

ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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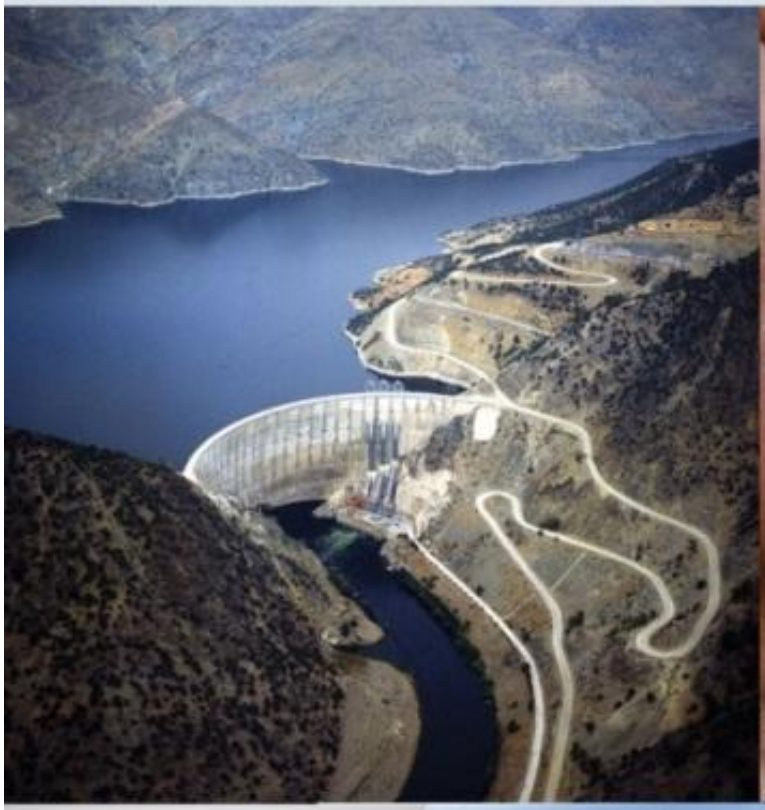



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❖ Tajikistan to use Turkey water policies

Tajikistan and Turkey agreed to cooperate in water management during a high-level water conference in capital Dushanbe

Tajikistan plans to model its water management policies on Turkey's following a bilateral meeting that saw the countries agree on sharing water know-how.

Turkish Deputy Minister of Forestry and Water Management, Nurettin Akman, attended a high-ranking international conference in the Tajik capital of Dushanbe, the Ministry said in a statement issued on Monday.

The conference brought together ministers of several countries and officials from the European Union, as well as representatives from such international organizations as the United Nations and the World Bank.

Akman met Tajik Minister of Construction and Water Resources, Rahman Bobokalonov, on the sidelines of the conference, Turkish Ministry's statement said.

It added that the leaders discussed sharing Turkey's experiences in its harmonization efforts for EU Water Framework Directive, and organizing a training program in Turkey aimed at helping Tajik officials in their work to enhance water resources.

Minister Bobokalonov said his country was also seeking Turkey's support on the issue of cross-border waters. He would soon visit Turkey for further talks, he added.

"Tajikistan to use Turkey water policies", 02/09/2013, online at:
http://www.worldbulletin.net/?aType=haber&ArticleID=116719

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❖ Turkey to fix 50 water plants in Lahore

LAHORE - Lahore Commissioner Imdadullah Bosal has said Turkey will install fifty water purification plants in different towns of Lahore. He was chairing a meeting regarding these plants in which Turkish coordinator, officer of Tma, Wasa and cantonment boards participated. During the meeting, he said site identification, arsenic laboratory tests and other arrangements had been almost completed while Wasa, Tma, Aziz Bhatti Town and Nishtar Town would coordinate with the Turkish Coordinators.

The commissioner said that initially 25 sites had been clearly identified and reports about remaining sites would be submitted by the Wasa and Tma in one day. Turkish Coordinator Mr Saadi briefed that his teams are ready to start work within no time and visit of the identified sites would be completed soon. The commissioner said that after installation of plants, the departments concerned would take care of the plants.

"Turkey to fix 50 water plants in Lahore", 04/09/2013, online at: http://www.nation.com.pk/pakistan-news-newspaper-daily-english-online/lahore/04-Sep-2013/turkey-to-fix-50-water-plants-in-lahore

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❖ What Will Happen to Turkish Villagers in the Path of a Giant Dam?

Thirteen years ago, life changed forever for the residents of Halfeti, a town on the Euphrates River in Southeastern Turkey.

The Birecik hydroelectric dam opened in 2000, creating a reservoir that flooded most of the town. The government paid Halfeti's residents for their submerged property, but people didn't know how to invest the funds responsibly.

"We weren't able to acquire anything good, we couldn't use the money, because for years the people have been dependent on the land," says former Halfeti mayor Mehmet Gökçe. "The land provided us with our livelihood."

Despite efforts to train locals in business management skills and solicit advice from other dam-displaced villagers, the money dwindled away quickly.

Since then, Halfeti locals say, the adjustment has been difficult. "Compared to the past, in terms of our means of subsistence, there is much less wealth and much more poverty," says Halfeti resident Ali Ağar, who opened a tourism business after he and his family moved to New Halfeti, the government-approved resettlement site for the villagers.

"Before the dam, there were green gardens with every type of vegetable and fruit along the shores of the Euphrates River here. We passed by those gardens all the time in our youths, so when we talk about our first sweethearts, our first loves, those are still unforgettable," adds Ağar.

Halfeti offers a glimpse into the future for villages in the path of the Ilısu Dam, a hydroelectric plant twice as big as Birecik that is planned for completion on the Tigris River by the end of next year.

Residents of the town of Ilısu were first to be evicted two years ago. To build houses in their new settlement area, many were forced to take out big loans. Suzan Doğan, 21, and her husband are in debt to the tune of 70,000 TL (approximately $35,000) for loans they took to buy the building materials for their house.

The new village site is not ideal, either. The land isn't level enough for gardening in most areas, according to Doğan, and her husband's job at the Ilısu Dam construction site doesn't pay enough to keep them on top of their loan repayments.

With two children to support and her husband yet to complete his mandatory military service, Doğan says, her life in New Ilısu is beset by constant financial anxiety.

"Especially because of this debt we're in, we can't think about anything else. Nothing about the future. Our only hope from now is that this debt finishes, we don't want anything else," she sighs.

Doğan's plight is precisely the fear of Arif Ayhan, a carpet seller in Hasankeyf who will also lose his hometown to the Ilısu Dam.

"They tried to make money from us," Ayhan says bitterly. "They finished our lives. They make us—they take all the things of ours. Now they will give us house, borrow, we have to pay all our life, and we have to be again like animals for government."

