggest water distribution tunnels in the world.

"Turkey's new Suruc tunnel will be one of the 10 biggest water distribution tunnels in the world", 10/05/2013, online at: http://www.balkans.com/open-news.php?uniquenumber=174328

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❖ Hasankeyf to preserve its historical heritage

Batman's Hasankeyf district attracts visitors ahead of the construction of the Ilısu Dam project. Some of the historical artifacts will be carried to other areas for preservation

Batman's Hasankeyf attracts 500,000 visitors from all around the world each year. Yet part of Hasankeyf's historical area will be flooded once the Ilısu Dam project starts.

Measures to resettle the population of Hasankeyf are continuing in preparation for the day when the historical district of Batman is submerged by the waters of the Ilısu Dam, which is part of the far-reaching Southeastern Anatolia Project (GAP).

Next year the water will begin to flow on the dam. The construction of the dam is still ongoing. When it is completed, a significant part of Batman will be under water. Speaking to Anatolia news agency, Hasankeyf district governor Ceyhun Dilşad Taşkın said Hasankeyf's El-Rızk Mosque and Zeynel Bey Tomb contain remains from 7000 B.C.

Noting that just a part of the district will be under water, Taşkın said other parts of Hasankeyf would stay safe. Some of the historical buildings such as the Zeynel Tomb would be transported, he said, adding, "The tower is at risk of collapsing and on a decision of Culture and Tourism Ministry in August 2012 it was closed. Since its closing, a total of 88,000 people have visited the tower."

After the news the dam's construction was confirmed, the number of visitors increased, said Taşkın. Promising that tourism would not be adversely affected by the dam, Taşkın said, "The project will be successful and it will not affect the area negatively."

Noting that they had built the new district on the upper part of the area, Taşkın said there would be tourism schools and hotels in this area. Hospitals and a culture park will also be a part of the area.

The dam will also allow people to enjoy water sports during the summer.

The first phase of the project consists of 58 apartments with nine different house models.

Area to become larger

Hasankeyf's current size is 50.82 hectares but the new area will be 284.86 hectares.

There will be more green areas. The new project promises new buildings, hospitals and shopping malls and much more. There will also be a museum at Hasankeyf, which will include cultural artifacts from the region.

The GAP project was first outlined 59 years ago. In addition to the modern-day town, the ancient city of Hasankeyf will also be left underwater by the planned dam.

Hasankeyf Culture Center President Ahmet Akdeniz said the Ilısu Dam Project was the "crazy project" of the Southeast. "The dam will spread to Batman, Diyarbakır, Şırnak, Siirt and Mardin. There will be an exclusive sports center. In addition, it will be possible to do fishing and farming in the area." Currently lots of people visit the area and after building of the dam the visitor figure would not decrease, according to Akdeniz.

Earlier, the area had been shortlisted for the Europe Nostra program.

The statement of the program said: "If the construction of the Ilısu hydroelectric dam continues as foreseen, 80 percent of Hasankeyf's historic monuments will be flooded within the next decade. If it were to be spared from inundation, Hasankeyf has the potential to provide a sustainable anchor for local and regional economic development, providing visitors and scholars with a contextualized record of shared human history spanning the continents of Europe and Asia.

"Hasankeyf to preserve its historical heritage", 10/05/2013, online at: http://www.hurriyetdailynews.com/hasankeyf-to-preserve-its-historical-heritage.aspx?pageID=238&nID=46543&NewsCatID=379

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❖ Turkish power, water to boost Northern Cyprus

The projects to transfer electricity and water from Turkey to Northern Cyprus will cut the industrial costs in the cash-strapped part of the island and promote competetiveness in all industries

As the electricity and water from Turkey begins to flow to Northern Cyprus, the cost of these sources will drop and promoting the competitiveness in all sectors of the Turkish part of the island, said Sunat Atun, Northern Cypriot Economy and Energy Minister.

Turkey, the protector and the main financial supporter of the northern part, has begun construction of a pipeline under the Mediterranean Sea to supply water to Northern Cyprus which is also projected to be used for transferring Turkish electricity to island.

The project is expected to soothe northern Cyprus's fundamental and chronic problems of water shortage and expensive electricity.

The price of electricity in northern Cyprus is around double that in Turkey, as while the electricity price in Turkey is around 24 kuruş kw/h (13 cent kw/h), it reaches 50 kuruş kw/h in the northern part of the island.

Speaking at the Turkish Republic of Northern Cyprus Chamber of Industry general assembly yesterday, the Cypriot minister said that the procurement of electricity from Turkey would bring the costs down considerably.

Currently, there are four electricity fares applied in Turkish Cyprus but as the Turkish electricity came in, there would be only one fare, Atun said.

The pipeline will provide 75 million cubic meters of water per year to Turkish Cyprus from southern Turkey, while the cost of the project is expected to reach around 1 billion Turkish Liras ($550 million).

The four-phase project kicked off with the groundbreaking construction of the Anamur Alaköprü Dam in the southern province of Mersin, which is directly across from Cyprus on the Mediterranean coast.

Liquidity need

In his remarks, Atun noted that the projects of transferring water and electricity from Turkey were "steps taken as part of the vision of reducing the input costs for industrial sectors" which "is not a slogan, but is a vision."

Along with the ambitious water and electricity supply projects with Turkey, the Cypriot government's incentives for the industry, tourism and agriculture sectors would continue as they were, the minister said.

The shortage of cash underlies the northern part of the island's accelerated efforts to reduce costs and boost its industry as it eyes to increase its exports to cover its imports by backing local production.

"The country need exports not politics," Atun said. "The rate of exports to imports is better than compared to five years ago but it's true that there is still a cash problem in the country and we try to pump cash into markets."

He warned against expensive luxury goods consumption which he says "causes money to flow abroad in abundance." He said foreign exchanges should be raised to overcome this issue.

He also slammed the European Union during his speech and said delaying regulation which would permit direct trade between Turkish Cyprus and the European Union was the union's shame. The EU'S open-secret protective policies' results should be read carefully and lessons should be extracted, he added.

"Turkish power, water to boost Northern Cyprus", 06/05/2013, online at: http://www.hurriyetdailynews.com/turkish-power-water-to-boost-northern-cyprus.aspx?pageID=238&nID=46286&NewsCatID=344

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❖ EU funded projects improves water access and quality

The EU and Turkey's Ministry of Environment and Urbanisation (MoEU) have launched a collaborative 454 million-euro project to help 21 municipalities provide clean and safe drinking water to 3.5 million citizens.

The project will involve construction of sewage networks, wastewater treatment plants and storage facilities, as well as measures to protect surface water as part of Turkey's EU harmonisation process.

Municipalities that will benefit from the project include Çanakkale, Elbistan, Kuşadası-Davutlar-Güzelçamı-Söke, Bozoyük, Trabzon, Orhangazi, Mustafakemalpaşa, Kırşehir, Kastamonu, Niksar, Çankırı, Bandırma, Rize, Giresun, Iğdır, Bismil, Viranşehir, Yüksekova, Şırnak, Kırıkhan and Van.

"The municipalities have been identified according to the findings of a pre-study mainly analysing the needs of Turkey regarding water quality as well as planning and prioritisation of those needs," Arif Karbak, project co-ordinator from European Delegation to Turkey, told *SES Türkiye*.

Initially the EU will provide 6.8 million euros to carry out site surveys and needs assessments in the municipalities. Then the municipalities and EU will develop master plans, feasibility reports, cost-benefit studies and tender files.

"So far, we had quite positive reactions from the municipalities. However, the feedback and the positive results will be much more visible with time as long as the projects results in concrete improvements," Karbak said.

MoEU has been trying to improve water quality, especially with the projects funded under the EU's Instrument for Pre-Accession Assistance that offers financial assistance to candidate countries. Thanks to those projects, there has been an improvement in drinking water networks, treatment plants, water storage tanks as well the capacities of municipalities through technical assistance.

Yuksekova, with a population of 130,000, is one municipality that will benefit from the project. Water infrastructure in the district has struggled to keep up with rapid population growth and urban development.

"Although since 1990s, many boreholes have been opened to provide people with drinking water, it is not sufficient. For the moment, there are 10,000 water subscribers in our district with 13 boreholes

that are susceptible to breaking down frequently. Each home is provided clean water for 1-2 hours per day," Ismet Tasci, water management director of the municipality, told *SES Türkiye*.

"The existing clean water in the district is mostly used by citizens on an informal basis in their gardens or fields, further raising the need for drinking water in household activities. I hope that this project will create a difference in our lives, especially for women who had to bring clean water back to their homes from far away sources," he added.

Tugba Evrim Maden, a hydro-politics researcher at the Ankara-based think-tank ORSAM, said such projects will help improve water quality and access as well as provide successful examples to other municipalities in Turkey.

"The access to the clean water resources is a natural right for all people, especially in terms of preventing waterborne diseases," Maden told *SES Türkiye*.

"Like all similar initiatives in the Middle East and Central Asia, such projects have also a direct impact over local women who are otherwise obliged to bring clean water to their homes as a daily routine -- which creates an extra burden for them in terms of energy and time devoted," she added.

Over the past two decades Turkey has made enormous strides to improve water quality and access to water. To bring the country's water policy closer to the EU's water management policies, Turkey established last year a Water Management General Directorate under the Minister of Forestry and Water Affairs. The Turkish Water Institute was also established in 2011 in Istanbul to provide scientific advice on water management issues and develop sustainable water policies.

"EU funded projects improves water access and quality", 07/05/2013, online at:
http://turkey.setimes.com/en_GB/articles/ses/articles/features/departments/national/2013/05/07/feature-02

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❖ Danone strengthens waters position in Turkey

Danone has signed an agreement that will enable it to acquire a 50.1% interest in Sirma, one of the leading players in the Turkish water market.

Ranked 11th worldwide in volume, Turkey's bottled water market is said to have grown by 20% in value in 2012.

With reported sales of nearly €100 million, Sirma is active in plain and flavoured bottled waters, and in HOD (home & office delivery). According to Danone, Sirma is one of the market's fastest-moving brands.

Danone is already present in Turkey's water market with Hayat, and believes that it will benefit from the two companies' strong complementarities in terms of brand positioning, geographical presence and distribution channels.

"Turkey is a strategic country for our division and we are excited at the prospect of joining forces with Sirma, whose founders and teams have done a tremendous job developing the water category in Turkey," said Francisco Camacho, executive vice president of Danone's Waters division.

"We are convinced that this transaction will accelerate Sirma's expansion in Turkey," said Davut Disli, chairman of the board of Sirma.

The transaction is subject to the approval of the competent authorities, and is expected to be completed before the end of 2013.

"Danone strengthens waters position in Turkey", 07/05/2013, online at: http://www.ingredientsnetwork.com/main-content/full/danone-strengthens-waters-position-in-turkey

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❖ A parched Syria turned to war, scholar says, and Egypt may be next

Prof. Arnon Sofer sets out the link between drought, Assad's civil war, and the wider strains in the Middle East; Jordan and Gaza are also in deep trouble, he warns

Some look at the upheaval in Syria through a religious lens. The Sunni and Shia factions, battling for supremacy in the Middle East, have locked horns in the heart of the Levant, where the Shia-affiliated Alawite sect has ruled a majority Sunni nation for decades.

Some see it through a social prism. As they did in Tunis with Muhammad Bouazizi — an honest man who couldn't make an honest living in this corruption-ridden part of the world — the social protests that sparked the war in Syria started in the poor and disenfranchised parts of the country.

And others look at the eroding boundaries of state in Syria and other parts of the Middle East as a direct result of the sins of Western hubris and Colonialism.

Professor Arnon Sofer has no qualms with any of these claims and interpretations. But the upheaval in Syria and elsewhere in the Middle East, he says, cannot be fully understood without also taking two environmental truths into account: soaring birthrates and dwindling water supply.

Over the past 60 years, the population in the Middle East has twice doubled itself, said Sofer, the head of the Chaikin geo-strategy group and a longtime lecturer at the IDF's top defense college, where today he heads the National Defense College Research Center. "There is no example of this anywhere else on earth," he said of the population increase. Couple that with Syria's water scarcity, he said, "and as a geographer it was clear to me that a conflict would erupt."

The Pentagon cautiously agrees with this thesis. In February the Department of Defense released a "climate-change adaptation roadmap." While the effects of climate change alone do not cause conflict, the report states, "they may act as accelerants of instability or conflict in parts of the world." Predominantly the paper is concerned with the effects of rising seas and melting arctic permafrost on US military installations. The Middle East is not mentioned by name.

But Sofer and Anton Berkovsky, who together compiled the research work of students at the National Defense College and released a geo-strategic paper on Syria earlier in the year, believe that water

scarcity played a significant role in the onset of the Syrian civil war and the Arab Spring, and that it may help re-shape the strategic bonds and interests of the region as regimes teeter and borders blur. Sofer also believes that a "Pax Climactica" is within reach if regional leaders would only, for a short while, forsake their natural inclinations to wake up in the morning and seek to do harm.

Syria is 85 percent desert or semi-arid country. But it has several significant waterways. The Euphrates runs in a south-easterly direction through the center of the country to Iraq. The Tigris runs southeast, tracing a short part along Syria's border with Turkey before flowing into Iraq. And, aside from several lesser rivers that flow southwest through Lebanon to the Mediterranean, Syria has an estimated four to five billion cubic meters of water in its underground aquifers.

For these reasons the heart of the country was once an oasis. For 5,000 years, Damascus was famous for its agriculture and its dried fruit. Since 1950, however, the population has increased sevenfold in Syria, to 22 million, and Turkey, in an age of scarcity, has seized much of the water that once flowed south into Syria.

"They've been choking them," Sofer said, noting that Turkey annually takes half of the available 30 billion cubic meters of water in the Euphrates. This limits Syria's water supply and hinders its ability to generate hydroelectricity.

In 2007, after years of population growth and institutional economic stagnation, several dry years descended on Syria. Farmers began to leave their villages and head toward the capital. From 2007-2008, Sofer said, over 160 villages in Syria were abandoned and some 250,000 farmers – Sofer calls them "climate refugees" – relocated to Damascus, Aleppo and other cities.

The capital, like many of its peer cities in the Middle East, was unable to handle that influx of people. Residents dug 25,000 illegal wells in and around Damascus, pushing the water table ever lower and the salinity of the water ever higher.

This, along with over one million refugees from the Iraq war and, among other challenges, borders that contain a dizzying array of religions and ethnicities, set the stage for the civil war.

Tellingly, it broke out in the regions most parched — "in Daraa [in the south] and in Kamishli in the northeast," Sofer said. "Those are two of the driest places in the country."

Professor Eyal Zisser, one of Israel's top scholars of Syria, agreed that the drought played a significant role in the onset of the war. "Without doubt it is part of the issue," he said. Zisser did not believe that water was the central issue that inflamed Syria but rather "the match that set the field of thorns on fire."

Since that fire began to rage in March 2011, the course of the battles has been partially dictated by a different sort of logic, not environmental in nature. "Assad is butchering his way west," Sofer said. He believes the president will eventually have to retreat from the capital and therefore has focused his efforts on Homs and other cities and towns that lie between Damascus and the Alawite regions near the coast, cutting himself an escape route.

Sofer and Berkovsky envision several scenarios for Syria. Among them: Assad puts down the rebellion and remains in power; Assad abdicates and a Sunni majority seizes control; Assad abdicates and no central power is able to assert control. The most likely scenario, Sofer said, was that the Syrian dictator would eventually flee to Tehran. But he preferred to avoid that sort of micro-conjecture and to focus on the regional effects of population growth and water scarcity and the manner in which that ominous mix might shape the future of the region.

Writing in the New York Times from Yemen on Thursday, Thomas Friedman embraced a similar thesis, noting that the heart of the al-Qaeda activity in the region corresponded with the areas most stricken by drought. Sofer published a paper in July where he laid out the grim environmental reality of the region and argued that, as in Syria, the conflicts bedeviling the region were not about climate issues but were deeply influenced by them.