Ayhan and other Hasankeyf residents are quick to point out that they don't oppose economic progress, however.

"We aren't against the dam. We want the dam to happen," says Suleyman Ağalday, a local butcher. "But we want a dam that will leave Hasankeyf above the water."

Instead, he says, "the Koç mosque from Artuqid times, the Süleyman mosque, the İmam Abdullah hermitage, the Zeynel Bey tomb, the old bathhouse — these are going to be submerged. The civilizations will be erased."

Ağalday thinks Hasankeyf's tourism potential could generate far more money than the Ilısu Dam — if its historical and ecological treasures were advertised properly.

"The new Hasankeyf that they're constructing won't have any distinguishing features. There are seas everywhere, there are dams everywhere. They have new cities in many places in Europe. People don't come here to see new houses and new cities. They don't come here to see a dam," he points out.

Although they face economic uncertainty in their new settlement site, few residents of Hasankeyf have spoken out against the dam.

"The people of Hasankeyf are really poor, and many people of Hasankeyf get help from government, from head official, mayor. That's why they say nothing," explains Ayhan.

"For some little money, they sell everything. But tomorrow, when they go [to the new settlement site], when the dam finished, what they will do I don't know."

If the situations in New Halfeti and New Ilısu are any indication, Hasankeyf's residents will have to adjust to more business-oriented jobs, a more barren environment, and higher home prices.

Although the Hasankeyf district governorship says official prices for homes in New Hasankeyf aren't yet certain, Ayhan says authorities posted notices advertising houses in the new settlement for 180,000 TL (about $90,000).

"Who can pay this?" he demands. "They will give us maybe 20,000 TL ($10,000) for our homes."

Government-backed dams in Turkey have left a trail of displaced, economically depressed villages in their wake. As the 12,000-year-old town of Hasankeyf prepares to join them, few of its residents are hopeful for their future.

"What Will Happen to Turkish Villagers in the Path of a Giant Dam?", 06/09/2013, online at: http://newswatch.nationalgeographic.com/2013/09/06/what-will-happen-to-turkish-villagers-in-the-path-of-a-giant-dam/

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❖ Iraq's First National Park: A Story of Destruction and Restoration in the Mesopotamian Marshlands

The inauguration of Iraq's first national park earlier this summer represents a step toward national rebuilding for the war-torn country. But restoration of Iraq's marshes also offers a grander vision for regional water cooperation throughout the Middle East and elsewhere.

Framed by the Tigris and Euphrates Rivers, many believe Iraq's tranquil marshlands to be the biblical Garden of Eden. Historians know that these marshes — once the third-largest wetland in the world — cradled some of the earliest civilizations and the first written language. Filled with azure lagoons, swaying reeds, snorting water buffalo, and rare waterfowl, this magical corner of the globe has also witnessed centuries of human conflict and religious strife, however, and is still reeling from Saddam Hussein's Ba'athist regime.

After Hussein's aggressive campaign to drain the Mesopotamian Marshes in the early 1990s, these millennia-old wetlands were on the verge of disappearing, having been reduced to one-tenth of their original size. But thanks to more than a decade of restoration efforts, the marshlands are slowly recovering. The Basra reed warbler and the Iraq babbler, two bird species that live almost exclusively in Iraq's marshes, have returned. Moreover, roughly 90,000 of the Marsh Arabs who had scattered during Saddam's oppressive regime have also returned to live in their native marshland.

More good news came in late July, when Iraq's Council of Ministers named the National Park of the Marshes as the country's first and only national park. In a battle-weary country that still suffers more than 200 conflict-related casualties each week, Iraq's first national park represents a tentative but concrete step toward national rebuilding and the safeguarding of resources for the future, according to Dr. Azzam Alwash, an Iraqi-American engineer who won the 2013 Goldman Prize in April for his decade of service to the marshlands.

"Strangely enough, this is one of the few cases where war has resulted in environmental healing," Alwash told Circle of Blue. "The re-creation of the marshes is literally like the rising of a phoenix from the ashes of destruction. In a sense, it is a symbol of the restoration of Iraq as a whole."

The 1,000-square-kilometer (385-square-mile) national park in Iraq's Central Marshes will tangibly protect and promote the marshes and oblige policymakers to consider the needs of Iraq's marshes, as well as their human and animal inhabitants. But the park also raises pressing questions on an international scale about regional water cooperation in the Fertile Crescent, an agriculturally productive swath of land that cuts across the arid and semi-arid Middle East.

The Tigris-Euphrates River System is one of a few pivotal global choke points — including the Nile River Basin in Northeastern Africa and the Indus River Basin in the Himalayan foothills — where shared and increasingly scarce water is the flashpoint for competing political, economic, and

environmental interests. Further complicating the equation, rapidly expanding populations intensify economic demand along the rivers, and changing climatic conditions alter the flow of streams feeding into these shared rivers. However, regional cooperation has the potential to help countries share the benefits and costs of managing joint-river resources and save unique places, like Iraq's marshes, for future generations.

Destruction and Restoration

A marsh is a type of wetland that is waterlogged, grass-covered, low-lying, and inundated by seasonal floods. Flanked by the Tigris and Euphrates Rivers, Iraq's marshes are situated in a region known as Mesopotamia, literally 'land between two rivers.' The rivers originate in the snowy mountaintops of eastern Turkey, flow southeast through the dry plains of Syria and Iraq, and are joined by tributaries from Iran. The Tigris, the easternmost of the pair, carves a blue ribbon through the urban sprawl of Iraq's capital, Baghdad. South of Baghdad, the marshes — covering up to 20,000 square kilometers (7,700 square miles) in the 1960s — behave as a natural filter that scrubs and cleans the rivers' waters near the end of their journey. Emerging from the marshes, the rivers meet at the city of Basrah and empty 100 kilometers (60 miles) later into the Persian Gulf.

Hussein destroyed the marshlands during the 1990s as an act of repression against the Marsh Arabs, the Ma'dan, who rebelled against his regime. Hussein's government constructed canals that prevented the waters of the Tigris and Euphrates from overflowing into the marshes; instead, the waters went around the marshlands and emptied directly into the Persian Gulf. He called the diversion canals Saddam River, Glory Canal, and Loyalty to the Leader Channel, among other self-congratulatory names. Within a few years, the marshes dramatically shrank to less than 2,000 square kilometers (7700 square miles), one-tenth of their size during the 1960s.

The son of a government hydraulic engineer, Alwash remembers visiting the marshes with his father as a child. When Saddam Hussein rose to power in the 1970s, Alwash left Iraq for the United States, graduating in 1984 with a masters degree in civil engineering and in 1988 with a doctorate in geotechnical enginnering from the University of Southern California's Viterbi School for Engineering. He started a successful business, married an American, and settled outside of Los Angeles.

With the fall of Hussein's regime, though, Alwash returned to Iraq in 2003 — after 25 years — to find a salt dessert where thriving marshes once stood. Horrified by the destruction, Alwash dedicated himself to bringing back the serene marshes that he remembered from childhood. Alwash and a team of global experts worked with local marsh dwellers to break Hussein's dykes and canals. The team also worked to integrate marsh management into local agriculture and fishing practices. With help from researchers at Basrah University, they also built a database of environmental statistics on Iraq.

Alwash said he was elated by the announcement that the marshes had finally become Iraq's first national park. When asked if the park's creation was difficult, he laughed.

"That would be the understatement of the year," Alwash said. "It started in 2005, and I thought it would be a matter of a year, maybe a year and a half. It has been almost eight years in the making…what takes one month elsewhere takes one year in Iraq."

Alwash now wants to share this idyllic garden with the world. He hopes that the marshes will become a top global eco-tourism destination.

"Any self-respecting birder will have to include the marshes on their bucket list," Alwash said eagerly. "There are 25,000 registered archeological sites in Iraq; about 20 percent of them are in and around the marshes. So I see a future where people can mix kayaking, bird-watching, fishing, and visits to the sites of [Iraq's] ancient civilization."

How Much Has Recovered?

Estimates of marsh size vary due to seasonal variations in water levels and differences between drought and wet years, and this variation complicates assessments of exactly how much of the marshes have been restored.

On the high end, international media sources report the original size of the marshes in the 1960s to have been between 15,000 and 20,000 square kilometers (5,800 and 7,700 square miles). Alternatively, the Canadian International Development Agency's Canada-Iraq Marshland Initiative estimates original marsh size to have been 10,500 square kilometers (4,050 square miles), based on the first satellite image of the marshes taken in 1973. To complicate the picture even further, a 2011 United Nations report defines the physical extent of the marshes as 7,875 square kilometers (3,040 square miles) in 1983, and this represents the area that the Iraqi government has proposed to restore.

Media reports estimate that, after Saddam Hussein had completed his engineering works, the size of the marshes decreased to less than 10 percent of their original size, but approximations of the physical size of the marshes at this time range from 1,000 square kilometers (386 square miles) to less than 2,000 square kilometers (770 square miles).

Adding to the confusion is what happened after restoration efforts started at the turn of the century: satellite images from 2003 to 2006 — when the destruction of Hussein's dams combined with wet climatic conditions to re-flood large portions of the marshes — gave an overly optimistic picture of marsh health. Then, between 2008 and 2010, drought conditions once again shrank the marsh size.

When asked about the current status of the marshes, Alwash uses the baseline marsh size of 5,600 square kilometers (2,160 square miles) and estimates that roughly 60 percent of that baseline marsh, or 3,360 square kilometers (1,300 square miles), have been restored. Iraq's Center for Restoration of Iraqi Marshes and Wetlands (CRIMW) use 5,600 square kilometers as the area that Iraq plans to re-flood.

Keith Holmes, scientist at the Spatial Pattern Analysis and Research Laboratory at Canada's University of Victoria, believes 60 percent recovery may be misleadingly optimistic, especially when considering the 1973 marsh extent of 10,500 square kilometers or the even larger 1960s estimate of 20,000 square kilometer.

"I think they are being rather generous to what is deemed as recovered," Holmes told Circle of Blue. "I would say it is between 30 and 40 percent of the 10,500-square-kilometer mark… Some flood years may temporarily skew the numbers, but long-term viable freshwater marsh habitat is going to remain less than 4,000 square kilometers (1,540 square miles)."

Some hydrological changes along the Tigris-Euphrates River System are harder to reverse than Saddam Hussein's dykes and canals. Iraq's culturally and biologically important marshes are just one component of a highly interlinked river system. Dams and irrigation practices upstream in Turkey and Syria have taken their toll by interrupting seasonal floods, increasing the salinity of the water, and limiting marsh-restoration efforts. These manmade changes not only trickle down to threaten marsh ecosystems in Iraq; they also affect marine ecosystems in the Persian Gulf.

According to a 2010 report by the Canada-Iraq Marsh Initiative, 36 dams in Iraq, Iran, Syria, and Turkey operate in the Tigris-Euphrates Basin. Construction of another 21 dams is planned for the next decade.

Dr. Steve Lonergan, a geographer at Canada's University of Victoria who headed the Canada-Iraq Marsh Initiative that Holmes worked on, told Circle of Blue that he sees no way the marshes can be restored to 60 to 75 percent of 1973 levels.

"There simply just isn't the water necessary to restore the marshes," Lonergan said. "It is being withdrawn upstream by Iraq (for agriculture), Turkey, and Syria (and, to a lesser extent, Iran)… If there ain't the water, there ain't a marsh."

The Missing Drumbeat

For 7,000 years, a seasonal flood has fertilized crops along the Tigris and Euphrates, propelling the development of great civilizations. But the flood has stopped in recent years, which Alwash argues will not only change the biodiversity of the marshes and harm the Goliath heron and the smooth-

coated otter that live there, but the lack of flooding will also affect agriculture and the human communities that depend on these rivers.

An April 2010 brief from the United States Institute for Peace outlines the political, economic, and ecological consequences of poor water management in the Tigris-Euphrates River Basin. "Left without sufficient water for irrigation, southern Iraq's fragile agricultural sector has produced a record low wheat crop, and thousands of Marsh Arabs have abandoned their farms."

"The whole ecology [of the region] revolves around the flood in the spring — it pushes away the brackish water that accumulates from evaporation the year before," Alwash explained. "It widens the natural extent of the marshes and deepens the water just in time for the fish to spawn, for the birds to migrate, for the reeds to emerge from winter hibernations. It is what I call a symphony of biodiversity. And the flood is the drumbeat; the annual drumbeat that beats on… and the dams upstream have halted the flooding pulse."

As much as the absence of floods hinders marsh-restoration efforts, however, Alwash sees a more alarming problem: how the missing flood affects agriculture. Alwash says that the marshes will likely adapt to the environmental damage, since reeds can grow in brackish water. What cannot grow in salty water, however, is the cultivated rice that feeds the people of the marshes.

"I believe the lack of cooperation [over upstream dams] will end in 20 to 30 years in the death of agriculture in the land where it was born," Alwash said. "Iraq being at the downstream end, it will be the first country to starve."

Blue Economic Revolution

The shadow of agricultural collapse, however, will only loom over the river basin in the absence of cooperation. Alwash believes that, rather than a point of tension, water can be a "medium of healing" that lubricates cooperative processes in the region. He calls this the "Blue Revolution."