Egypt, Sofer wrote, faces severe repercussions from climate change. Even a slight rise in the level of the sea – just half a meter – would salinize the Nile Delta aquifers and force three million people out of the city of Alexandria. In the more distant future, as the North Sea melts, the Suez Canal could decline in importance. More immediately, and of greater significance to Israel, he wrote that Egypt, faced with a water shortage, would likely grow more militant over the coming years. But he felt the

militancy would be directed south, toward South Sudan and Ethiopia and other nations competing for the waters of the Nile, and not north toward the Levant.

As proof that this pivot has already begun, Sofer pointed to Abu-Simbel, near the border with Sudan. There the state has converted a civilian airport into a military one. "The conclusion to be drawn from this is simple and unequivocal," he wrote. "Egypt today represents a military threat to the southern nations of the Nile and not the Zionist state to the east."

The Sinai Peninsula, already quite lawless, will only get worse, perhaps to the point of secession, he and Berkovsky wrote. Local Bedouin will have difficulty raising animals in the region and will turn, to an even greater degree, to smuggling material and people along a route established in the Bronze Age, through Sinai to Asia and Europe.

Syria, even if the war were swiftly resolved, is "on the cusp of catastrophe." Jordan, too, is in dire need of water. And Gaza, like Syria, has been battered by unchecked drilling. The day after Israel left under the Oslo Accords, he said, the Palestinian Authority and other actors began digging 500 wells along the coastal aquifer even though Israel had warned them of the dangers. "Today there are around 4,000 of them and no more ground water. It's over. There's no fooling around with this stuff," he said.

Only the two most stable states in the region – Israel and Turkey – have ample water.

Turkey is the sole Middle Eastern nation blessed with plentiful water sources. Ankara's control of the Tigris and the Euphrates, among other rivers, means that Iraq and Syria, both downriver, are to a large extent dependent on Turkey for food, water and electricity. That strategic advantage, along with Turkey's position as the bridge between the Middle East and Europe, "further serves its neo-Ottoman agenda," Sofer said.

He envisioned an increased role for Turkey both in the Levant and, eventually, in central Asia and along the oil crossroads of the Persian Gulf, pitting it against Iran. Climate change, he conceded, has only a minor role in that future struggle for power but it is "an accelerant."

Israel no longer suffers from drought. Desalination, conservation and sewage treatment have alleviated much of the natural scarcity. In February, the head of the Israel Water Authority, Alexander Kushnir, told the Times of Israel that the country's water crisis has come to an end. Half of Israel's two billion cubic meters of annual water use is generated artificially, he said, through desalination and sewage purification.

For Sofer, this self-sufficiency is an immense regional advantage. Israel could pump water east to Jenin in the West Bank and farther along to Jordan and north to Syria. International organizations could follow Israel's example and fund regional desalination plants, which, he noted, cost less than a single day of modern full-scale war.

Instead, rather than an increase in cooperation, he feared, the region would likely witness ever more desperate competition. Sofer said his friends see him as a sort of Jeremiah. But the Middle East, he cautioned, is a region where "leaders wake up every morning and ask what can I do today to make matters worse."

"A parched Syria turned to war, scholar says, and Egypt may be next", 09/05/2013, online at: http://www.timesofisrael.com/lack-of-water-sparked-syrias-conflict-and-it-will-make-egypt-more-militant-too/

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❖ Children of Syria: At the Domiz camp in Iraq

It's been four months since I got back from Za'atari refugee camp in Jordan. It's there where I first had my heart broken by the desperate plight of Syria's children.
Forced from their homes by violence, children have fled over Syria's borders in their hundreds of thousands to seek safety. Not a day has gone by when I haven't thought of them and what they've lost. It's quite straightforwardly wrong that anyone, let alone a child, should lose so much.

This week I returned to the region, to the Domiz camp in Iraq. It's a sobering thought that Syria's children are seeking safety in a country like Iraq, with its own history of violence.

Domiz is situated near the city of Dohuk, about forty miles from the Syrian border. Right now around 40,000 Syrians are living there, but the camp was only built for around half that number. It's an understatement to say that overcrowding is a problem here. Many more people arrive each day, every one of them desperate to escape the horrific crisis in Syria.
If Za'atari camp was characterised by the bleak, bitterly cold weather in January, Domiz in May couldn't be more different. It's hot and dusty here, and the earth is parched and cracked. The sun beats down relentlessly, and you feel thirsty every second you're standing outside.
Still, people have to withstand this heat. The camp is crammed with tents and shelters. Many families are forced to share small tents with other families, and they can't stay inside all day. There simply isn't enough room.

A UNICEF expert on water and sanitation tells me there should be one toilet for every 20 people here. In fact we are not even close to that target. The latrine I saw here was filthy with mess and stench, but it's the only option these people have. I am saddened to my core that a child who has perhaps lost their home, their school - and sometimes even their family and friends - has to cope with something like this to relieve themselves.

There isn't a proper drainage system either, so people have had to dig out new trenches for dirty water and sewage. Children play there, because there isn't anywhere else for them to go.

The challenges at Domiz are great, but they're more than matched by the absolute determination of the UNICEF staff on the ground here. Our staff are working with partners and other agencies to ensure there is an adequate supply of clean water, more toilets, and more school buildings so children can find a proper place to learn and play.

Right now UNICEF is ensuring that foundations are being dug for a new set of water towers. I can see three towers right now, standing high above the camp with the UNICEF logo in bright cyan.

I'm proud of everything my colleagues have achieved so far for Syria's children. These children deserve so much more than this. It's a challenge for all of us.

"Children of Syria: At the Domiz camp in Iraq", 10/05/2013, online at: http://blogs.unicef.org.uk/authentic_voices/archive/2013/05/10/syria-children-domiz-iraq.aspx

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❖ Iraq declares state of alert to deal with floods

The Iraqi government on Tuesday (May 7th) declared a state of maximum alert in all its service agencies to deal with the floods that have affected several cities in southern Iraq since Sunday.

The government mobilised aid to about 230 villages, towns and sub-districts in Wasit, Dhi Qar and Maysan provinces affected by the heavy rains, Iraqi government media advisor Ali al-Musawi told Al-Shorfa.

The floods led to the collapse of two dams used to control water flow to parts of southern Iraq, al-Musawi said.

Iraqi air force helicopters helped to retrieve scores of trapped families in these provinces, he said.

The ministries of industry and irrigation are also working to open channels to drain excess water into the Tigris and Euphrates rivers.

Meanwhile, he said, 300 billion Iraqi dinars ($258 million) in emergency funds has been allocated to help flood victims.

Deputy Health Minister Khamees al-Saad said 12 people, including two children, died in the flooding, while 187 others were injured.

"Iraq declares state of alert to deal with floods", 07/05/2013, online at: http://al-shorfa.com/en_GB/articles/meii/newsbriefs/2013/05/07/newsbrief-05

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❖ Iraq: Plans for satellite for environmental monitoring

Iraq is planning the launch of a satellite at the end of the year to better manage water crises, as the newspaper Almonitor reported. The launch is part of a scientific project to monitor desertification and water shortages in the country.

Deputy Minister of Communications Amir al-Bayati said, "Members of the high commission for the satellite project, which consists of seven ministries, have discussed the launching mechanism of the project and its economic feasibility, in addition to a well-defined cooperation process between all concerned parties in order to avoid any roadblocks that might stand in the way of completing the project."

Rafed al-Jabouri, the general coordinator of the project, said, "Iraq will accomplish this project in cooperation with the Italian La Sapienza University and an Iraqi team of 15 researchers from three ministries, who underwent space training."

There is a pressing need for this resource, as Almonitor points out: "Iraq has been facing sandstorms for years in any given month due to the increasing area of land suffering from desertification. The country has struggled during the past three years with shortages in irrigation water supply from the Tigris and Euphrates rivers that flow from Turkey. Statistics from the Ministry of Agriculture show that desertification has affected 80% of arable land due to water scarcity and climate change.

"Iraq: Plans for satellite for environmental monitoring", 08/05/2013, online at: http://www.un-spider.org/about-us/news/en/6644/2013-05-08t112400/iraq-plans-satellite-environmental-monitoring

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❖ Deputy Minister: Iran Leading Global Dam Construction Industry

TEHRAN (FNA)- Iranian Deputy Energy Minister Alireza Daemi praised Iran's eye-catching progress in the dam construction industry in recent decades, and said the country is now among the world's top dam-builders and enjoys the most advanced technology in the field.

Iran is the leading country in building dams, Daemi said, addressing the 7th National Congress on Construction Engineering in the Southeastern city of Zahedan on Tuesday.

He noted that Iran is implementing different unique projects across the country, and said, "Iran enjoys the 4th biggest water treatment facilities in the world."

Iran is a leading country in dam construction and many countries, including Sri Lanka, Syria, and Tajikistan as well as several African states, have entered either dam construction or consultation projects with Tehran.

In July 2012, Iran inaugurated its highest roller-compact concrete (RCC) dam in the Southwestern province of Khuzestan in a ceremony attended by President Mahmoud Ahmadinejad.

President Ahmadinejad inaugurated the Upper Gatvand Dam, which is located five kilometers from the city of Gatvand and has the country's second largest reservoir after the Karkheh Dam.

Earlier this year, Managing-Director of Iran's Water Management Company Mohammad Haj-Rasouli praised Iran's eye-catching progress in area of dam construction in recent decades, saying Iran is now among the world's top dam-builders and enjoys the most advanced technology in the field.

Iran is among five major dam-constructor countries in the world, Haj-Rasouli said in Southern city of Bandar Abbas in February, and added that the country has currently 145 operational dams with the total capacity of 50 billion cubic meters.

Referring to the fact that dry and semi-dry climate has dominated some 75 percent of Iran's soil, he said that during the past decade, the country has faced severe climate situation and lack of rainfalls.

However, he added that the crisis was successfully overcome to some extent through appropriate management and planning.

Iran is now viewed as a leading country in dam building. Iranian specialists now provide consultation services for the design and construction of various dams in different sizes.

"Deputy Minister: Iran Leading Global Dam Construction Industry", 07/05/2013, online at: http://english.farsnews.com/newstext.php?nn=9107168154

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❖ Minister: Iran's Energy Projects Running Despite Sanctions

TEHRAN (FNA)- Iranian Energy Minister Majid Namjou underlined the failure of the US-led western sanctions against Iran, and said that the country's development projects are moving forward without any problem.

The Iranian energy minister pointed to the high capacities of his ministry, and said, "The enemies can do whatever they want, but sanctions cannot influence Iran's water and electricity projects to bring them to a halt."

"The US has commissioned 400 people for the implementation of sanctions against Iran in its banks and different projects in a bid to restrict the Islamic Republic through direct supervision over (the implementation of) these sanctions, but it has failed," Namjou said.

He noted that although sanctions might slow down the execution of some projects in his ministry, the country's water and power projects will never be halted, thanks to the existing capacities of the energy ministry.

Washington and its Western allies accuse Iran of trying to develop nuclear weapons under the cover of a civilian nuclear program, while they have never presented any corroborative evidence to substantiate their allegations. Iran denies the charges and insists that its nuclear program is for peaceful purposes only.

Tehran stresses that the country has always pursued a civilian path to provide power to the growing number of Iranian population, whose fossil fuel would eventually run dry.

Despite the rules enshrined in the Non-Proliferation Treaty (NPT) entitling every member state, including Iran, to the right of uranium enrichment, Tehran is now under four rounds of UN Security Council sanctions and the western embargos for turning down West's calls to give up its right of uranium enrichment.

Tehran has dismissed West's demands as politically tainted and illogical, stressing that sanctions and pressures merely consolidate Iranians' national resolve to continue the path.

Tehran has repeatedly said that it considers its nuclear case closed as it has come clean of International Atomic Energy Agency (IAEA)'s questions and suspicions about its past nuclear activities.

“Minister: Iran's Energy Projects Running Despite Sanctions”, 08/05/2013, online at: http://english.farsnews.com/newstext.php?nn=9107168446

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❖ Despite Calls to End Peace, Israel Increases Water Flow to Jordan

Israel's ambassador to Jordan, about to be kicked out, says things should calm down once the peace process is restarted.

Here's some good news to those of you who've been following the **vote in the Jordanian parliament** on Wednesday, to demand that King Abdullah expel the Israeli envoy scrap the peace treaty with Israel.

That treaty, signed back in 1994 on the White House lawn, by his Majesty, the late King Hussein of Jordan and Israeli Prime Minister, the late Yitzhak Rabin, with U.S. President Bill Clinton watching – that treaty regulates the use of regional water by both countries. It's all in Article 6 of the treaty, which is bigger than all the rest of the 30 articles put together.

The reason is simple: much of the water—just about all of it, really—alongside the border between the two countries happens to be in Israeli territory. Without that water, Jordan goes back to being the proud desert country it's always been, which is fine if you're Bedouin, but not so great if you're a farmer.

Here's what can happen, should Jordan decide to scrap its peace treaty with Israel: it would have to do without the following items:

Israel accepted responsibility for operating, supplying and maintaining systems on Israeli territory that supply Jordan with water.

In the summer, May 15 to October 15 of each year, Israel agreed to transfer 20 million cubic meters from the Jordan River directly upstream from Deganya gates.

In the winter, October 16 to May 14 of each year, Jordan is entitled to a minimum average of 20 million cubic meters of the floods in the Jordan River south of the Yarmouk. Unusable excess floods that would otherwise be unused, including pumped storage, can also be taken by Jordan.

In addition, Israel agreed to share the Yarmouk River with Jordan. Anything above 12 million cubic meters in the summer and 13 million in winter goes to Jordan.

When you hear about the Kinneret water going below all kinds of red lines? It's because they're being diverted north of the lake, at a rate of up to 50 million cubic meters a year.

OK, that was the deal, we wanted a peace treaty and that's what we had to pay for it. The fact is that Israel's relations with Jordan are a whole lot warmer than with Egypt—until the Arab Spring thing hits Amman, of course.

But now the Jordanian parliament—which is largely Palestinian, incidentally—has reacted to the fact that Israel, in an unprecedented display of courage, decided to detain the Jerusalem Mufti for his blatant preaching of violence against the Jews. If the Israelis don't let our holy guy preach murder, we're scrapping the treaty.

The treaty that's the life blood of Jordan's economy—in addition to supplying Jordan with much of its water, much of Jordan's industry is owned by Israeli tycoons, who relocated factories from Israel, where organized Jewish workers used to burden them with demands for benefits and realistic wages—to Jordan, where a working man gets a pitta and a couple of onions which he shares with his family of 15.

Now, what did Israel just do, following the Jordanian parliament's threat to call it quits?

Oded Eran, Israel's ambassador to Jordan, was interviewed on Reshet Bet Thursday morning, and he said that Israel has increased the amount of water it diverts to the Hashamite kingdom, in order to accommodate the numerous refugees flooding Jordan from Syria.

Talk about doing the decent Christian thing…

Or treasonous. Potato-potato.

Ambassador Eran also said Israel also allows Jordan to export its goods to the West through the port of Haifa.

The benefits of peace.

So the host, Ya'akov Achi-Meir, asked him how that sits with the recommendation of the Jordanian parliament to kick him out of the country, and the ambassador answered that once the peace process with the Palestinians is on its way, things in Jordan would calm down.

According to Ambassador Eran, the Jordanian government is on very friendly terms with Israel, it's only the vast population that wants all of us dead.

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Now, here's the zinger: according to Reshet Bet, Israeli sources have said that Israel has increased the amount of water it transfers to Jordan and the Palestinian Authority recently regardless of the increase in the number of refugees from Syria in Jordan.

"Despite Calls to End Peace, Israel Increases Water Flow to Jordan", 09/05/2013, online at: http://www.jewishpress.com/news/breaking-news/despite-calls-to-end-peace-israel-increases-water-flow-to-jordan/2013/05/09/

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❖ Israeli water experts forecast severe drought by 2015

JERUSALEM, May 6 (Xinhua) -- Israel's Water Authority said Monday a severe drought is expected to inflict Israel by 2015 and is forecast as the harshest drought to impact this dry country in recent decades, said a statement of the authority.