"My advice to the Iraq government is to stop claiming its historical right for this water," Alwash said. "Stop complaining about Turkish dams, and start cooperating to come up with economic models that help [both] Iraq and Turkey to use water more efficiently and [in ways that] benefit both peoples at the same time."

The key is mutual economic gain: Alwash maintains that transboundary cooperation would be easier if leaders can shift the discussion from the realm of politics to the realm of economics.

For instance, under potential cooperative agreements, Alwash said, upstream dams could supply electricity to the entire region and power regional development. Moreover, improved irrigation

practices along the entire basin could improve land productivity, reduce water usage, and cut salty agricultural runoff — which turns clean river water into unusable brackish water — to almost zero.

An in-depth 2012 study from the Stockholm International Water Institute (SIWI) models the benefits of cooperation along the Tigris-Euphrates River Basin. The findings support Alwash's assessment.

"A cooperative approach to managing the water resources is necessary to secure future benefits from the water resources and to maintain peace, stability, and support socio-economic development in the region," wrote the study's authors.

Of course, the process will be difficult in a region so full of simmering political tensions, but Alwash sees Europe as an example of how warring nations can come together.

"If Europe can create the common market within a decade after World War II, despite the distrust that has existed there for hundreds of years, I'd say there is hope for bridging the distrust, bridging the problems, and coming to an agreement," said Alwash, who will soon publish an article in *Scientific American* outlining his ideas for cooperation between Iraq and Turkey. When asked if his ideas can be applied to other choke points around the world, Alwash responded that he believes so.

"I am sure that, with some tweaking, ideas can cross borders," he said.

"Iraq's First National Park: A Story of Destruction and Restoration in the Mesopotamian Marshlands", 04/09/2013, online at: http://www.circleofblue.org/waternews/2013/world/iraqs-first-national-park-a-story-of-destruction-and-restoration-in-the-mesopotamian-marshlands/

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❖ Water and food shortages at the root of the Syrian crisis, claims study

Resource scarcity affected partly by global warming may be an underlying cause of conflicts such as the Syrian civil war, say researchers from Anglia Ruskin University.

As world leaders debate the appropriate course of action to confront the Syrian crisis, the death toll has exceeded 100,000, while over 2 million have fled the country.

The Global Sustainability Institute at Anglia Ruskin University is investigating the possible triggers of social unrest through its Global Resource Observatory (GRO).
Dr Aled Jones, director of the Global Sustainability Institute, said, "*Under closer examination the events in Syria appear to stem from far more complex set of pressures, beyond religious tension and government brutality, with its roots in the availability of a natural resource – water.*
"This is worrying as decreasing water availability is far from a localised issue, it is a systemic risk across the Middle East and North Africa that is likely to be further exacerbated by climate change."

Syria, like many surrounding nations, has experienced significant water shortages since 2003, caused by population pressures, poor water management and drought.

Between 2006 and 2009, Syria increased its annual imports of wheat by around 1.5 million tonnes. This equated to more than a 10-fold increase in the cost of importing one of the most basic foods.

In response, small groups of individuals protested. The researchers claim that the government reaction to these protests, combined with existing social tensions and instability, quickly escalated into the civil war currently tearing the country apart.

Peter Dawe, of the Dawe Charitable Foundation, which is funding the research, argues that trends in global resource usage need to be better understood to avoid the creation of *'self-reinforcing conflicts'*.
He explained, "*You can conceptualise some of the factors that led to the Syrian crisis as a complex and dynamic feedback loop: the desire of the United States to decrease their reliance on international oil markets by increasing their production of biofuel has been convincingly linked to rising global food prices.*

"This, combined with a decrease in local food availability – driven in part by climate change, which is caused by the use of fossil fuels such as oil – led to the protests in Syria. The resulting civil war has in turn caused an increase in the price of oil on international markets."

"Water and food shortages at the root of the Syrian crisis, claims study", 06/09/2013, online at: http://blueandgreentomorrow.com/2013/09/06/water-and-food-shortages-at-the-root-of-the-syrian-crisis-claims-study/

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❖ 55,000 stranded Syrians on border face food, water shortage'

AMMAN — Thousands of Syrians stranded along the Jordanian-Syrian border are facing a shortage of food and water, activists warned on Thursday, as heavy shelling continued to prevent hundreds from crossing into Jordan.

Some 5,000 civilians fleeing violence in central Damascus flooded towns and villages along the Jordanian-Syrian border on Thursday after bombing by regime forces prevented them from seeking refuge Jordan.

The influx reportedly brings to 55,000 the total number of displaced people currently stranded in the border region waiting to cross into the Kingdom.

Despite the violence, 198 Syrians managed to cross into Jordan over the past 24 hours, while 572 were repatriated upon their request, according to Brig. Gen. Wadah Hmoud, director of the Syrian refugee camps' administration.

"55,000 stranded Syrians on border face food, water shortage'", 05/09/2013, online at: http://jordantimes.com/55000-stranded-syrians-on-border-face-food-water-shortage

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❖ Israeli irrigation firm Netafim wins int'l water prize

Netafim, the Israeli pioneer in drip irrigation technology, was awarded the Stockholm Industry Water Award for 2013 on Tuesday. Founded by the Stockholm International Water Institute in 1991, the institute's water prizes aim to identify companies that have made a significant contribution toward conserving and protecting the world's depleting water resources.

This year's award recognizes Netafim for its "remarkable achievements," such as "helping farmers across the world to 'grow more with less'" and thereby helping create "a more water and food secure world," the award committee said.

Founded in 1965, Netafim operates in more than 110 countries all over the world, through 27 subsidiaries and with 16 production plants and more than 3,000 employees, according to the company.

"Israeli irrigation firm Netafim wins int'l water prize", 03/09/2013, online at: http://www.jpost.com/Breaking-News/Israeli-irrigation-firm-Netafim-wins-intl-water-prize-325186

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❖ Dutch firm's role in Jerusalem sewage plant would help settlements, Palestinians say

Dutch right-wing lawmakers have criticized the government for discouraging Royal HaskoningDHV from aiding Israeli settlements.
The lawmakers claim that the Palestinians and the peace process will be harmed if the Netherlands-based engineering company withdraws from a planned sewage treatment plant in East Jerusalem.

However, Palestinian organizations refute this and have welcomed the Dutch government's intervention.

Palestinian Liberation Organization executive committee member Hanan Ashrawi statedthat the Palestinian Authority has repeatedly expressed its "strong objection" to the project to Royal HaskoningDHV and the Dutch government.
The Palestinian Authority are not partners in the project. Ashrawi describes the Dutch lawmakers' claim that the project serves Palestinian interests as "erroneous and highly misleading."

Palestinian human rights organization Al-Haq also expressed its grave concern about Israel's plans for a wastewater treatment plant in eastern Jerusalem in a statement I received by email yesterday.
The plant will "contribute to maintaining and supporting illegal settlements in the Occupied Palestinian Territory" and help to make "Israel's annexation of East Jerusalem irreversible," writes Al-Haq director Shawan Jabarin.
The Palestinian rights organization reminds Royal HaskoningDHV of the Dutch prosecutor's warning in another recent case that Dutch nationals and corporations "can be held criminally responsible for violations of international humanitarian law under Dutch criminal law." Al-Haq strongly urges all participants to terminate any involvement in the wastewater treatment plant.

No permission for Palestinian sewage treatment plant

The Joint Water Committee (JWC) — consisting of Israelis and Palestinians — oversees and authorizes water projects in the occupied West Bank, excluding the Israeli settlements. Israel, as the occupier, has a right to veto decisions concerning Palestinian water projects in the JWC.
In 2010, the Palestinian Water Authority asked the JWC for permission to build a sewage plant in Ubeidiyeh to treat all wastewater flowing from East Jerusalem and Bethlehem into Wadi al-Nar (Kidron Valley), excluding the settlements. The treated water would be used for the development of Palestinian agriculture.

However, Israel denied JWC approval for this vital Palestinian project. Instead, it plans to upgrade its own sewage plant in the same area, which is located near Nabi Musa (between Jerusalem and Jericho).

Boost for settlements in Jordan Valley

The Civic Coalition on Palestinian Rights in Jerusalem, comprised of 25 community organizations, also welcomed the Dutch government's advice to Royal HaskoningDHV to withdraw from the unlawful project.

The coalition wrote in an email to me that the sewage project primarily serves the interests of the illegal Israeli settlements in the occupied Jordan Valley by "providing them with treated water that will boost their farms and income from the trade of settlement produce." The statement adds:

The Palestinian population in occupied East Jerusalem and the Jordan Valley has never been informed and consulted by Israel about the projected sewage plant. Had the Palestinian population been consulted, people would have definitely opted for a project that serves Palestinian environmental and economic priorities and excludes the illegal settlements.

The PLO's Ashrawi commended the Dutch government for "translating its opposition to Israel's disastrous settlement policy into action, in line with EU policy, and for urging Royal HaskoningDHV to end its involvement in this illegal project."

It remains to be seen if the advice will be taken.

"Dutch firm's role in Jerusalem sewage plant would help settlements, Palestinians say", 04/09/2013, online at: http://electronicintifada.net/blogs/adri-nieuwhof/dutch-firms-role-jerusalem-sewage-plant-would-help-settlements-palestinians-say

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❖ Saudi gives $200 million to protect Palestinian cities from 'Israeli infringements'

Saudi Arabia's King Abdullah has issued directives to allocate $200 million to help Palestinian cities resist infringements on their territories, Municipal and Rural Affairs Minister Prince Mansour bin Miteb announced Sunday.

Prince Mansour made this announcement while opening a conference of the Organization of Islamic Capitals and Cities in Makkah. He commended King Abdullah's support for the organization.

He noted the topic "Enacting laws for the protection of environment to achieve sustainable development" that was selected for an international seminar being held on the sidelines of the conference.

He highlighted Saudi Arabia's support for safeguarding the Arab and Islamic character of Palestinian cities against Judaization. He said the new program, named after King Abdullah, would be implemented by the organization in cooperation with the Islamic Development Bank and UN Habitat.

He said the $200 million would be utilized to build infrastructure facilities and expansion of drinking water purification plants in Palestinian cities.

"Saudi gives $200 million to protect Palestinian cities from 'Israeli infringements'", 02/09/2013, online at: http://www.albawaba.com/news/saudi-arabia-palestine-cities-517618

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❖ Civil engineers Haskoning pull out of Israel water treatment project

Dutch civil engineering group HaskoningDHV has pulled out of a project to develop a waste water treatment plant in Jerusalem after the foreign ministry said it could conflict with international law.

In a statement the company said 'in the course of the project, and after due consultation with various stakeholders, the company came to understand that future involvement in the project could be in violation of international law.'

The waste water project included the construction of a sewage treatment plant in occupied East Jerusalem.

The government's advice was greeted by anger in Israel, because the treatment plant would benefit Silwan, a large Palestinian neighbourhood in Jerusalem, as well as the Jewish settlement, Dutch media reported.

"Civil engineers Haskoning pull out of Israel water treatment Project", 06/09/2013, online at: http://www.dutchnews.nl/news/archives/2013/09/civil_engineers_haskoning_pull.php

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❖ Water Scarcity Could Drive Conflict or Cooperation

UNITED NATIONS, Sep 02 (IPS) - When the General Assembly declared 2013 the International Year of Water Cooperation (IYWC) three years ago, the U.N.'s highest policy-making body was conscious of the perennial conflicts triggered by competition over one of the world's most critical finite resources.

Current and past water conflicts and marine disputes have included confrontations between Israel and Jordan, India and Pakistan, Egypt and Ethiopia, Palestine and Israel, and Bolivia, Peru and Chile.

Picking up the cue from the United Nations, the Stockholm International Water Institute (SIWI) is focusing its weeklong meeting this year on the theme "Water Cooperation - Building Partnerships."

The 23rd annual meeting in the Swedish capital, attended by over 2,500 delegates, is due to conclude Friday.

Striking a more optimistic note, SIWI's Executive Director Torgny Holmgren told IPS historically, water has been a source of cooperation more often than not. Over the past 50 years, he noted, there has been almost 2,000 interactions on transboundary basins of which only seven have involved violence and 70 percent have been cooperative.

"I think the future situation depends very much on our ability to deal with the water demand challenge," said Holmgren, a former ambassador and head of the Department for Development Policy at the Swedish Ministry for Foreign Affairs.

"If we are able to increase water productivity so that we can free up water resources for protecting our environment, thereby ensuring the sustainability of the supply, and allowing for new users and uses, it will be easy to cooperate," he said. "If we aren't able to manage demand, and water management becomes more of a zero-sum exercise, avoiding conflict will be a challenge."

Irina Bokova, director-general of the Paris-based U.N. Educational, Scientific and Cultural Organisation (UNESCO), the lead U.N. agency which will oversee IWYC, points out that there are numerous examples in which transboundary waters have proved to be a source of cooperation rather than conflict.

Nearly 450 agreements on international waters were signed between 1820 and 2007. And over 90 international water agreements were drawn up to help manage shared water basins on the African continent, she said in an interview with IPS last March.