"The drought period ahead of us will be long, hard and its effect on consumers, nature and farmers may be dramatic," the statement said.

The prediction is based on a model of previous climate events, developed by researchers at the Hydrological Service at the Tel Aviv University and Mekorot, Israel's national water company.

According to the Water Authority, large governmental investments will help Israel to be prepared for the upcoming drought.

"More desalinization facilities are expected to be constructed by the end of 2013, in addition to purified sewage water for agricultural use, which would enable Israel's water system to overcome this crisis," said Alexander Kushnir, manager of the Water Authority to Globes daily economic newspaper.

In February and March, precursors of the upcoming drought have been the driest in the country since 1957 with low amounts of precipitation.

Israel has been using water from natural sources only, but extreme climate and accumulation of dry seasons in the last decade forced a change in its water utilization structure. Today about 50 percent of the water used in Israel are desalinized or recycled water.

"Israeli water experts forecast severe drought by 2015", 07/05/2013, online at:
http://news.xinhuanet.com/english/business/2013-05/07/c_132363494.htm

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❖ Israel Water Authority predicts mega drought starting about 2015

Water Experts say Israelis should prepare for the dry spell on the horizon, that could last up to 20 years.

Israel has just overcome a seven-year drought, and the country's natural water reservoirs are finally relatively stable following years of severe depletion.

But Israel's shouldn't get too content, as experts with the Water Authority's Hydrological Services predict that the next drought will hit already in 2015, and will make the previous dry spell seem like a picnic by comparison.

The next drought will last up to 20 years, and will have an "exceptional" negative impact on the region's fresh water resources, according to a report published by the Water Authority this week.

Despite the dire prediction, the Water Authority was confident that "all of Israel's water needs will be fulfilled."

Israel has made great strides in recent years in reclaiming wastewater for agriculture, and its expanding desalination program should cover consumer water needs in the near future.

"Israel Water Authority predicts mega drought starting about 2015",07/05/2013, online at: http://www.israelandstuff.com/israel-water-authority-predicts-mega-drought-starting-about-2015

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❖ Politics thicker than Middle East water, Perlman says

An effort to improve water management in drought-stricken countries in the Middle East and North Africa has encountered friction between Arab and Israeli participants, said University of Nebraska-Lincoln Chancellor Harvey Perlman.

"This is not a region where trust and collaboration comes easy," he said.

Perlman shared progress on the multi-national effort with those attending the fifth annual global Water for Food Conference on Tuesday. The conference, which began Monday and ends Wednesday, is sponsored by Monsanto and hosted by the University of Nebraska's Water for Food Institute.

It's expected to draw nearly 500 experts from around the world to discuss the challenge of growing more food with less water.

In February 2012, NU and the U.S. Agency for International Development signed an agreement to work together to improve water management in the Middle East and North Africa. That led to creation of a committee of interested stakeholders, including the U.S. Department of State, water center officials from Jordan, Morocco and Tunisia, and leaders from several Arab and North African countries.

However, the inclusion of Israel in the effort has led some Arab countries to reconsider their participation, Perlman said. He said the uprisings in Arabic countries that began in late 2010 and continue today in countries like Syria also have disrupted the water management effort.

He said efforts to improve water management will help drought-stricken countries produce more food.

"Whether it is securing the water supply in Qatar, or reclaiming the desert in Israel or improving the efficiency of irrigation in the fields of Nebraska, we face a common enterprise of critical dimensions," he said. "We can be thankful that the issues of water have attracted the world's attention."

Antonio Ferreira, a Brazilian rancher, said at Tuesday's session his family's ranch has managed to reduce to just more than three years the time it takes them to grow cattle so they're ready for

slaughter. That, in turn, has cut the amount of water each cow consumes in its lifetime by nearly 360 barrels, he said.

Mike Kelly, a rancher near Sutherland, said he succeeded in reincorporating turns in a stream on his property that a previous landowner had removed. Removing them made the water flow too fast, causing degradation of the stream.

By reintroducing the turns, Kelly slowed it down, reducing degradation and restoring the water table in the valley, he said.

"Ranching and stewardship go together," he said.

"Politics thicker than Middle East water, Perlman says", 07/05/2013, online at: http://journalstar.com/news/local/education/politics-thicker-than-middle-east-water-perlman-says/article_23883c0f-9b51-5098-9a3c-c3a373db3aae.html

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❖ Water Authority warns of severe drought in coming years

Water Authority studies indicate that, from 2015, Israel can expect drought that could last for 20 years

Despite last winter's heavy rainfall, the forecast for the coming years is bleak, and dry. The Water Authority predicts that Israel will face a period of severe drought, which will be especially long, and cause severe damage to agriculture and the water economy.

The assessment is based on models of the Water Authority's Meteorological Service, Mekorot National Water Company, and top researchers at Tel Aviv University. It predicts, beginning in two years, a severe and prolonged drought, which will be worse than the droughts of the past decade, and which could last for 20 years.

"The studies indicate an increase in the frequency of drought years, their intensity, and length of drought periods," said Water Authority director Alexander Kushnir. "Israel's water economy will have to deal with much longer and harsher periods of drought that the last drought we experienced." He added that the drought's effect on consumers, nature, and agriculture could be severe.

No water shortage expected

Clues to the pending drought and intensifying climate trends in the Middle East can be found in the precipitation data for the winter of 2013. The first three months of winter, November-January, began with heavy rainfall, which gave a sense of security, after several continuous years of drought. However, February-March were months of drought - the driest they have been since 1957.

Despite the bleak forecast, the Water Authority reassures that Israel will not face a water shortage, because the water economy is prepared for extreme climate changes. "The desalination plants, the construction of which will be completed by the end of this year, combined with sewage treatment and reuse for irrigation, has enabled the water economy to move from crisis to a situation of stability and reliability," said Kushnir.

From a water economy which relied on natural sources, Israel moved within a decade to a stable water economy, in which 50% of the current water supply comes from desalination or recycling, rather than from natural sources. "We will meet our duty to supply all the water needed for all the needs of Israel and its residents. Despite the expected drought, we have the means to ensure the stable and reliable supply of water for household, industrial, and agricultural needs," Kushnir concluded."

"Water Authority warns of severe drought in coming years", 06/05/2013, online at: http://www.globes.co.il/serveen/globes/docview.asp?did=1000841687

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❖ Rationing water in a thirstier world

The world does not lack the knowledge about how to build a water-secure future - but "lacks the political will".

The **right to water and sanitation** is recognised in international law, but it is often left up to each local community's initiative to secure that right. And a village in the Thar Desert of western India has recently been singled out by *The Hindu* newspaper for its exemplary **water rationing** system:

In Kalyanpur village of Barmer, one of the most parched and barren districts of Rajasthan, the villagers have found a solution to their water woes in water rationing. There are no fights over water distribution, no quarrels over breaking the queues or attempts at snatching other people's share of water… [the village's well] is a blessing in the barren zone for its water is very sweet and light, devoid of fluoride or other contaminations … [A steering committee has] laid down rules after assessing needs of the 1,100 families in Kalyanpur, said Loon Chand, secretary of the committee. The [well] was constructed through public participation and the water rationing system also is being run successfully by the committee.

Each family's share is about 4,000 litres per month. That is barely enough water to sustain a family of four or five according to international standards, but the people of Kalyanpur could not consume more than that without depleting their one well. So they are making it work.

Meanwhile, 900 kilometres away in the megacity of Mumbai, residents of a slum known as Kadam Chawl have developed their own urban-style water rationing system. Because their single municipal tap runs for only 20-30 minutes each evening, the chawl's residents have devised a **well-choreographed rationing system** in which all women and men gather at the tap 365 evenings a year to fill and quickly haul numerous large water pots to all homes.

When water becomes scarce, whether in the global South or North, rationing happens. Experience and research have shown that urging voluntary reductions in consumption is of little value, while raising prices to reduce demand is cruel and unworkable. In contrast, mandatory rules for restrained but equitable water consumption tend to foster a sense of common purpose in the face of scarcity.

Efficiency against fairness

In many cities around the globe, residential water supplies are routinely restricted to certain hours of the day. But the past year has seen a global outbreak of emergency water rationing in the face of sudden, extraordinary scarcity. In a diverse group of countries, including the Dominican Republic, Venezuela, Australia, Kenya, Ghana, Tanzania, Zimbabwe, South Africa, India, Pakistan, China, Taiwan, Malaysia and the Philippines, a wide variety of rationing plans have had to be put into practice. Rationing has even become necessary in normally moist, green places, most prominently the United Kingdom, Ireland and New Zealand.

But rationing cannot help when the community water supply is wholly inadequate. That is the case in many slum areas of Mumbai and other cities, where family members must trek several kilometres to purchase water from bootleggers by the one-litre plastic pouch. Those customers pay five to 10 times the price that middle-class or affluent families pay for their piped-in water. We may find those bootleggers contemptible, but in their own defence they would argue, correctly, that they are putting free-market principles into practice, simply responding to signals from the market.

Any economist can show you how the most efficient method of allocating water works out to be "marginal cost pricing", under which the first litre per week or month is the most expensive and the cost falls as consumption rises. That, of course, penalises low-income households and rewards heavy consumption. Therefore, many municipalities, from Durban to Las Vegas, have turned marginal cost pricing on its head. Under what are called **increasing block tariff**systems, each household has a monthly right to an initial "block" of that is free or very cheap, with the price escalating sharply for subsequent blocks.

But there will always be a wide gap between what it costs to provide municipal water and what many urban dwellers can afford to pay for it. Even fairer pricing cannot guarantee the right to water when the system is expected to fund itself fully through fees or even to turn a profit if privatised. The situation is aggravated when lavish consumption is permitted in affluent areas while other areas suffer inadequate service. Treating water as a market commodity almost inevitably **leads to conflict**.

Going to the source

A whopping 86 percent of the world's total fresh water consumption is accounted for by production of food, fibre and other agricultural products, and 9 percent is attributable to **industrial production**. Although a scant 5 percent of the footprint is residential water use, it is in the domestic supply where shortages are felt most immediately and most intensely by the majority of people. Often, rationing is necessary.

In many situations, the trigger for rationing has been much more complex than chronic drought or high population density. Thanks to greenhouse emissions, local climates are becoming increasingly fickle. The severe shortages that hit Dublin in late March can be traced to Europe's recent stretch of frigid weather, which froze pipes and caused leaks throughout the municipal water system. Early this month, water rationing in cities of northern and southern Taiwan - a policy made necessary by alarming drops in reservoir levels - coincided with heavy rains that cause flooding and landslides near the centre of the island.

Beyond climate disruption, a much wider variety of events and conditions can disrupt the flow. Headlong economic growth in Pune, India, and rapid industrial development in Moshi, Tanzania, are creating a need for water rationing in those cities. Mining of natural gas through hydraulic fracturing requires huge quantities of water, and it is competing with more immediate needs in the Midland-Odessa region of Texas - a place where strict water rationing has already been in place for years. The Three Gorges Dam on China's Yangtze River has boosted water supplies in some areas, but it has forced other, downstream towns and cities to ration. Water-stressed Pakistan has similar concerns about India's plans to continue building dams upstream on the Indus and other rivers.

Left alone, Palestine's West Bank would have ample reserves of renewable groundwater; however, neighbouring Israel's heavy extraction of water resources from lower western edge of the West Bank's**massive aquifer** and from the northern and eastern borders of Gaza - along with its policy of forbidding well-drilling by Palestinians - has created an **artificial scarcity** that makes tight rationing necessary in the cities and villages of the occupied territories. Israel uses that pilfered water to maintain its high per-capita water consumption (which equals that of Australia or Denmark), while the average West Bank resident's daily ration is only 50 litres per day, and many get by on barely 20 - perilously close to the minimum supply required simply for bare survival.

Talk of looming worldwide conflict over water resources has been going on for years. But it is often conflict itself - state versus state, class versus class, and, increasingly, humanity versus nature - that triggers water scarcity in the first place. The only long-term solution is to resolve such conflicts, to ensure that every community has an adequate water supply. But even then, as in Kalyanpur village, resources may not be bountiful, and rationing by some means other than ability-to-pay will be necessary.

If we cannot manage to conserve and share water fairly, there is little chance that we will manage share other resources fairly. Enforcing the right to water is, or at least should be, less complex and contentious than ensuring rights to, say, energy, food, or medical care. As Maude Barlow concluded in her 2007 book*Blue Covenant: The Global Water Crisis and the Coming Battle for the Right to Water*, "If ever there was a time for a plan of conservation and water justice to deal with the twin water crises of scarcity and inequity, now is that time. The world does not lack the knowledge about how to build a water-secure future; it lacks the political will."

"Rationing water in a thirstier world", 06/05/2013, online at:
http://www.aljazeera.com/indepth/opinion/2013/05/201352111015642145.html

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❖ Postcard From Yemen

I am in the Yemen International Hospital in Taiz, the Yemeni city in the central highlands that is suffering from such an acute water shortage that people get to run their taps for only 36 hours every 30 days or so. They have to fill up as much as they can and then rely on water trucks that come through neighborhoods and sell water like a precious commodity. I am visiting Mohamed Qaid, a 25-year-old laborer from the nearby village of Qaradh who was struck the night before in the hand and chest by three bullets fired by a sniper from Marzouh, the village next door. The two villages have been fighting over the rapidly dwindling water supply from their shared mountain springs. Six people have been killed and many more wounded in clashes since 2000 that have heated up of late. One was killed a night ago. Qaid is in pain, but he wanted to tell people about what is happening here. I have one question: "Were you really shot in a fight over water?" He winces out his answer: "It wasn't about politics. It wasn't about the Muslim Brotherhood. It was about water."

There is a message in this bottle. Yemen, a country of breathtaking beauty, with wonderful people, is a human development disaster. You see here what a half-century of political mismanagement, coupled with natural resource mismanagement, oil distortions and a population explosion has led to. But Yemen is just a decade or so ahead of Syria and Egypt in terms of the kind of human development crisis this whole region will face.

The great American environmentalist Dana Meadows, when asked if it was too late to do anything about climate change, used to say, "We have exactly enough time — starting now." The Arab world has exactly enough time — starting now. If people do not stop fighting with each other over dead ideologies and sectarian differences and focus instead on overcoming their deficits of knowledge, freedom and women's empowerment — as the U.N. Arab Human Development Report urged — there is no hope. As Qaid suggested, in Yemen those old ideologies are luxuries now. It is just about water.

I came to Taiz to write my column and film a Showtime documentary on climate and the Arab awakening. We flew down on a Yemeni Air Force helicopter with Abdul Rahman al-Eryani, Yemen's former minister of water and environment, who minces no words. "In Sana, the capital, in the 1980s, you had to drill about 60 meters to find water. Today, you have to drill 850 to 1,000 meters to find water. Yemen has 15 aquifers, and only two today are self-sustaining; all the others are

being steadily depleted. And wherever in Yemen you see aquifers depleting, you have the worst conflicts."

One of the most threatened aquifers in Yemen is the Radaa Basin, he added, "and it is one of the strongholds of Al Qaeda." In the north, on the border with Saudi Arabia, the Sadah region used to be one of the richest areas for growing grapes, pomegranates and oranges. "But they depleted their aquifer so badly that many farms went dry," said Eryani, and this created the environment for the pro-Iranian Houthi sect to recruit young, unemployed farm laborers to start a separatist movement.

This environmental disaster was born in the 1970s when the oil/construction boom exploded in the Persian Gulf, and some two million to three million unskilled Yemeni men left their villages to build Saudi Arabia. "As a result," said Eryani, "the countryside was depopulated of manpower." Women resorted to cutting trees for fuel and the terraces eroded because of lack of maintenance. That led to widespread erosion of hillsides and the massive silting of the wadis — seasonal riverbeds — whose rich soil used to support three crops a year, including Yemen's famed coffee. The silting up of the wadis crushed the coffee business and led Yemenis to grow other cash crops that needed less fertile soil. The best was qat, the narcotic leaf to which this country is addicted. But qat requires a lot of water, and that led to overdrafting of groundwater.