According to the London-based WaterAid, nearly 768 million people in the world live without safe water, roughly one in eight people. Some 2.5 billion others live without access to sanitation, about 39 percent of the world's population.

The U.S. intelligence community has already portrayed a grim scenario for the foreseeable future: ethnic conflicts, regional tensions, political instability and even mass killings.

During the next 10 years, “many countries important to the United States will almost certainly experience water problems – shortages, poor water quality, or floods – that will contribute to the risk of instability and state failure, and increased regional tensions,” stated a National Intelligence Estimate released last year.

In a report released Monday, SIWI says in a world where the population is growing fast and the demand for freshwater is growing along with it, "the fact that we all depend on the same finite water resources is becoming impossible to ignore.

"Cooperation between sectors is fundamental if we are to successfully share and manage our most precious resource," the group says.

The water problem is not something that can be solved only by experts, says the report titled "Cooperation for a Water Wise World: Partnerships for Sustainable Development."

"We need to cooperate with actors outside the water sector, to foster collaboration between the various decision-making institutions, between the private, public and civic sectors as well as between actors who work in research, policy and practice," it says.

"Only through sound and forward-looking partnerships can we achieve a water wise world," Holmgren noted.

Addressing delegates Monday, U.N. Deputy Secretary-General Jan Eliasson said in a world of population growth and pressures on water resources within and among nations, sound and fair water management "is a huge task and a clear imperative for all of us. And we have no time to waste."

The 2015 deadline for the U.N. Millennium Development Goals (MDGs) is rapidly approaching. And there is good news in some areas, he said. Since the adoption of the MDGs in the year 2000, global poverty rates have been reduced by half. Two hundred million slum dwellers live better lives. School enrolment rates have increased dramatically.

"And last year we were able to announce that the world had reached the target for access to improved sources of water," Eliasson said.

But water quality to a large degree still fails to meet basic World Health Organization (WHO) standards, he cautioned.

One of the main factors that negatively affects water quality is the lack of sanitation. The sanitation target is among the most lagging of the MDG Goals, with more than 2.5 billion people around the world without adequate sanitation - more than one-third of humanity, said Eliasson.

Asked if water and sanitation should stand alone as one of the proposed Sustainable Development Goals (SDGs) currently under discussion as part of the U.N.'s post-2015 development agenda, Holmgren told IPS, "I think we need a dedicated water SDG that stresses both the productive and protective roles of water resources management and the sustainable of water and sanitation."

In addition, he said, the intimate connections between water, food, energy, security, biodiversity, and other issues must be spelled out, either in the water goal or in other goals.

“Water Scarcity Could Drive Conflict or Cooperation”, 02/09/2013, online at:
http://www.iede.co.uk/news/2013_2892/water-scarcity-could-drive-conflict-or-cooperation

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❖ Every drop counts: U.N. launches inventory of shared water resources in Middle East

STOCKHOLM (Thomson Reuters Foundation) – The United Nations Economic and Social Commission for Western Asia (ESCWA) and the **German Federal Institute for Geosciences and Natural Resources** (BGR) have catalogued trans-boundary surface and groundwater resources in the parched Middle East.

Launched during the **World Water Week** in Stockholm on Tuesday, the **Inventory of Shared Water Resources in Western Asia** provides accurate and up-to-date information crucial to inform stakeholders and foster dialogue in one of the driest parts of the world.

"This unique publication in its groundbreaking information and distinctive preparation process that actively involved ESCWA member countries will provide new insights for future research on shared water resources in the region and will serve as a basis for continuing regional cooperation on water as well as other natural resources that are strategic for this region and often of shared nature," said Roula Majdalani, director of the Sustainable Development and Productivity Division of **UN-ESCWA**, in a statement.

"This is not the end – this is really the beginning of the dialogue," she said during the launch.

In the Middle East, where an estimated 66 percent of the freshwater originates outside the region, interest in the region's shared waters resources has grown in the recent years. However, research and data collection focused largely on surface water bodies and disputes related to the Euphrates, Tigris, Nile and Jordan river basins.

The importance of the independent inventory, which covers 26 shared surface and groundwater bodies in Western Asia, was clear to Middle Eastern policy makers.

"The major issue on our country (is) the Jordan river. There is no common figure among us and the Israelis and maybe also between the Jordanians, the Lebanese and the Syrians, about how much water is there," said Dr. Shaddad Attili of the **Palestinian Water Authority.** "At the negotiations, before we start fighting and debating, we have to have (...) data," he said.

Nearly all Arab countries suffer from water scarcity, meaning that water supplies in those countries are less than 1,000 cubic metres per person per year and at least 12 countries suffer absolute scarcity with under 500 cubic metres per person.

Conflicts in the region further stress water resources in countries that receive displaced populations.

One of the key findings of the inventory is the largely neglected fact that water quality in the region is rapidly deteriorating and is eclipsed by concerns over quantity.

The inventory also points out that there are more shared water resources in Western Asia than was generally assumed and the lack of accurate data hampers joint water management.

Another finding stresses that it is already too late to save some shared waters and countries need to cooperate more closely in order to sustain the shared resources that remain.

"Every drop counts: U.N. launches inventory of shared water resources in Middle East", 03/09/2013, online at: http://www.trust.org/item/20130903181649-98zno/

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❖ Kenya asks Egypt to rejoin talks on Nile River waters

Kenya has asked Egypt to resume negotiations on the use of the Nile River waters.

Egypt stopped full participation after Kenya and most other Nile basin countries signed a new agreement ending its historic control of the river. It is also protesting Ethiopia's plan to build a dam on the Nile River.

Kenya's Environment, Water and Natural Resources Cabinet Secretary Judi Wakhungu called for the cooperation of all countries.

"The basin states must be sure of the water resources availability, accessibility and ability to manage any conflict that might arise," she said.

Wakhungu was giving a speech on "Turning threats into opportunities" at the World Water Week in Stockholm.

"Kenya asks Egypt to rejoin talks on Nile River waters", 05/09/2013, online at: http://www.the-star.co.ke/news/article-134778/kenya-asks-egypt-rejoin-talks-nile-river-waters

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❖ Floods displace several families in Bor

September 4, 2013 (BOR) – Several families have been displaced in Bor after the river Nile burst its banks on Tuesday, causing extensive flooding in the town.

"It's a disaster because the water is now moving very fast", said Chol Wall, head of the state assembly.

In an interview with *Sudan Tribune*on Wednesday, Chol Wall said the government was mobilising resources with the assistance of the United Nations Mission in South Sudan (UNMISS) to assist the displaced families and clear roads blocked by water.

The UN deployed excavators to help clear blocked roads leading into or out of Bor town.

"You can see the excavators. They are trying to stop the water", said Chol Wall, while showing *Sudan Tribune* excavators at work on the roads.

Many households affected by the flooding camped along the flooded road at Hai-Machuor. At the time of filing this report, the families at Panapet, Hai-Machuor and Thon-bour said they had nowhere to go.

A canal dug for rice irrigation in the 1980's that draws water directly from the River Nile is thought to have contributed to the flooding. The water in the canal broke its banks and flowed uncontrollably.

"Floods displace several families in Bor", 04/09/2013, online at: http://www.sudantribune.com/spip.php?article47926

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❖ We're Destroying the Holiest River on Earth

The world's great rivers are defined by their most outstanding features: the Nile for its length and the landmarks of Egyptian civilization, the Amazon for the diverse rainforest it feeds and the Colorado for the Grand Canyon. But the Ganges River in India is instead defined by the religious devotion of nearly a billion people to its waters. The Ganges, after all, is a goddess, and her waters are worshipped on a scale that is unmatched.

Every day, thousands of Hindus travel to the banks of the Ganges to take ritualistic baths, and several times each year, Hindus gather in the millions along her banks during bathing festivals to pray and worship. The waters of the Ganges are believed to heal sickness, purify the soul and provide a pathway to a peaceful afterlife.

My brother, Tyler, and I were fortunate to have traveled down the Ganges earlier this year to attend the most massive bathing festival of them all, the Maha Kumbh Mela, which takes place every 12 years and always sets the record for the largest gathering of humans for a single event.

Over two months, more than 120 million came to the banks of the Ganges near the city of Allahabad. On the main bathing date of February 10, over 30 million people took a holy dip in hopes of attaining *Moksha*, eternal liberation from the cycle of death and rebirth. It was overwhelming to witness the power of one river to capture the soul of an entire nation and religion. Many pilgrims we spoke with had traveled from every corner of the globe, some spending much of their savings for the chance to step foot in the waters of the Ganges.
If the thought of 30 million people taking a bath together was not impressive enough, the Ganges is also unmatched in the sheer number of people it supports with food and water. About 500 million people live in the Ganges river basin and its waters are crucial for irrigating India's fertile northern plains that help feed India's 1.2 billion people.

But the impact of supporting such a massive population has devastated the river. The Ganges has another feature it is now famous for - the worst pollution of any large river on Earth.

Billions of litres of raw sewage pour into the waters of the Ganges every day and in some stretches the waters are devoid of fish and wildlife. So much water is now taken from the Ganges to support irrigation and hydropower needs upstream that the southern half of the river is just a trickle of what it once was, further concentrating the pollution.

It is difficult to comprehend how a river that is worshipped as a goddess could be allowed to deteriorate to such a degree. It is a paradox that we found even the people of India had trouble explaining. A river that is supposed to purify the soul is also a toxic killer. Considered a goddess, but treated as a dumping ground by the same people who worship her. A river that gives so much to humanity, but receives only waste in return.

Political, scientific and religious leaders in India have tried for decades to initiate river cleanup efforts, with little progress. One of the biggest obstacles is that many Hindus truly believe that because the river is a goddess, it cannot be polluted - so no need to treat waste.

The biggest learning lesson from our trip down the Ganges is that even the holiest and most worshipped river on Earth is still vulnerable to the same threats that currently face every other major river system in the world today. The Colorado no longer reaches the ocean due to over-pumping and the Nile has also been crippled by severe pollution. The Amazon has lost much of its rainforest and every other major river system on Earth is threatened by some form of human intervention.

The Ganges represents a paradox, but we must ask ourselves: How is it that we humans, who accept that water is the giver of life, can accept the unprecedented rate of destruction of our rivers all around the world?

"We're Destroying the Holiest River on Earth", 05/09/2013, online at:http://www.huffingtonpost.ca/alex-mifflin/ganges-river-pollution_b_3873344.html

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❖ Power generation: Three dams to resolve energy-crisis

ISLAMABAD: The Ministry of Water and Power is planning to construct three dams to meet energy requirements of the country. Among these dams, Mohmand (Munda) Dam will be constructed on the Swat river in approximately seven years after construction begins.

ISLAMABAD: The Ministry of Water and Power is planning to construct three dams to meet energy requirements of the country. Among these dams, Mohmand (Munda) Dam will be constructed on the Swat river in approximately seven years after construction begins.

The Bara Dam will be constructed on the Bara river in four years after construction begins. The Tank-Zam Dam will be constructed on the Tank-Zam river. The dam's feasibility report was completed and will be completed in four years after construction begins.

"Power generation: Three dams to resolve energy-crisis", 05/09/2013, online at:
http://paktribune.com/business/news/Power-generation-Three-dams-to-resolve-energy-crisis-11552.html

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❖ Himalayan water supply gets an improved Outlook

Glaciers are very sensitive to changes in climate, making them clear (even visually striking) indicators of the recent warming trend. Apart from raising sea levels and threatening to turn the name of Glacier National Park in the US into a sad irony, the loss of glacial ice can also endanger water availability.

The seasonal melting of mountain glaciers (and snowpack) provides an important source of water in most places where they can be found. The Indus, Brahmaputra, and Ganges Rivers in India, and the Yellow and Yangtze Rivers in China, are particularly noteworthy examples of rivers with headwaters that are fed by glacial melt high in the Himalayas.

Those rivers supply water to a staggeringly large number of people, so the impact of climate change on Himalayan glaciers has understandably been the focus of study. As a glacier shrinks, the amount of meltwater it produces increases for a while before the diminishing volume of ice wins out, causing melt to dwindle.

A 2010 study, for example, showed reason for concern, indicating meltwater reductions within just a few decades—although increasing precipitation minimized the impact on the Ganges, Yellow, and Yangtze Rivers. Two of the researchers behind that study have attacked the question again with updated tools. This time they got a different answer, which could be good news for the many people who rely on those rivers.

The new study relies on the latest generation of climate models and a much more sophisticated model of the glaciers themselves. In order to model the glaciers with more confidence, they had to zoom in and focus on small areas with just a few glaciers. They picked two locations with different characteristics, one in the Indus River watershed, and one in the Ganges River watershed.

A number of climate models from the Coupled Model Intercomparison Project (the ones utilized by IPCC reports) were used to simulate the rest of this century for a range of emissions scenarios. The simulated temperature and precipitation trends were then used to drive a model of the glaciers themselves, along with the rest of the local hydrological cycle—including precipitation runoff into streams or infiltration into groundwater. The primary focus was the amount of surface water flowing out of the model, which would eventually make its way into the Indus or Ganges Rivers. Would it dwindle in the near future?