I interviewed the leaders of the two warring villages: Abdul Moimen of Qaradh, 42, and Ahmed Qaid of Marzouh, 40. They had two things in common: both had 10 children, and when I asked both what would happen to the water supply when their 10 children each had 10 children, they each first said some version of "Allah will provide for us," and then they each said "desalination." But that costs much more money than Yemen can afford now.

"Yemen suffered from two drugs: qat and easy oil money," says Eryani. Qat drank all the water, and the easy oil money seduced the rural manpower into leaving for unskilled jobs. But now that most of the Yemeni workers have been sent home from Saudi Arabia, they are finding a country running out of water, with few jobs, and a broken public school system that teaches more religion than science. As a result, what Yemen needs most — an educated class not tied to an increasingly water-deprived agriculture — it cannot get, not without much better leadership and a new political consensus.

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There is a ray of hope, though. Yemenis are engaged in a unique and peaceful national dialogue — very different from Syria and Egypt and with about a third of the input coming from women — to produce a new leadership. They may be starting at the bottom. But, of all the Arab awakening states, they do have the best chance to start over — now — if they seize it.

"Postcard From Yemen", 07/05/2013, online at: http://www.nytimes.com/2013/05/08/opinion/friedman-postcard-from-yemen.html?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=cc24a63d8b-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-cc24a63d8b-250657169&_r=0

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❖ Friedman On Water and Climate Security in Yemen

Tom Friedman with the New York Times recently penned an insightful article on the intersection of water, climate change, human security and broader security concerns in Yemen. Most of the time Yemen shows up in the international news, it is about drone strikes on Al Qaida targets, or most recently, the release of abducted foreigners. Beneath all of this, Friedman points out, is the persistent insecurity over water resources.

Citing Yemen's former minister of water and environment, Abdul Rahman al-Eryani:

One of the most threatened aquifers in Yemen is the Radaa Basin, he added, "and it is one of the strongholds of Al Qaeda." In the north, on the border with Saudi Arabia, the Sadah region used to be one of the richest areas for growing grapes, pomegranates and oranges. "But they depleted their aquifer so badly that many farms went dry," said Eryani, and this created the environment for the pro-Iranian Houthi sect to recruit young, unemployed farm laborers to start a separatist movement.

Regarding action on water stress and climate change, and next steps for Yemen's future, Friedman notes:

The great American environmentalist Dana Meadows, when asked if it was too late to do anything about climate change, used to say, "We have exactly enough time — starting now." The Arab world has exactly enough time — starting now. If people do not stop fighting with each other over dead ideologies and sectarian differences and focus instead on overcoming their deficits of knowledge, freedom and women's empowerment — as the U.N. Arab Human Development Report urged — there is no hope. As Qaid suggested, in Yemen those old ideologies are luxuries now. It is just about water.

The article, Postcards from Yemen, is worth a read as it sheds much-needed light on the complex interplays of water, climate change and culture in a country that will likely appear more and more often in the headlines.

"Friedman On Water and Climate Security in Yemen", 09/05/2013, online at:
http://climateandsecurity.org/2013/05/09/friedman-on-water-and-climate-security-in-yemen/

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❖ Ethiopia's Nile River dam project at risk from rebels

ADDIS ABABA: The recent prisoner release of rebels by the Ethiopian government could have been a move by the government to ensure their Grand Renaissance Dam project was not at risk, some analysts are telling Bikyanews.com. According to them, the Benshangul Peoples Liberation Movement (BPLM) guerrillas operated from camps in Sudan, though Sudan has denied any support of the group.

Nile River water politics may have played a role in the peace deal and subsequent prisoner release, one analyst said.

"Ethiopia cannot afford to lose the dam project and needs to make certain that it is safe, especially with the close ties the BPML had with Sudan," he argued.

The BPLM had previously threatened to attack Ethiopia's Grand Renaissance Dam project on the Blue Nile River. The dam site is in Benishangul-Gumuz.

After the peace deal was signed, a BPLM faction claimed that it rejected the peace agreement. The Benishangul people are also called the Berta and about 180,000 live in Ethiopia.

The government here in Addis Ababa has denied any prisoner release with shoring up its dam prospects, saying instead that it was a move to help push the peace process forward and make it clear that if a group lays down its weapons, Ethiopia is ready to move forward.

Still, with the ongoing tension of the Nile River and its water constantly an issue, especially vis-a-vis Egypt and Sudan, the move has raised some eyebrows.

One Sudanese embassy official here told Bikyanews.com that he did not believe the release was connected with the Nile politics, but was not willing to disregard it altogether, adding that the future of Ethiopian and Sudanese relations depends "largely on the water issue."

As the analyst argued, "we may never know for sure what precipitated the release of the prisoners, but it is clear that for now, the dam project remains safe and without fear of being attacked," a reference to Wikileaks information released late last year stating Egypt was looking, via Sudan, to bomb the dam and shore up its lion's share of a colonial treaty for Nile water rights.

"Ethiopia's Nile River dam project at risk from rebels", 08/05/2013, online at: http://bikyanews.com/88367/ethiopias-nile-river-dam-project-at-risk-from-rebels/

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❖ Plans to Harness Chinese River's Power Threaten a Region

BINGZHONGLUO, China — From its crystalline beginnings as a rivulet seeping from a glacier on the Tibetan Himalayas to its broad, muddy amble through the jungles of Myanmar, the Nu River is one of Asia's wildest waterways, its 1,700-mile course unimpeded as it rolls toward the Andaman Sea.

But the Nu's days as one of the region's last free-flowing rivers are dwindling. The Chinese government stunned environmentalists this year by reviving plans to build a series of hydropower dams on the upper reaches of the Nu, the heart of aUnesco World Heritage site in China's southwest Yunnan Province that ranks among the world's most ecologically diverse and fragile places.

Critics say the project will force the relocation of tens of thousands of ethnic minorities in the highlands of Yunnan and destroy the spawning grounds for a score of endangered fish species. Geologists warn that constructing the dams in a seismically active region could threaten those living downstream. Next month, Unesco is scheduled to discuss whether to include the area on its list of endangered places.

Among the biggest losers could be the millions of farmers and fishermen across the border in Myanmar and Thailand who depend on the Salween, as the river is called in Southeast Asia, for their sustenance. "We're talking about a cascade of dams that will fundamentally alter the ecosystems and resources for downstream communities that depend on the river," said Katy Yan, China program coordinator at International Rivers, an advocacy group.

Suspended in 2004 by Wen Jiabao, then the prime minister, and officially resuscitated shortly before his retirement in March, the project is increasing long-simmering regional tensions over Beijing's plans to dam or divert a number of rivers that flow from China to other thirsty nations in its quest to bolster economic growth and reduce the country's dependency on coal.

According to its latest energy plan, the government aims to begin construction on about three dozen hydroelectric projects across the country, which together will have more than twice the hydropower capacity of the United States.

So far China has been largely unresponsive to the concerns of its neighbors, among them India, Kazakhstan, Myanmar, Russia and Vietnam. Since 1997, China has declined to sign a United Nations water-sharing treaty that would govern the 13 major transnational rivers on its territory. "To fight for every drop of water or die" is how China's former water resources minister, Wang Shucheng, once described the nation's water policy.

Here in Bingzhongluo, a peaceful backpacker magnet, those who treasure the fast-moving, jade-green beauty of the Nu say the four proposed dams in Yunnan and the one already under construction in Tibet would irrevocably alter what guidebooks refer to as the Grand Canyon of the East. A soaring, 370-mile-long gorge carpeted with thick forests, the area is home to roughly half of China's animal species, many of them endangered, including the snow leopard, the black snub-nosed monkey and the red panda.

Clinging improbably to the alpine peaks are mist-shrouded villages whose residents are among the area's dozen or so indigenous tribes, most with their own languages. "The project will be good for the local government, but it will be a disaster for the local residents," said Wan Li, 42, who in 2003 left behind his big-city life as an accountant in the provincial capital, Kunming, to open a youth hostel here. "They will lose their culture, their traditions and their livelihood, and we will be left with a placid, lifeless reservoir."

As one of two major rivers in China still unimpeded by dams, the Nu has a fiercely devoted following among environmentalists who have grown despondent over the destruction of many of China's waterways. The Ministry of Water Resources released a survey in March saying that 23,000 rivers had disappeared entirely and many of the nation's most storied rivers had become degraded by pollution. The mouth of the Yellow River is little more than an effluent-fouled trickle, and the once-mighty Yangtze has been tamed by the Three Gorges Dam, a $25 billion project that displaced 1.4 million people.

For many advocates, the Nu has become something of a last stand. "Why can't China have just one river that isn't destroyed by humans?" asked Wang Yongchen, a well-known environmentalist in Beijing who has visited the area a dozen times in recent years.

Opponents say it is no coincidence that the project was revived shortly before the retirement of Mr. Wen, a populist whose decision to halt construction was hailed as a landmark victory for the nation's fledgling environmental movement. Although he did not kill the project, Mr. Wen, a trained geologist, vowed it would not proceed without an exhaustive environmental impact assessment.

No such assessment has been released. Given the government's goal of generating 15 percent of the nation's electricity from non-fossil fuel by 2020, few expect environmental concerns to slow the project, even if the original plan of 13 dams on the Nu has for now been scaled back to 5. "Building a dam is about managing conflicts between man and nature, but without a scientific understanding of this project, it can only lead to calamity," said Yang Yong, a geologist and an environmentalist.

"Plans to Harness Chinese River's Power Threaten a Region", 04/05/2013, online at: http://www.nytimes.com/2013/05/05/world/asia/plans-to-harness-chinas-nu-river-threaten-a-region.html?src=rechp&_r=0&utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=37a4fba1c1-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-37a4fba1c1-250657169

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❖ Dams threaten heart of a region; China revives efforts to harness one of its last flee-flowing rivers

From its crystalline beginnings as a rivulet seeping from a glacier in the Tibetan Himalayas to its broad, muddy amble through the jungles of Myanmar, the Nu River is one of Asia's wildest waterways, its 2,800-kilometer course unimpeded as it rolls toward the Andaman Sea.

But the Nu's days as one of the region's last free-flowing rivers are dwindling. The Chinese government stunned environmentalists this year by reviving plans to build a series of hydropower dams on the upper reaches of the Nu, the heart of a Unesco World Heritage site in the southwestern Chinese province of Yunnan that ranks among the world's most ecologically diverse and fragile places.

Critics say the project will force the relocation of tens of thousands of people belonging to ethnic minorities in the highlands of Yunnan and destroy the spawning grounds for a score of endangered fish species. Geologists warn that constructing the dams in a seismically active region could threaten people living downstream of the river, which stretches 1,700 miles. Next month, Unesco is scheduled to discuss whether to include the area on its list of endangered places.

Among the biggest losers could be the millions of farmers and fishermen across the border in Myanmar and Thailand who depend on the Salween, as the river is called in Southeast Asia, for their sustenance. "We're talking about a cascade of dams that will fundamentally alter the ecosystems and resources for downstream communities that depend on the river," said Katy Yan, China program coordinator at International Rivers, an advocacy group.

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No such assessment has been released. Given the government's goal of generating 15 percent of the nation's electricity from nonfossil sources by 2020, few expect environmental concerns to slow the project, even if the original plan of 13 dams on the Nu has for now been scaled back to five.

"Building a dam is about managing conflicts between man and nature, but without a scientific understanding of this project, it can only lead to calamity," said Yang Yong, a geologist and environmentalist.

Some experts say China has little choice but to move forward with dams on the Nu, given the nation's voracious power needs and an overreliance on coal that has contributed to record levels of smog in Beijing and other northern cities. Still, many environmentalists reject the government's assertion that hydropower is green energy, noting that reservoirs created by dams swallow vast amounts of forest and field.

Also overlooked, they say, are the methane gas and carbon dioxide produced by decomposing vegetation, significant contributors to global warming.

"By depicting dams as green, China is seeking to justify its dam-building spree," said Brahma Chellaney, a water resources expert at the Center for Policy Research in New Delhi. Mr. Chellaney said Beijing had also failed to take into account the huge amounts of silt retained by dams that invariably deprive downstream farmers of the seasonal nutrients that have traditionally replenished overworked soil.

That the Nu has remained untouched even as China has corralled most of its rivers is a testament to the isolation of the northwestern part of Yunnan, a two-day drive from Kunming along a white-knuckle road carved into the canyon walls. Every few kilometers are the scars of recent landslides, a jarring reminder of the area's geologic instability.

Despite the 2004 moratorium, work on the Nu River dams never really stopped, although Huadian, the state-owned hydropower giant, has ramped up planning efforts since the Chinese government removed any obstacles.

Late last month, as dusk fell on Maji, a proposed dam site, the sound of explosions echoed through the valley as workers, toiling around the clock, blasted test holes deep into canyon walls. Li Jiawang, 33, a laborer, said engineers were still trying to determine whether the rock was strong enough to support a dam.

Huadian did not respond to interview requests, nor did the Ministry of Water Resources. But word that the project is moving forward has already drawn many outsiders, threatening to upend the delicate patchwork of ethnic populations. Hong Feng, 45, a migrant from Hunan Province who recently opened a roadside shop near Maji, said most of his customers were dam workers from other parts of China. "We're here to make our fortune, and then we'll leave," he said.

Most of the estimated 60,000 people who are likely to be displaced from the fertile lowlands that will be flooded do not have that option. They are largely subsistence farmers, and with nearly every level patch of land spoken for, many will be relocated to dense housing complexes like the one in New Xiaoshaba, a 124-unit project begun before the dam project was suspended.

"We used to grow so many watermelons we couldn't eat them all, but now we have to buy everything," said Li Tian, 25, a member of the Lisu ethnic group whose family was evicted from its land.

While local leaders have been tight-lipped about relocation plans, they have worked hard in recent years to cast the project as a gift that will alleviate poverty in one of China's poorest regions.

But Yu Shangping, 26, a farmer in Chala, a picturesque jumble of wooden houses hard by the Nu, objects to the notion that he and his neighbors are impoverished, saying the land and the river provide for nearly all their needs. "We've worked hard to build this place," he said, "but when the government wants to construct a dam, there's nothing you can do about it."

"Dams threaten heart of a region; China revives efforts to harness one of its last flee-flowing rivers",05/05/2013, online at: http://www.hydroworld.com/news/2013/05/05/dams-threaten-heart-of-a-region-nl-china-revives-efforts-to-harness-one-of-its-last-flee-flowing-riv.html

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❖ India Gives Isimba Dam $450 Million Boost

The government of India will provide a $450 million (Shs 1.12 trillion) loan to finance the construction of the 140 MW Isimba hydro-power dam on the River Nile. The State- owned Bharat Heavy Electricals Ltd has undertaken to construct the dam the project located in Kamuli District in Eastern Uganda.

On completion in 2017, the dam will be the fourth largest in the country. The Indian company will also participate in oil and gas exploration among other sectors including IT, agriculture, food processing, and security. The credit facility and cooperation in other areas were decided during bilateral talks with India's External Affairs Minister Salman Khurshid on his recent visit to Uganda.

It was agreed that India would help Uganda in e-governance, training and setting up IT institutions. It would also fast-track the setting up of the India-Africa Institute of Foreign Trade in Uganda and a food processing industry incubation centre.

During the visit, his first to Africa, Khurshid also had a meeting with 18 heads of Indian missions of the region and discussed new initiatives to bolster peace and development in the region. However, it's the news on the development of the power dam that Ugandans will be most interested in, as they struggle to deal with the niggling power shortages and high power tariffs.

Hydropower contributes only 1% of Uganda's energy supply, one of the lowest in the region - making Uganda's electricity some of the most expensive in the region. Installed capacity stands at just 683 MW, with the recently launched Bujagali dam contributing 250MW, Nalubale 180MW, Kiira 200MW, while mini hydro dams contribute a combined total of about 53MW.

However, current hydro power generation stands at only 400-450MW - way below the national demand, which often leads to expensive power rationing and one of the lowest power access rates in on the continent. Analysts say over the years, the key energy challenge in Uganda has centered on lack of a mix of energy sources in power generation, inadequate infrastructure for generation, transmission and distribution.

The government has set an ambitious programme to set up flagship power projects such as Ayago (600MW), Orianga (400MW) as well as solar, thermal, micro hydro dams and co-generation from bagasse. Government projections show that if all the power projects in the pipeline are completed by 2017 as scheduled, the country could have installed capacity amounting to about 2,200 MW, which

could go a long way towards addressing the development and industrializations concerns of the country.

In the last three years, the government has been keen on fast tracking the 600 MW Karuma Dam as a public project but it has been beset by incessant procurement problems. Since 2009, the government has also been keen to enlist a private entity to develop Isimba to boost power generation.

In March 2010, the government signed a $3.8 million contract with Fichtner of Germany and Norplan of Norway to do a feasibility study for the project, which is to be located downstream of the new 250MW Bujagali dam, and will include a 40KM transmission line to the new dam.

The study was completed in 2011 and the government has been on the lookout for a willing private investor to take over the construction of the dam. On paper, Bharat Electricals Ltd is appears to be a perfect fit for the project.

According to their website, the company says that as of June 2011, Bharat Electricals Ltd says it had cumulatively installed generating capacity of over 8,500 MW outside of India in 21 countries, including Malaysia, Iraq, UAE, Egypt and New Zealand. Additionally, the company had about 5,200 MW in 19 countries under various stages of execution.

The company's international operations encompass a wide range of our power and industry segment products and services, including thermal, hydro and gas-based turnkey power projects among others.

Uganda, an emerging oil and gas producer, has historically been home to multi-billion dollar private Indian investments.

Following the immense success of these investments, the government-owned parastatal is keen to venture into the processing and exploration of oil and gas, train oil professionals and invest in the country's petrochemical industry. At the bilateral talks, the two countries agreed to boost bilateral trade and addressing the trade imbalance, which has historically remained in favour of India.

Two-way trade stands at $450 million, with India exporting goods worth $430 million in 2012. Uganda shipped goods worth $25 million to India during the same time.

"India Gives Isimba Dam $450 Million Boost", 06/05/2013, online at:
http://www.hydroworld.com/news/2013/05/07/india-gives-isimba-dam-450-million-boost.html

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❖ Declaration of the Year 2013 as "Water Conservation Year-2013"

The Union Cabinet today gave its approval for declaring the year 2013 as "Water Conservation Year 2013.

A number of mass awareness activities will be undertaken during Water Conservation Year 2013 with emphasis on sensitizing the masses on water related issues, encourage them to conserve and use it judiciously.

The policies and programmes of the Ministry of Water Resources will be propagated to create a sustainable society and economy.

An effective and sustained mass awareness programme will be launched with the involvement of all stakeholders to achieve the objectives identified in the National Water Policy, 2012 and National Water Mission.

Background:

Water is a natural resource, fundamental to life, livelihood, food security and sustainable development. It is also a scarce resource. India has more than 18 percent of the world`s population, but has only 4 percent of world`s renewable water resources with 2.4 percent of world`s land area. There are further limits on utilizable quantities of water owing to uneven distribution over time, as 75 percent of annual rainfall is received in just four months. Also region wise it varies from 10 cm rainfall in Rajasthan to 1000 cm in North Eastern Region. In addition, there are challenges of frequent floods and droughts in one or the other part of the country. With a growing population and rising needs of a fast developing nation as well as the given indicators of the impact of climate change, per capita availability of water is likely to go down from 1545 cubic metre per year in 2011 to 1341 cubic metre per year in 2025. The increasing demand of water for various purposes will further strain with the possibility of deepening water conflicts among different user groups as drinking water need is going to rise by 44 percent, irrigation need by 10 percent, industry need by 81 percent respectively by 2025.

In view of this, the Ministry had prepared National Water Policy (2012), which was adopted by the National Water Resources Council headed by the Hon`ble Prime Minister on 28.12.2012. This takes cognizance of the existing situation; proposes a framework for creation of a system of laws and institutions and a plan of action with a unified national perspective. Hence, there is a need for greater awareness on water conservation for optimal usage of the existing resources.

Water Conservation is also the key objective of the National Water Mission which is one of the eight National Missions under the National Action Plan for Climate Change. This envisages conservation, minimizing wastage and ensuring more equitable distribution of water resources both across and within States through integrated water resources development and management.

The effective water resources management must be underpinned by knowledge and understanding of the availability of the resource itself, the uses to which water is put and the challenges facing the users of water at all levels of stake holders. This can be done by creating mass awareness about the fact that water conservation is the immediate need of the hour.

"Declaration of the Year 2013 as "Water Conservation Year-2013"", 09/05/2013, online at: http://investinindia.com/news/declaration-year-2013-%E2%80%9Cwater-conservation-year-2013%E2%80%9D

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❖ Water security - high time to pull policy levers

Pakistan sits at the most hazardous stages of the national water security - a stage identified by the Asian Development Bank as a harmony of some movement on the policy and legislation side but absolutely trifling level of public investment, regulation and enforcement.

Collusion, corruption and incompetence in the water storage and irrigation sector are known to all. And the euphoria of ground water resources to compensate for the surface storage and rivers has also fizzled out due to the major management issues like depletion, pollution, inadequate drainage and salinity, and lack of coordination among public agencies.

While the latest National Water Security Index by ADB has put Pakistan in the effective category for its productive use of water in agriculture, industry, and energy, there is a need to strategise water issues on a national level.

One of the biggest challenges of increasing urbanisation and industrialisation in South Asia, and not only Pakistan, is the wastewater management. Also, there is a marked inequity in access to covered water and sanitation.

A precursor for sustainable development, environmental water security is also at its lowest ebb in the country. It is not only highlighted by inept water resource development that affects water storage, productivity and conservation, but also weaker public-private support. Moreover, low resilience to water related disasters (recall the 2010 national floods) and high cost of rehabilitation erodes any gains.

Major areas for immediate action for such problems point towards a heightened need for financing and management initiatives like government spending, development of storage facilities and reservoirs, and public and social awareness. Where investments and maintenance of sanitation and hygiene in the country is imperative to improve access to water, corporatisation of utilities is yet another way to reduce some pressure on water security.

The index offers an interesting insight where the countrys better ranking on economic water security contradicts with what is generally perceived. Right now, the most excruciating issue for the country is the energy crisis, which definitely does not exist in isolation.

The lopsided generation mix (hydel: thermal ratio of 30:70) has been highlighted by Pakistan Business Council as an important indicator of poor water productivity, and an important factor in aggravating the energy tragedy. What is additionally required - out of the water sector realm - is the transformation of economic activities that harness the available natural resources.

"Water security - high time to pull policy levers", 08/05/2013, online at: http://www.brecorder.com/br-research/44:miscellaneous/3302:water-security---high-time-to-pull-policy-levers/

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❖ 7,100 MW Bunji Dam's detailed engineering design completed

LAHORE: The Water and Power Development Authority (WAPDA) has completed detailed engineering design and tender documents of the 7,100 megawatt (MW) Bunji Hydropower Project, and will soon initiate the process to undertake construction of this largest hydropower project in Pakistan.

WAPDA Chairman Raghib Abbas Shah expressed these views in a meeting with Gilgit Baltistan Chief Secretary Sajjad Saleem Hotiana at WAPDA House on Monday. The meeting was held to discuss various WAPDA projects located in Gilgit Baltistan.

Speaking on the occasion, the chairman said that the mega projects such as Bunji and Diamer Bhasha Dam will not only help stabilise national economy but also usher in an era of social and economic development in Gilgit Baltistan.

He appreciated the cooperation being provided by the Gilgit Baltistan government in implementing WAPDA projects in the region. He further said that WAPDA will fulfil all its commitments vis-à-vis construction of the projects and resettlement of their affectees.

Later, implementation status of the decisions taken on January 17, 2013 was discussed in detail. The meeting was informed that Gilgit Baltistan administration will complete the ground survey as well satellite imageries for geographical mapping of Diamer Bhasha Dam Project in two weeks. The matter pertaining to handing over government land to WAPDA also came under discussion. The chairman said that in view of the significance of resettlement of Diamer Bhasha Dam Project affectees, priority should be given to acquire land for construction of the model villages in the area.

Deliberations were also made about Satpara Dam, Harpo, Bashoo and Phander hydropower projects. It was decided in the meeting that a study will jointly be conducted by WAPDA and Gilgit Baltistan to address the issues relating to Satpara Dam. The study will also assess the future requirements of water in Skardu and adjacent areas, their fulfillment through Shatung Nullah, its environmental impact and a way forward for the purpose.

The meeting also agreed to devise a perpetual operation and management methodology for Satpara Dam Project with active involvement of Gilgit Baltistan.

"7,100 MW Bunji Dam's detailed engineering design completed", 07/05/2013,online at: http://paktribune.com/business/news/7100-MW-Bunji-Dams-detailed-engineering-design-completed-11159.html

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❖ Anti-Pakistan stance by nationalists

Friday, May 10, 2013 - During the last few decades, Pakistan is facing a severe water shortage in the rivers running from Indian Occupied Kashmir to Pakistan which is consequently resulting in scarcity of water for irrigation and energy generation purposes. India is not only violating Indus Water Treaty by building hundreds of small and large water reservoirs or uplifting the existing dams but also encouraging and financing construction of dams in Afghanistan which will further deteriorate the water situation in Pakistani rivers.

Under the Indus Water Treaty; Chenab, Jhelum and Indus rivers were allocated to Pakistan. However India has built many dams on them that have caused severe shortage of water in Pakistan damaging its economy, especially agriculture. Now India has started building dams on the tributaries of these rivers as well, which will further stop water flowing towards Pakistan and damage our economy. Indian political leaders have oft repeated this anti-Pakistan slogan that they will turn the fertile and verdant pastures of Pakistan into deserts and cause drought and famine. Despite this clearly inimical posture by India, unfortunately, there are certain nationalist elements in Pakistan especially in Sindh and Khyber Pakhtunkhwa (KPK), who on one side strongly oppose the construction of water reservoirs in Pakistan i.e. Kalabagh Dam; and on the other side encourage India to build dams on the rivers flowing to Pakistan either from India or Afghanistan. In this context, one needs to examine the recent statements by some leaders. During the month of April 2013, the Chairman of Awami National Party (ANP), Asfandyar Wali Khan, in an interview to Radio Pakistan categorically declared that Pakistan should not criticize the uplift projects of India in Afghanistan. He added that if India wants to build roads and hospitals in Afghanistan, then Islamabad should not oppose the activities and avoid creating paranoia over the role of India. He further questioned that "Will Islamabad tolerate Kabul's criticism over the construction of a port by China at Gwadar in Balochistan?"

It is sad that parallels are being drawn to Chinese uplift and development projects in Pakistan to Indian machination in Afghanistan. India has been sullying the waters in Afghanistan to destabilize Pakistan right from the inception of Pakistan. It has been trying to crush Pakistan through the

traditional "hammer and anvil" approach, by applying pressure through Afghanistan as well as its own hinterland. If only Indian overtures and reconstruction efforts in Afghanistan were based on humanitarian considerations, Pakistan would surely welcome them. Not only local defence and security analysts but international scholars like Christine Fair, an assistant professor in the Center for Peace and Security Studies, within Georgetown University's Edmund A. Walsh School of Foreign Service, and expert on the region has observed that the fourteen Indian Consulates and Trade Missions in Afghanistan, far exceed the Indian Consulates and Trade Missions located in the USA. Moreover she has observed that these Indian establishments are staffed by RAW operatives, engaged in destabilizing Pakistan. It is a fact that the RAW has built an arc around Pakistan, where it recruits, trains, equips and launches anti-Pakistan elements to conduct a proxy war and destabilize Pakistan.

FATA and KPK are suffering terrorism and cross-border attacks of TTP groups operating from the safe havens in Afghanistan with the connivance of Afghanistan. ANP has paid the biggest price in this proxy war. Its political leaders have been targeted with impunity and killed, its election rallies have been disrupted through terror attacks and even Asfandyar Wali has been assailed at his residence, where he escaped unscathed but his personal bodyguards were killed. If thesepolitical leaders fail to recognize the heinous viscera of the enemy, then they are behaving like the ostrich that buries its head in the sand, in face of impending danger.

As far as Indian role in construction of road and hospitals in Afghanistan is concerned, there are solid evidences that India is carrying out its covert anti-Pakistan operations using the Afghan soil in the garb of welfare projects. Afghanistan's strategic location, overlooking both the strife-torn province of Balochistan and KPK are ideal launching pads for India to spell doom and gloom for Pakistan. Baloch dissidents are motivated in Indian sponsored camps in Afghanistan and their odious activities are executed from there.

It is of serious concern that statements by ANP leaders supporting Indian projects in Afghanistan, which harm Pakistan's strategic interests, indicate the myopic tendencies of the Pakistani politicians. One needs to learn a lesson from the enemy itself. In the recent case of the RAW operative Sarabjit Singh, who illegally crossed international border and undertook terrorist activities in major cities and industrial hubs of Pakistan (Lahore and Faisalabad, was convicted of by an anti terrorist court in

Pakistan and sentenced to death for his involvement and confession to have exploded a string of bomb attacks in Punjab province that killed 14 people in 1990, inflicting severe injuries to others, besides destroying the precious property united the entire Indian political divide on the issue. Unfortunately when he used anti Pakistan language and provoked other fellow prisoners he was reportedly attacked by other prisoners in Kot Lakhpat Jail on April 26, 2013. Since he was badly injured, therefore, he was immediately shifted to hospital fortreatment. The Government and people of Pakistan took sympathetic and humanitarian view of the case. Hence, he was provided best of medical support, but he could not survive. Pakistan expressed its condolence and ordered judicial investigation.

Indian media projected him as the hero while he was a declared and convicted terrorist who killed 14 innocent people in Pakistan. Leaders from various sections of the political divide hailed Sarabjit as hero and attended his funeral. On the other hand, the in-house divide in Pakistan not only gives a negative impression of the country but will also reduce our grip on the basic issues with India and Afghanistan. Our political leaders should see the broader picture and learn to identify the enemy as well see through its machinations. That is what statesmanship is about.

"Anti-Pakistan stance by nationalists", 10/05/2013, online at: http://pakobserver.net/detailnews.asp?id=206280

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❖ Controversial Cambodian dam set for construction

Cambodia has begun preparations to build a controversial hydropower dam on the Se San River.

The Lower Se San 2 Dam will be built downstream on the river, with an 8-kilometre-long wall and a reservoir that will cover more than 300 square kilometres.

Once the waters rise, the surrounding Srekor village will be submerged.

Local farmer Pa Tou is one of an estimated 10,000 people who will have to be relocated.

He says the dam will deprive them of everything - homes, crops, fruit trees and their livelihoods.

Pa Tou says the relocation site the authorities have offered them is miles from the river, bad for farming and does not include amenities.

The wall of the dam will block entry to the Se San River and to the Sre Pok River, affecting the breeding grounds for long-distance migratory fish that make up 40 percent of fish in the Mekong system.

The Lower Mekong Basin is shared by 65 million people in four countries. There are fears that hydropower dams will cause many among the 15-million-strong population of Cambodia to go hungry, as they eat more freshwater fish per capita than any other in the world.

A study published last year in the US Proceedings of the National Academy of Sciences assessed 27 dams that regional governments plan to build on tributaries of the Mekong.

Dr Eric Baran, one of the authors of that study, says the Lower Se San 2 Dam will be the most detrimental for fish.

"We found that the fish yield loss due to this dam would represent 9.3 per cent of the total fish yield of the Mekong Basin," he said.

"So it's 9.3 per cent of 2.1 million tons - which is a gigantic amount.

"In other words, this expected loss represents around 200,000 tons per year, which is much more than the whole marine sector of Australia."

The Lower Se San 2 Dam will cost around $US800 million dollars and take five years to build.

At least two more dams are planned upstream on the Se San River, along with another two scheduled for the neighbouring Sre Pok River; and one on the Se Kong River.

Government officials have declined to speak with the ABC for this story.

"Controversial Cambodian dam set for construction", 08/05/2013, online at: http://www.abc.net.au/news/2013-05-08/an-cambodia-dam/4677482

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❖ Mounting concern in Cambodia over hydropower project

Cambodia has begun preparations for a controversial hydropower project in the remote northeast: the Lower Se San 2 Dam.

Large hydropower dams are controversial across the world, but if the experts are right, this dam will be far more damaging than most.

Reporter: Robert Carmichael

Speakers: Pa Tou, resident of Srekor village; Dr Eric Baran, Senior Research Scientist at the WorldFish Centre
CARMICHAEL: A small herd of water buffalo beats the afternoon heat in the cool waters of the Se San River. Nearby Srekor village is a tranquil place of 400 families that has stood on the southern bank of the Se San River for as long as anyone here can remember. It won't be here much longer: in the next year or so, the residents will have to leave.

The reason? A vast hydropower dam with an 8-kilometre-long wall will be built downstream. Its reservoir will cover more than 300 square kilometres, and once the waters rise, Srekor village with its stilted, wooden houses, its well-established garden compounds and its mature fruit trees will be swallowed up.

Pa Tou, a 37-year-old father of three, has lived in Srekor village all his life.

(PA TOU ACTUALITY) I spoke to him earlier this year. Like most residents Pa Tou is from the ethnic Lao minority, he farms rice on a small plot of land and he knows a lot about the river and fishing. Pa Tou says all of the villagers fear for the future and none wants to leave.

Pa Tou says the dam will deprive them of everything - homes, crops, fruit trees and their livelihoods. Later he tells me that the relocation site the authorities have offered

CARMICHAEL: The 400-megawatt Lower Se San 2 Dam, which will cost around 800 million dollars and take five years to build, is a joint project involving companies from Cambodia, China and Vietnam.

An estimated 10,000 people will be moved for it, and there are more dams to come on the Cambodian side: at least two more are planned upstream on the Se San River; another two are scheduled for the neighbouring Sre Pok River; and one on the Se Kong River. Collectively these rivers, known as the 3S network and which empty into the Mekong, constitute a vital regional breeding ground for fish.

Conservationists warn such mega-projects represent a huge risk. A study published last year in the US Proceedings of the National Academy of Sciences found that plans to build more than 70 dams in the Mekong River Basin would have a "catastrophic" impact on the world's richest freshwater fishery.

Dr Eric Baran is one of the authors of that study. His team assessed 27 dams that regional governments plan to build on tributaries of the Mekong. He says the Lower Se San 2 Dam will be by far the most detrimental for fish.

BARAN: We found that the fish yield loss due to this dam would represent 9.3% of the total fish yield of the Mekong Basin. So it's 9.3% of 2.1 million tons - which is a gigantic amount. In other words, this expected loss represents around 200,000 tons per year, which is much more than the whole marine sector of Australia.

CARMICHAEL: The Lower Mekong Basin is shared by 65 million people in four countries. Given that many of those people are poor and rely overwhelmingly on freshwater fish, there are well-founded fears that hydropower dams will cause many to go hungry. Take Cambodia, for instance, whose 15-million-strong population eats more freshwater fish per capita than any other in the world.

BARAN: People have become very reliant on this source of animal protein. It represents 81 percent of the animal protein consumption in the country.

CARMICHAEL: Hydropower is a central part of this region's scramble for electricity. Cambodia imports much of its electricity from Vietnam and Thailand, yet there is seldom enough.

Opponents of large power projects say the focus should be small and local - generate electricity where it is needed. The argument is that such local projects are cheaper, quicker, and more efficient…and do far less environmental and social damage.

Government officials declined to speak with Radio Australia for this story. However, Prime Minister Hun Sen's comments earlier this year make it clear that the preference is for large schemes - such as hydropower dams and coal-fired plants. The Lower Se San 2 Dam is unlikely to be the last of its kind.

Back in Srekor village, Pa Tou's concerns extend beyond how he will provide for his family. He worries too about the village graveyard that lies a mile downstream. He took us to see it, weaving expertly through the rapids on the Se San River in his low, wooden boat.

Within this bamboo thicket are several small spirit houses containing bones and ashes with offerings of food laid out. Villagers come here regularly to pray and leave offerings for the deceased.

(PA TOU ACTUALITY) Pa Tou says the villagers of Srekor have asked the authorities for permission to take the remains of their dead with them, but worry they won't be allowed to. This is important to them, he explains, because when he and the other villagers eventually die, they want to be reunited with their ancestors.

CARMICHAEL: With that, it was time to leave, and we clambered back into Pa Tou's narrow boat. He sparked the motor into life and guided us upstream through the tangle of rapids and back to Srekor village, a vista of rural life in Cambodia that in a few years will have entirely disappeared.

"Mounting concern in Cambodia over hydropower project", 08/05/2013, online at: **http://www.radioaustralia.net.au/international/radio/program/connect-asia/mounting-concern-in-cambodia-over-hydropower-project/1127772**

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❖ Angola sending aid to 300,000 at risk from drought

Government to send emergency medical aid, food, water

* UNICEF said 2012 drought affected 1.8 mln people

LISBON, May 9 (Reuters) - Angola set up an emergency plan on Thursday for the southern province of Cunene, where an estimated 300,000 people are at risk of malnutrition because of a two-year-long drought.

"The plan seeks to immediately provide medical assistance, food and drinking water for the most needy populations," the cabinet's economic commission said in a statement.

Cunene, a semi-arid province which shares a border with Namibia to the south, depends largely on subsistence farming and cattle-raising.

Provincial governor Antonio Didalelwa was cited by state-owned newspaper Jornal de Angola as saying more than 300,000 people, or approximately the entire known population of the province, are at risk of malnutrition.

"We are worried about the situation. There is a lack of food and water for people and cattle," he said.

"The people in the province are going through very tough times because it hasn't rained for two years and that is harming families, who depend on agriculture and cattle-raising."

Angola, which is roughly twice the size of Texas, suffered heavily from drought last year.

The United Nations Children Fund (UNICEF) said that 1.8 million people were affected by a prolonged drought in 2012, including more than 500,000 children.

The U.N. agency said it has been working closely with the government to ensure the drought does not result in malnutrition.

Angola is Africa's second-largest oil producer, after Nigeria, but is still recovering from a 27-year that ended 11 years ago and which devastated most of its infrastructure.

President Jose Eduardo dos Santos, who has been in power since 1979, has promised to improve social conditions and better distribute Angola's oil wealth during a new five-year term he secured in an election last year.

His government said on Thursday it would use budget funds to minimise consequences of natural disasters in Cunene. (Reporting by Shrikesh Laxmidas; Editing by Michael Roddy)

"Angola sending aid to 300,000 at risk from drought", 09/05/2013, online at: http://www.reuters.com/article/2013/05/09/angola-drought-idUSL6N0DQ3S920130509?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=bab309674a-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-bab309674a-250657169

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❖ Myanmar monsoon threatens catastrophe for Rohingya

LONDON (Thomson Reuters Foundation) – More than 125,000 Rohingya living in dire conditions after fleeing ethnic violence in western Myanmar face a humanitarian catastrophe as the monsoon approaches, a rights group has warned.

Death rates will rise in the coming months as rains swamp overcrowded camps, increasing the risk of serious diseases including cholera, said Melanie Teff, a senior advocate with Refugees International.

Teff, who has just returned from visiting the region, said Myanmar's government had run out of time to relocate people or build robust shelters after repeatedly changing its plans.

"People are already dying because the appalling conditions they are living in are making them ill, and this will be hugely exacerbated during the rainy season," Teff added.

"Water-borne diseases could have an enormous impact. There will be a humanitarian catastrophe if people are not moved to higher ground."

The rains – due in three weeks – will also make it harder for aid workers to deliver water, food and other supplies to the camps in Rakhine state, Teff said in an interview.

Some 140,000 people have been uprooted in the region following two explosions of violence last year between Buddhist Rakhines and Muslim Rohingya - described by rights groups as one of the most persecuted minorities in the world.

Teff, who was accompanied on the trip by British MP Rushanara Ali, called on the international community "to push for a clear plan for the rainy season because lives are going to be lost".

The United Nations says **69,000 people will be at very serious risk** during the monsoon season, which lasts until September. Most are living in flood-prone camps near the shore or in former paddy fields.

Fears are particularly high for some 15,000 people living in makeshift sites outside camps. They have no access to food aid, clean water or latrines and have to defecate in the open.

"Many are living in straw huts or under pieces of tarpaulin. These people are in a far worse situation than anyone I saw last year," said Teff, whose previous visit was in September.

Most of the displaced – 90-95 percent of them Rohingya - are living in camps in Sittwe, Pauktaw and Myebon. Healthcare is minimal and malnutrition rates are near emergency levels.

Teff, who will brief British government and U.N. officials following her trip, said the Rohingya were desperate.

One widowed mother of six living in a camp at Pauktaw told her: "Our relatives are dead. We are alive, but life is dead … Death is better than our present life."

An estimated 800,000 Rohingyas live in Myanmar, formerly called Burma, but the government denies them citizenship, regarding them as illegal Bangladeshi immigrants. Bangladesh does not recognise them as citizens either and they are officially stateless.

AID BLOCKED

Teff said tensions were extremely high during her visit because officials were trying to get the Rohingya to sign documents identifying them as Bengali.

"The Rohingya refused to sign. Stones were thrown. Shots were fired in the air and we were told two children were hospitalised," said Teff, who visited the area two days after the April 26 confrontation.

"The community were very, very upset. They were saying, 'We're about to be under water and they are coming round with forms asking us to sign that we are Bengalis'. Why aren't they focusing on the imminent humanitarian emergency."

Unlike the displaced Rakhines, the Rohingya are not allowed to leave their camps so they can no longer work and are reliant on aid.

But Teff said some Rakhine communities are blocking aid groups from helping the Rohingya. The climate of fear is also making it hard for agencies to find local staff to work for them.

The lack of healthcare is particularly serious. Teff said only one hospital will treat Rohingya patients, the others have refused. The hospital has 12 segregated beds for the entire population.

She called on the World Health Organisation to urgently send a team to Sittwe to coordinate healthcare and identify gaps.

Teff said Myanmar must come up with a plan to end the segregation between the Rohingya and Rakhines, work towards reconciliation and extend citizenship to the Rohingya.

Most Rohingya told Teff they would like to return to their homes if there was protection.

One woman living in a makeshift site said: "If the government accepts us as Rohingya we can go back, as then the government will give us security. If we go back without security the Rakhines will kill us."

But Teff strongly opposed a government proposal for boosting security by expanding the NaSaKa border force, which she said had a terrible history of abusing the Rohingya.

Teff also criticised the European Union for **lifting sanctions** on Myanmar last month following a spate of democratic reforms in the former military dictatorship.

"Removing any potential source of pressure is premature when the situation has not been resolved for the Rohingya and has in fact gone backwards," she said.

"Myanmar monsoon threatens catastrophe for Rohingya", 10/05/2013, online at: http://www.trust.org/item/20130510112230-mbn62/?source=hptop&utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=bab309674a-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-bab309674a-250657169

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❖ Ghana has no Household Water Treatment policy

Although for three days this week (from May 6 to May 8, 2013) deliberations have been ongoing in Ghana at a workshop in Accra on the integration of Household Water Treatment and Safe Storage (HWTS) strategies in the West Africa sub-region, Ghana is yet to incorporate this component in its Water Policy.

This was identified at the country's 26th National Level Learning Alliance Platform (NLLAP), organised by the Resources Centre Network (RCN) and held on Thursday, May 31, 2012.

According to the RCN's WASH Reflections, which is a monthly review of NLLAP numbered 25 and titled "Household Water Treatment and Storage: The story so far", "There are three policy related gaps that must be addressed to advance Household Water Treatment and Storage (HWTS) in Ghana." These, it lists as its lack of mention in Ghana's Water Policy, the absence of household water quality regulation and the lack of coordination and documentation of HWTS efforts.

The review quotes Mr. Lenason Naa Demedeme, Acting Director, Environmental Health and Sanitation Directorate (EHSD) of Ghana's Ministry of Local Government and Rural Development, whose presentation on the theme "Household Water Treatment and Storage Strategy in Ghana: Taking HWTS to Scale" initiated discussions.

"We need to focus on HWTS because…Next to HWWS (Hand Washing with Soap), HWTS is the most effective intervention for reducing morbidity from diarrhoeal diseases (if used correctly and consistently over the long-term)", RCN quoted the EHSD Acting Director, whose presentation was made on his behalf by a programme officer of his outfit, Kwaku Quansah.

"Generally, household water treatment for microbiological water quality is promising but the problem is that approaches are uncoordinated and there is no strategy for implementation to scale," Lenason Demedeme stated.

"This is where an HWTS strategy becomes imperative. The goal is that by 2015, 90% of the population of Ghana should be aware and 15% should be 'consistently practicing effective HWTS methods in a manner that renders the water they use compliant with national standards," he indicated.

The EHSD boss explained that "In furtherance of national strategies for water, sanitation and hygiene, the purpose of the national strategy for HWTS is to contribute to a measurable reduction in waterborne diseases, by encouraging the adoption and long-term use of effective HWTS, especially by the population segment that does not have access to safe drinking water."

In an interview with Mr. Kwaku Quansah, EHSD Programme Officer Wednesday, May 8, 2013 after the West Africa Regional Household Water Treatment and Safe Storage workshop in Accra on the theme: "Scaling-up HWTS – National policy environment and integration strategies", he expressed optimism that Ghana's Water Policy will be reviewed to include HWTS in 2013, because it has been captured in the national budget statement.

"Then with the issue of coordination we have come very far. We have brought on board a bigger working group of HWTS and the issue of safety plans – it's all being worked on – UNICEF wants to use Ghana as a case study and look at the issue of water safety plans where we have the source in the household," he indicated.

Mr. Quansah disclosed the workshop was organised to share knowledge and ideas on the current household water treatment storage plans in the West Africa sub region. He noted that countries in especially English-speaking West Africa have of late done a lot of work on HWTS and so the workshop served as a forum to share ideas and experiences to even carry the process further.

"Wonderfully Ghana shared its experience trying to put the three behaviour change focus areas together – safe excreta, hand washing with soap and household water treatment and storage, I think it is something that really other countries admire," he stated.

The EHSD programme officer divulged that the next step after the workshop is the development of a final scale up plan for implementation, which will entail working on a draft detailing experiences of countries in West Africa on HWTS.

"Luckily it's been part of our [Ministry of Local Government and Rural Development and other stakeholders] 2013 plan, so it is easy to roll it out," he said.

Also gleaning from Ghana's Multiple Indicator Cluster Survey (MICS) 2009 report, the NLLAP two-page review states that only 1% to 7% of households in Ghana treat their drinking water, with boiling being the predominantly adopted treatment method, although in many instances the treated water is subjected to re-contamination.

However, according to the 2008 Ghana Demographic Health Survey (DHS), about 7.5% of Ghanaian households treat their drinking water using an "appropriate" treatment method, with the most prominent method employed being straining through a cloth, followed by boiling, chlorine and filtration.

The review indicates that the process of developing an HWTS strategy in Ghana stretches over the period 2007 to 2016, with the first phase of implementation focusing on household intervention for

guinea worm eradication through the promotion of ceramic and biosand filters, as well as improved drinking water supply for flood affected households with emphasis on ceramic filters and aquatabs ending in 2011.

Within that time, other phases of the strategy have been pursued in the form of strategic decision of repackaging WASH (water, sanitation, hygiene) into four categories – enabling environment, behavioural change, water and sanitation services, and WASH in emergencies; evaluation and assessments of key interventions from 2009 to 2010; and development of national scaling up strategies from 2010 to 2011, according to RCN.

The network adds that the final phase of the strategy development involves scaling up implementation over the period 2012 to 2016, disclosing that during this period, specific activities such as implementation of WASH programmes in five regions, adaptation and use by other sector programmes, continued coordination, monitoring, evaluation, documentation and learning would be carried out.

According to RCN, the HWTS strategy emphasises four common water treatment technologies: disinfection, filtration, chlorination and sedimentation, and that an estimated 650,000 Ghanaians are targeted as direct beneficiaries from HWTS products and hygiene promotions during the first phase of the national strategy implementation.

Meanwhile, the World Health Organisation (WHO) has just published a 68-page document on "Evaluating Household Water Treatment Options", which sets out global criteria that enables users to evaluate whether a household water treatment option reduces waterborne pathogens sufficiently to protect health.

The range of technical recommendations provided will certainly be an invaluable guide to effective HWTS.

"Ghana has no Household Water Treatment policy", 11/05/2013, online at:
http://www.ghanabusinessnews.com/2013/05/11/ghana-has-no-household-water-treatment-policy/

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❖ Oman Power and Water Summit highlights key projects in addition to energy policy review and PAEW's HSE requirements

Held in co-operation with the Public Authority of Electricity and Water (PAEW), the third annual Oman Power and Water Summit organised along with IQPC Middle East and GEC, attracted over 70 local and international expert speakers and panellists. The Summit was also attended by over 350 local, regional and international utility industry professionals, whose main interest was to discover the latest projects and tenders, benchmark best practice asset management strategies and determine how the energy policy review and PAEW's HSE policy could affect the way they conduct business in the Sultanate.

The three-day event also had the official support of Ministry of Regional Municipalities and H.E. Nasser Khamis Al Jashmi, Undersecretary of the Ministry of Oil and Gas and Board Member of PAEW.

The Summit's opening keynote speech was delivered by John Cunneen, Executive Director and Board Member from AER on the subject of 'a regulatory perspective on Oman's Energy Policy Review'. This preceded an executive panel discussion to examine the potential impact of the Review within Oman. The panellists included : Omar Al-Wahaibi, CEO, EHC; Graeme Sims, Executive Director, Regulatory Mark Preece, Director of Electricity Networks and HSE, RSB Abu Dhabi;

Ramani Hariharan, Head of Strategy

incentive programmes and potential investment opportunities for the private sector were all evaluated by the panel.

Dynamic modelling of future power system operations was introduced by Matti Rautkivi, GM - Marketing and Business Development at Wärtsilä, and was followed by a live onstage interview with Shankar

Krishnamoorthy, President and Chief Executive Officer of GDF SUEZ Middle East, Turkey

The three-day event also received the support from the Institution of Occupational Safety and Health (IOSH) and its 'Knowledge Partner' - Knowledge Oman. In addition, the exhibition showcased over 30 key sponsors including: the Platinum Sponsor - Terranex, Gold Sponsors - GDF Suez, Stomo,

Utico, Towell and Wärtsilä ; Silver Sponsors - Acwa Power and Malakoff, Associate Sponsors - Abengoa Solar, Oracle Primavera, Oracle Utilities, Haya Water and Oman Cables.

Organised by International Quality and Productivity Centre (IQPC) and Global Exhibitions and Conferences (GEC) the Oman Power and Water Summit is scheduled until 7 May at the Al Bustan Palace, Muscat.

"Oman Power and Water Summit highlights key projects in addition to energy policy review and PAEW's HSE requirements", 05/05/2013, online at: http://www.elp.com/news/2013/05/07/oman-power-and-water-summit-highlights-key-projects-in-addition-to-energy-policy-review-and-paew-s-h.html

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❖ The EU Water Framework Directive Overcoming Its Shortcomings: Water Scarcity and Droughts

The main goal of the EU Water Framework Directive, of which the draft works were prepared by Germany and the Netherlands and came into force on December 2000, aims for 'good status' for all ground and surface waters in the EU. The process has been managed by the EU member states, which has been managing harmonization works, for some 13 years. The fact that primary objective of the Directive focuses on quality has led to problems in countries with other water-related problems during the implementation process, and the Directive has been criticized from time to time for its insufficiency in this regard.

Even though Europe has sufficient amount of water resources, water scarcity and droughts have been frequently observed in the EU in the recent period. Water demand within the EU will exceed the potential of current water resources in the forthcoming periods.

In 2007, at least 11 percent of the European population, and 17 percent of the European territories were affected by the water shortage. 100 million of the European population were affected negatively by the worldwide drought in 2003, and the cost of damage was some 8,7 billion euro. Especially after the 2003 drought and other ongoing impacts, the Commission deduced that the water scarcity to be observed in Europe will increase in parallel with the rising temperature caused by the climate change. In this regard, the Commission called the EU to work on developing policies for demand management and efficient use of water, which are on the top of water hierarchy, regarding water scarcity and droughts.

The dry spell in 2011 and 2012 is the biggest drought Europe has encountered in the last century. While the precipitation decreased by 40 percent; southern, western and northern Europe were affected the most by the drought. The rate of people and territories in Europe affected by the drought between 1976 and 2006 is 40 percent, and cost of the damage is 100 billion euro. Although water scarcity is currently observed in certain parts of the continental Europe, the problem will become a common problem for all 500 million European people in the future. Thus, along with the aim for 'good status' for all ground and surface waters in the EU, the Directive also focuses on efficient and

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economical use of water to prevent water scarcity and fight against drought. In this respect, the European Commission adopted a Communication on "Water Scarcity and Droughts" in 2007. Seven policy options were identified for tackling water scarcity and drought issues. These policies are listed respectively as follows: Putting the right price tag on water; allocating water and water-related funding more efficiently; improving drought risk management; considering additional water supply infrastructures; fostering water efficient technologies and practices; fostering the emergence of a water-saving culture in Europe; improve knowledge and data collection.

Afterwards, follow-up reports were issued in 2008, 2009 and 2010 based on the 2007 Communication. Based on the periodical Follow-up results, assessment of the River Basin Management Plans and further information, a Policy Review for water scarcity and droughts was issued by the European Commission on 14 November 2012.

While the seven policy instruments mentioned in the 2007 Communication are reiterated in this study, drought and other respective issues are not included in 41 percent of the River Basin Management Plans that have been prepared so far. Regarding drought, despite the fact that it affects the vast majority of river basins, 40 percent of the River Basin Management Plans do not address drought problem. In this respect, it is highlighted that water scarcity and droughts issue should be included in the River Basin Management Plans which is one of the most important steps of the Directive.

According to the report, in order to be able to overcome problems about water quantity to be encountered in the future, certain steps should be taken for all water bodies. These steps might be listed as follows: identifying sufficient ecological flows (amount of water required to be allocated to maintain continuity of ecosystems based on water) and doing a research on their effects, identifying water efficiency and their impacts, fostering water efficient technologies and practices, raising awareness on land use against water scarcity, improving drought risk management in Europe, and providing resistance against climate change.

All the EU member and candidate countries have been striving to practice the EU Water Framework Directive since 2000. During some 13-year process, shortcomings on water-related important issues

have been detected in the Directive, and it is aimed that those shortcomings will be eliminated to improve the Directive by preparing additional directives (e.g. 2007 EU Floods Directive). Those two problems which are not at the top of the agenda of Directive unlike water scarcity and drought have recently come to the fore as a result of their effects. The EU continues to deepen its respective studies by internalizing them with the Directive.

"The EU Water Framework Directive Overcoming Its Shortcomings: Water Scarcity and Droughts", Tuğba Evrim Maden, ORSAM, 03/05/2013, online at:
http://www.orsam.org.tr/en/WaterResources/showAnalysisAgenda.aspx?ID=2268

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❖ The Right to Water And Privatisation in Ireland

The privatisation of water in Ireland may be imminent. In its correspondence with the International Monetary Fund, the Irish Government has stated its intention to "move towards full cost-recovery in the provision of water services". This involves the introduction of water charges, metering and the establishment of a State agency, Irish Water. The Department of the Environment, Community and Local Government say Irish Water is a public utility, and that "there is absolutely no intention to privatise water services".

Nonetheless, the centralisation of water provision from local authorities in one entity would certainly make privatisation easier. As does the introduction of a customer-supplier relationship by way of charges and metering, as Ryan Meade has noted. The Irish Times ran an article in February 2013 with the headline 'Dail warned legislation will open floodgates for new Irish Water to be privatised'. Former Green Party Minister John Gormley sees the establishment of the water authority as the first step to privatisation. However, according to Minister of State for Natural Resources Fergus O'Dowd last month:

there will be a legal guarantee to give an absolute assurance as best we can that there will be no question of privatisation arising as an issue.

A qualified commitment from a Government under pressure from the IMF and the EU (with its controversial proposed Concessions Directive). In light of the introduction of water charges, legislation is reportedly to be adopted addressing exemptions, including for those who might not be able to afford the charges.

What does international human rights law say about water and its privatization? None of the major treaties refer to a right to water, although it can be taken as implicit in the International Covenant on Economic, Social and Cultural Rights. It was only in 2010 that the United Nations General Assembly adopted a declaration on the right to water. The declaration recognizes "the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights". Ireland abstained from the vote on the declaration.

The Committee on Economic, Social and Cultural Rights does not seem to oppose the privatisation of water per se, or that it be paid for, provided it remains affordable:

Any payment for water services has to be based on the principle of equity, ensuring that these services, whether privately or publicly provided, are affordable for all, including socially disadvantaged groups. Equity demands that poorer households should not be disproportionately burdened with water expenses as compared to richer households.

The Committee has noted the increase privatisation in various areas affecting human rights (e.g. here, here and here), but does not treat privatisation itself as inherently contrary to the protection of those rights. That said, in its 2011 Concluding Observations on Israel, the Committee recommended "a scaling down of the privatization of social services".

In the global economy, water is now treated as a tradable commodity, and privatisation of the supply is an intrinsic part of this development. Water was designated as "an economic good" at an international conference of government experts held in Dublin in 1992. The Dublin Principles emphasised the economic value of water:

it is vital to recognize first the basic right of all human beings to have access to clean water and sanitation at an affordable price

Privatisation of water does not absolve the State of its human rights obligations, or those of companies either. While the international human rights machinery is mostly addressed to States, the human rights responsibilities of the private sector are being recognised. The Committee on Economic, Social and Cultural Rights has even called on States "to prevent their own citizens and companies from violating the right to water of individuals and communities in other countries".

When the debate on privatisation in Ireland happens, there were be talk of increased efficiency, reduction of waste, and savings to the taxpayer. Short-term financial gain will likely hold the day. Dr Frank Groome predicts that privatisation will not take place until after public funds have covered the

upgrade of the water supply network – "an irreversible and costly investment that no private company could afford or would be willing to pay for".

The most likely eventual buyer would be one of the major multinational water companies such as Veolia, Suez or Thames Water. Veolia already have a sizable water operation in Ireland. The other likelihood is retaining Irish Water in public ownership, but allowing for competition from private companies. PriceWaterhouseCoopers, who conducted an independent assessment of Ireland's water provision in 2011, suggested that:

… once Irish Water is well established as a self-funding utility the Government and Regulators may wish to assess international experience of the introduction of competition in water and sewerage services to identify whether Ireland could benefit from competitive markets in the water sector at a later date.

The privatisation of water has had disastrous results in other countries. Two Irish filmmakers, Muireann de Barra and Aisling Crudeen, have made a documentary Water Rising on the impact of privatisation of water in Bolivia. The Bechtel corporation was effectively forced out of the country following a popular revolt against its water policies in the city of Cochabamba – a licence was required to collect rainwater – and the water supply was returned to public ownership. In 2004, the people of Uruguay voted in a constitutional amendment to ensure State ownership of water. This is a suitable but unlikely candidate for consideration as part of Ireland's current Constitutional Convention. A constitutional commitment would offer far more legal certainty than legislation as to the future of Ireland's water.

"The Right to Water And Privatisation in Ireland", 06/05/2013, online at: http://businesshumanrightsireland.wordpress.com/2013/05/06/the-right-to-water-and-privatisation-in-ireland/

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❖ Will cities ever get smart about water use?

If the definition of insanity is making the same mistakes over and over, then many cities have taken a certifiable approach to securing their water supplies — and they need some radical therapy before taking the big economic, ecological, and human hits that come with a permanent state of thirst.

That's the conclusion from a new study in the journal *Water Policy*, whose authors compared the water supply histories of four cities — San Diego, Phoenix, San Antonio, and Adelaide, Australia. Among the lessons learned? Urban water conservation, recycling, and desalination aren't silver bullets. In fact, the best solution may lie upstream with farmers — saving just 5-10 percent of agricultural irrigation in upstream watersheds could satisfy a city's entire water needs.

But the time to act is now, argues Brian Richter, a senior freshwater scientist at The Nature Conservancy and the study's lead author — he says a global urban water crisis is already here. Below, Richter tells us more about what cities need to do to say on the right side of dry.

Q. Many cities take a similar pattern of water development, according to your research – going from exhausting local surface and groundwater supplies to importing water to implementing water conservation to finally recycling water or desalination. Why is this pattern unsustainable?

A. When we overuse a freshwater source, we set ourselves up for disaster. Each of the cities we reviewed in our study has contributed to the drying of a major river or important groundwater spring. That has obvious ecological impacts and social consequences — it affects livelihoods and human health by compromising fish production, concentrating pollution, or curtailing recreational activities.

Our research is revealing that water scarcity also causes severe economic losses by limiting or disrupting agricultural, industrial, and energy production. Texas lost nearly $8 billion in agriculture last year due to water shortages; electricity generation from hydropower dams on the Colorado River in 2010 dropped by 20 percent due to water shortages. Some estimates suggest that China may be losing $39 billion each year due to crop damage and lessened industrial production, and hundreds of thousands of people around the globe are being forced to move due to water shortages.

Because these impacts are so pervasive and damaging, we need to begin investing in water supply approaches that don't just minimize these adverse impacts but instead begin to reverse them.

Q. Are we looking at a crisis in securing urban water supplies in the near future, either for U.S. cities or globally?

A. That crisis is already upon us. Our study revealed that half of all cities — both in the United States and globally — are located in watersheds where more than 50 percent of the renewable supply of water to our rivers and aquifers is being consumed, at least seasonally. Now, that's not a problem as long as we're receiving plentiful precipitation. But if you're using that much water on an average, ongoing basis and you go into a severe drought, there isn't enough water to meet all needs.

Q. Phoenix, another one of your case studies, has lowered its per capita water use by 25 percent since 1990 through various water conservation measures — and yet Phoenix is water scarce. Why?

A. Water scarcity results when we heavily deplete a freshwater source. It doesn't necessarily mean that you're experiencing regular water shortages in your home or business. But it does mean that you're at considerable risk if the water supplies continue to be increasingly depleted by other users, or you get into a drought situation.

Phoenix's water conservation efforts are admirable, but they need to do much more. They are heavily dependent on the Colorado River, which is so thoroughly overused that it dries up before reaching its delta in the Gulf of California. During a severe, prolonged drought, the reliability of that water source will be in jeopardy.

Q. So storm- and wastewater recycling aren't enough?

A. Contrary to popular belief, water conservation and recycling may not result in a net improvement in the affected water source. If the water that's conserved is simply used to supply additional urban growth, then the water source is no better off.

The vast majority (80-90 percent) of water used in cities is returned to the freshwater source after use. So only 10-20 percent of the water is "lost" or "depleted" — most of that goes to outdoor landscaping or golf courses. Water recycling shuts off the return of water to the freshwater source — instead of discharging the used water back to a river, the water is used for domestic, commercial, industrial, or agricultural purposes.

So water recycling will "save" water — and reduce water scarcity in the freshwater source — only if it reduces the fraction of water that was previously being lost from the freshwater system.

Q. What about desalination if you're a city on the coast? It's expensive — but Adelaide's desal plant is supposed to provide more than 25 percent of that city's water supply by 2013.

A. Desalination could be a wonderful solution to our water challenges — more than one in every two people on Earth lives near a coast. But removing salts from ocean water requires a tremendous amount of energy, and the expense of that energy makes desalination the most costly way by far to supply fresh water to cities.

And there's a wicked climate change feedback loop for desalination: using it to create fresh water produces carbon emissions that change our climate, which in turn affects the precipitation that supplies fresh water. Without a radical breakthrough in energy production, desalination will continue to supply only a tiny fraction of the world's freshwater needs. (Note that Adelaide is using 100 percent renewable energy to power its desalination plant.)

Q. You cite San Antonio as a leader in integrating water conservation into its planning. What's San Antonio getting right that other cities aren't?

A. Few cities in the world have pushed urban water conservation as far as San Antonio. Their community outreach program is outstanding. … San Antonio is also investing in agricultural water conservation to reduce overall use of the Edwards Aquifer, the city's primary water source. That's the way of the future: Cities leading efforts to help everyone that uses the same water source to do so in the most conservative and sustainable manner possible.

Q. You argue that cities should help upstream farmers implement irrigation conservation that will leave more water for urbanites downstream. It sounds good in theory — but since agriculture accounts for 90 percent of all freshwater depletions, why should cities foot the bill?

A. Because most farmers won't implement water-saving measures unless it saves them money — or at the very least, until it doesn't cost them anything. Many farmers are already implementing water conservation measures because they reduce electricity costs. But sometimes the cost savings aren't sufficient to motivate a farmer to go through the time, trouble, and change in farming practices.

That's why cities need to step in to help. As we point out in our paper, saving just 5-10 percent of the water being consumed in irrigated agriculture can usually free up enough water to meet a city's needs. It can also free up water to restore river health.

Q. So how do we do this? Do these partnerships exist already?

A. One great way is to create a water market, such as exists in the Murray-Darling basin in Australia or in the Edwards Aquifer of Texas, where farmers can sell any "saved" water to other farmers, cities, or environmental interests as long as it does not harm other water users or the environment. There are few better things that governments could do to improve water management.

Another urban-rural water partnership that can work is a bilateral agreement between a farmer, or an entire irrigation district, and a city. The deal between San Diego and the Imperial Irrigation District in southern California is a great example. That arrangement will provide 37 percent of San Diego's water supply by the year 2020, it's very cost-effective, and it provides a new source of income and security for the farmers. Our analysis suggests that one in every two medium- to large-sized cities could — or should — pursue partnerships of this nature.

Q. What should urbanites do to prepare for the coming urban water crisis — pressure their lawmakers? Take personal water conservation measures? Other steps?

A. In my Water Sustainability course at the University of Virginia, I teach that everyone needs to take responsibility. Figure out how much water you use, and what impacts you might be causing. Almost everything you do requires water — not just the water you use directly in the kitchen, bathroom or laundry room, but also the water required to produce your electricity, food, clothing, gasoline, and other consumer goods. Regardless of your political party, be conservative in water use.

And to the point of our study: Ask your city manager or water supplier why they aren't working with local farmers to help them save water and restore health to our rivers, lakes, and aquifers.

"Will cities ever get smart about water use?", 08/05/2013, online at: http://grist.org/article/how-cities-can-finally-get-smart-about-water-use/

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❖ Tapped Out: How Will Cities Secure Their Water Future?

Today, global demands for food, energy, and shelter are putting unprecedented pressure on the resources of the planet. Water is at the heart of this crisis.

In fact, more than half of the world's cities are already experiencing water shortages on a recurring basis – based on findings from a study that I published, along with 13 of my colleagues, this week in the *Water Policy* journal. These water-stressed cities are finding it extremely difficult and expensive to secure the additional water supplies needed to support their growth.
Our study, "Tapped Out: How Can Cities Secure Their Water Future?" highlights the reality that many growing cities are badly in need of new, low-cost, and reliable sources of water. We found that a key strategy cities should consider is to form partnerships with agricultural producers to conserve water use on farms, thereby freeing up water that can be used in the city.
Even a modest level of reduction (15-20 percent) in agricultural water consumption, globally, could make more water available than all the water consumed in cities and industries today.

Where Did all the Water Go?
In conducting the study, we identified cities around the world that are situated in water-scarce regions, and then assessed how water is being used in those regions.

It was not difficult to see why so many cities got into trouble with water.

The water sources they depend upon – rivers, lakes, and aquifers – have for decades been heavily used for irrigated agriculture. Since 1950, the consumption of water globally for irrigation has tripled in volume, a trend that played a large role in enabling food production to more than double over the same period.

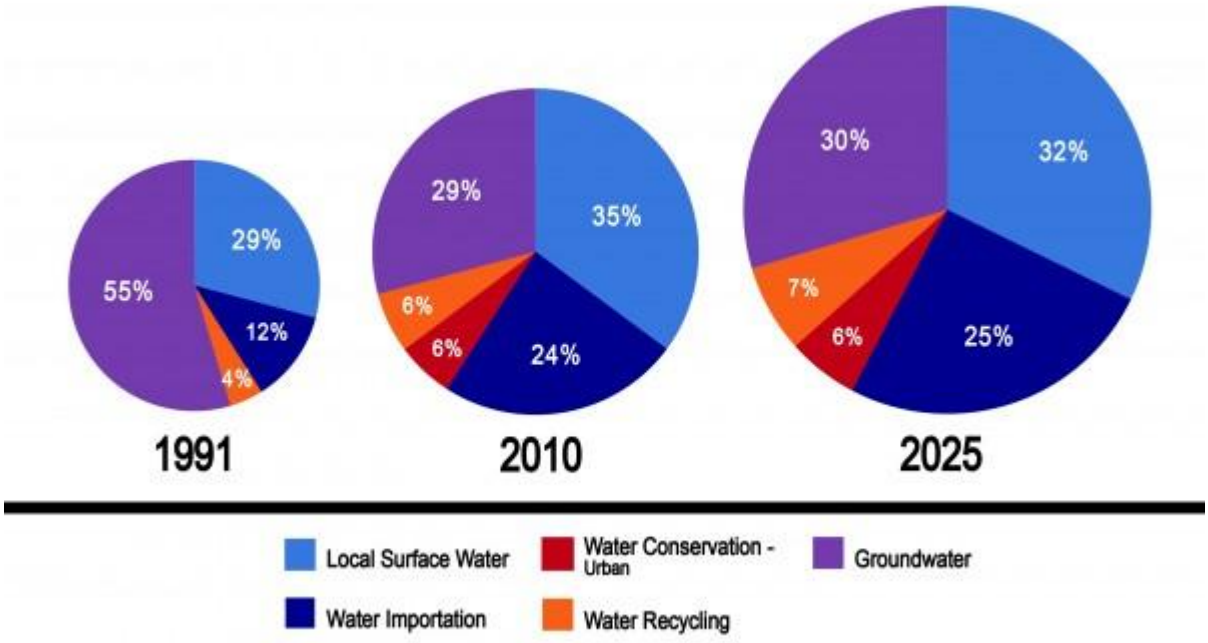
The result: Water-stressed cities are trying to expand in places where most of the water is already being consumed by irrigated agriculture. In fact, more than 90% of the water being consumed from those shared water sources is going to growing crops.

In particular, we closely examined the challenges and responses of four cities: Adelaide, located just outside but dependent upon the Murray–Darling River Basin of Australia; and three cities in the U.S.: Phoenix, located in the Gila River Basin in Arizona; San Antonio, dependent on theEdwards

Aquifer in Texas; and San Diego, which relies upon the San Diego, Colorado, and Sacramento River Basins in California.

The Unsustainable Pursuit of More Water

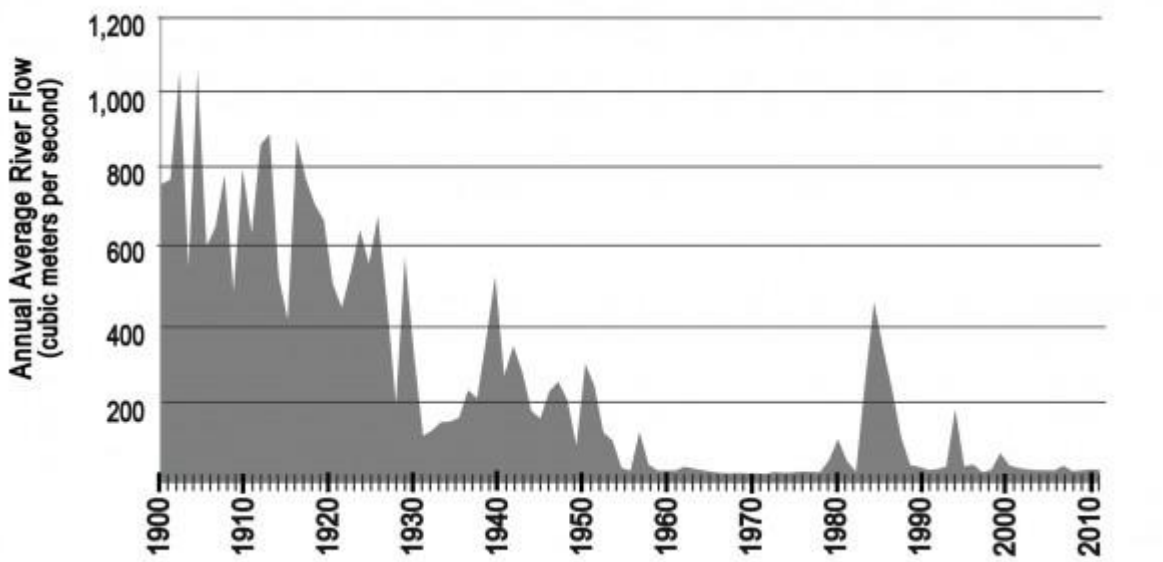
Looking at the investments that these cities have made – and plan to make in the future – to access more water, we found similar patterns in their water development: 1) They began by exhausting their local surface and groundwater supplies; then 2) imported water from other rivers and aquifers; and finally 3) turned to recycling of wastewater or stormwater, or desalination of either seawater or brackish groundwater. We found that water conservation efforts did help mitigate, to varying degrees, the timing of water-system expansions and the extent to which cities had to rely on new sources of supply.



We found this typical water development pattern to pose significant problems from a sustainability perspective – as it is usually associated with serious negative ecological and social impacts – and lacking cost effectiveness.

The heavy exploitation of freshwater sources – a result of growing urban demands on top of heavy agricultural use – has caused severe damage to freshwater ecosystems, impaired the ability of

ecosystems to provide services to people, and created health problems in many regions. In addition, groundwater depletion (lowering of underground water levels) has led to increased electricity costs for pumping the water from ever-increasing depths. When cities extend their reach into other rivers or aquifers to access water supplies, they spread negative impacts over great distances. Energy-intensive technologies such as recycling and desalination are expensive, resulting in higher water bills for consumers as well as increased carbon emissions that accelerate climate change.

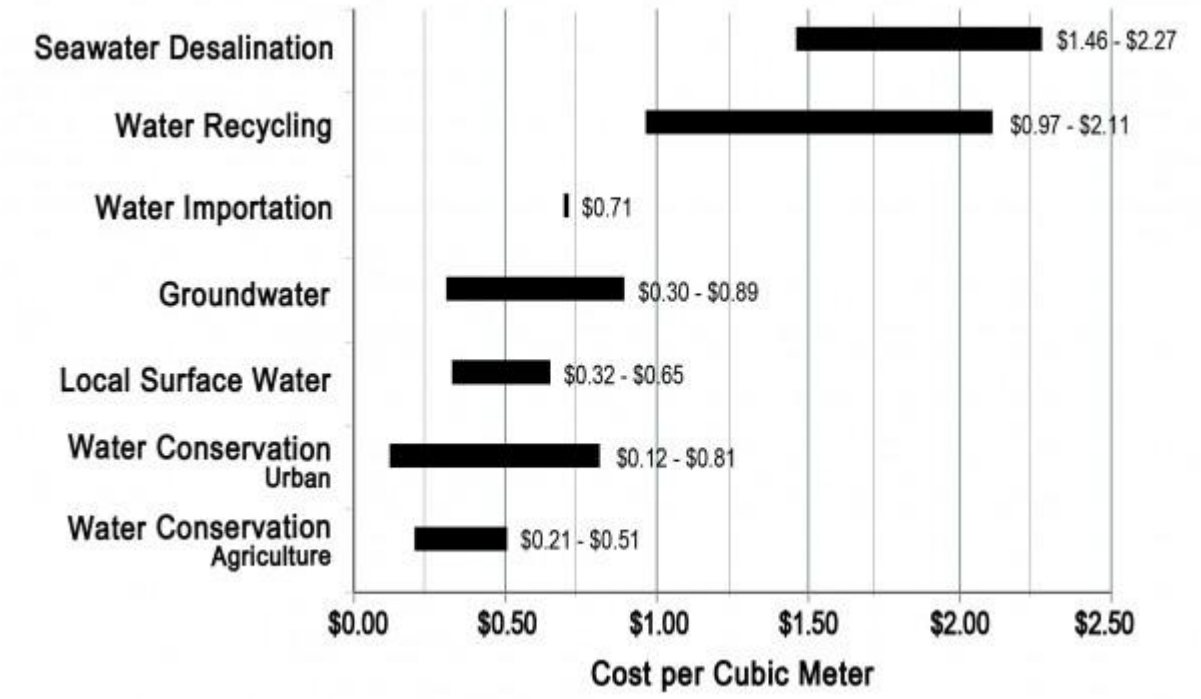


Place Your Bets on Water Conservation

Far and away, water conservation is the most cost-effective, immediate, and environmentally desirable means for addressing water shortages. But few cities have maximized their conservation potential.

In addition to investing in urban water conservation – e.g., by installing low-water plumbing fixtures, fixing leaks in water distribution lines, or reducing landscape watering – considerable potential exists to make more water available locally by reducing water consumption in irrigated agriculture.

Promising opportunities exist to free up the water presently used in agriculture through techniques such as reducing unproductive water consumption (e.g., stopping canal leakage, reducing soil and reservoir evaporation), changing crop types, introducing rotational fallowing, temporary fallowing during droughts, or the elimination of low-value farming.



In our recommendations for water sharing going forward, we advocate for 'urban–rural partnerships.' While there are formidable hurdles to forming urban–rural partnerships to share water (these challenges are detailed in our paper), the payoff is too big to ignore.

In many basins, a reduction of agricultural water consumption of just 15–20% can yield massive volumes of water that can be saved for other uses. For example, if adopted globally, this level of reduction in agricultural water consumption would make more water available than all the water consumed in cities and industries today.

A Role for Markets?

Our paper also highlights the role of water markets in facilitating water sharing and transfers of water rights among cities, farmers, and environmental interests. For example, my organization, The Nature Conservancy, is exploring how to expand water markets more broadly. In places where water markets exist, such as the Murray-Darling Basin in Australia or in the Edwards Aquifer of Texas, we see the potential for multi-win benefits to farmers, cities, and the environment. Just as a farmer can sell "saved" water to other farmers, or cities, we can serve as the buyer or help facilitate the purchasing of a water right, and allow the water to remain in the river or aquifer to support ecological health and water availability for other uses.

In addition to the Murray-Darling and Edwards Aquifer, we are looking at opportunities to buy water for conservation purposes in the Guadalupe River in Texas, the Colorado River Delta, and other places. We are also working with local governments and water users in the U.S. and abroad to create new water markets, or to improve the functioning of existing markets, so that water is available to those that need it most.

But perhaps most important of all, we are also working with governments to help them understand the hazards of overusing a water source. When too much water is being taken from a river, lake or aquifer, everyone is at risk!

"Tapped Out: How Will Cities Secure Their Water Future?", 08/05/2013, online at: http://newswatch.nationalgeographic.com/2013/05/08/tapped-out-how-will-cities-secure-their-water-future/

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