Contrary to their earlier results, the researchers found no decrease in total water supplied to either of the rivers before the end of the 21st century. The glaciers retreated plenty (up to 60 percent of ice volume was lost by 2100), but the amount of glacial meltwater didn't peak until roughly 2060 or so, after which it began a slow decline. Increasing precipitation, however, made up for some of that drop, preventing the total contribution to the rivers from decreasing.

The greater sophistication of their glacial model is partly responsible for the change in results, as it suggested the glaciers would not be melting as quickly, postponing the peak in meltwater. The other factor was the latest generation of climate models, which are projecting greater increases in precipitation for this region. Not only does that additional precipitation result in more water flowing downstream, it also slows glacial retreat in the same way that a pay raise bolsters an otherwise-troubled bank account. (In other words, it dumped more snow on the retreating glaciers.) The precipitation change also carries the biggest uncertainty, however, as the latest climate models are giving a wide range of projections in this region. Still, it appears that worrisome reductions in water availability are less likely to come to pass, at least for many years.

While the study only attempts to characterize the Indus and Ganges Rivers, there's a good chance that its conclusions could extend to the Yellow and Yangtze Rivers as well. Although glacial melt provides a smaller portion of the rivers' flow, precipitation is projected to increase over those glaciers, as well. Walter Immerzeel, a researcher at Utrecht University in the Netherlands involved in this study, told Ars that "a conclusive answer would require a similar modeling approach as [our study], as the runoff change also depends on intra-annual changes in precipitation and temperature and on changes in evapotranspiration."

Increasing precipitation (especially monsoon rains) could present problems in other ways, but it looks like it will help avert water availability problems in a region where demand is increasing.

"Himalayan water supply gets an improved Outlook", 07/09/2013, online at:
http://arstechnica.com/science/2013/08/himalayan-water-supply-gets-an-improved-outlook/

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❖ Mangla Dam will last for over 200 years

MIRPUR: Pakistan's largest and recently-raised water reservoir — Mangla Dam — will have an age of over 200 years with a maximum water storage capacity of over 7.4 million acre feet (MAF) and it is going to touch its highest level of 1,242 feet by the end of next week.

This was disclosed by a spokesman of the Mangla Dam Organisation (MDO) in his briefing to a high-level meeting held at the Wapda Rest House in Mangla near here on Sunday with the Divisional Commissioner-cum-Commissioner Mangla Dam Affairs Raja Amjad Pervez Ali Khan in the chair.

The meeting was attended by senior Wapda officers as well as Mirpur division and

district administration officials.The spokesman said that after the recent completion of the Rs102 billion raising project, Mangla Dam has attained the distinction of being the largest water reservoir in Pakistan, as water storage in its lake has increased to the maximum level of 7.4 MAF, surpassing the 6.58 MAF benchmark which is the maximum live storage capacity of Tarbela Dam that used to be the biggest water reservoir till August 24, 2013.

He pointed out that as water level in Mangla Dam raised to the level of over 1,237 feet on Sunday against the dead level of 1,040 feet following about 1.33 feet per-day ongoing inflow of Jhelum River water in the dam, it will reach to the highest level of 1,242 feet by the end of next one week.

After the raised Mangla Dam filled to its maximum conservation level i.e. 1,242 feet, 2.88 MAF of additional water will be available for the agriculture and about 12 percent increase in generation of low-cost hydel electricity from the Mangla power house bearing the current power generation capacity of 1,000 megawatt. Thus it would be in a position to generate about 1,125 MW of the hydel power following raising of the dam.

Highlighting the salient features of whole process of the raising of the dam, the spokesman said world-reputed construction companies performed their respective role in completion of Mangla Dam Raising Project.

He also elaborated the construction of emergency spill way, small dams at the main reservoir's pockets of Sukhiyaan and Jarri Kass, as well as dykes and link roads to facilitate the local population of the areas which remained safe following being located at the above maximum level of water in the reservoir.

Addressing the meeting, Raja Amjad Pervez said that peaceful evacuation of the affectees of Mangla Dam was continuing simultaneously with the ongoing raising of the water level in the reservoir to the alternative abode.

The commissioner directed the MDO officials and other related functionaries to ensure the completion of the construction and repair of the under-construction and damaged projects including the main bye-pass/ ring road, parks and dykes linking existing Mirpur city with the areas surrounded by the reservoir.

Water expert Altaf Hamid Rao observes that the raising of water level in the dam with the additional water in the raised Mangla Dam this year reflected Pakistan Government's resolve to conservation and optimal utilisation of the precious yet scarce water resource for agro-based economy of the country.

"Mangla Dam will last for over 200 years", 03/09/2013, online at: http://www.thenews.com.pk/Todays-News-13-25208-Mangla-Dam-will-last-for-over-200-years

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❖ World Water Week emphasizes 'cooperation'

The 23rd year of Stockholm World Water Week took place in the Swedish capital Sept. 1-6. As agreed at the High-Level International Conference held in Tajikistan two weeks ago, the event revolves around the theme of "water cooperation."

The General Assembly adopted Resolution A/67/204, "Implementation of the International Year of Water Cooperation, 2013," on Dec. 21, 2012. Accordingly, all water-related events throughout 2013 will take place on the theme of "water cooperation."

Despite the fact that the amount of water in the global water cycle does not change, as an increasing water demand for food production and energy generation, a growing population, environmental disruption and changes in the timing and location of water increase the current pressure on water resources, alarm bells have already started to ring about the amount of water per capita in arid and semi-arid regions of the world for future years. Compared to the last century, water consumption has doubled compared with the rate of population growth. It is estimated that by 2025, 1.8 billion people will be living in countries or regions with absolute water scarcity, and two-thirds of the world's population could be living under water-stressed conditions.

The world population is now some 7 billion. While the world's population is expected to reach 9 billion by 2050, the demand for food is expected to increase by 60 percent, and the amount of water used for food production is expected to increase by 19 percent. As is known, at a global level, the withdrawal ratios are as follows: 70 percent for agricultural, 20 percent for domestic and 10 percent for industrial use. A person consumes three to four liters of water for drinking purposes a day but consumes 2,000-5,000 liters of water for the production of food consumed. One in nine people lacks access to an improved water resource, and one in three people lacks access to sanitation in the world. Each year some 3.5 million people die from water, sanitation and hygiene-related causes.

While water cooperation, which is the theme for 2013, determined the agenda of World Water Week, the event also sought answers to questions such as: Why cooperate? Who are the actors in this cooperation? At what level should cooperation be done?

The primary issue to be addressed through water cooperation is that of transboundary water basins. As cooperation in using basin waters is a win-win solution for each party, it also provides sustainable use of water resources in terms of quality and quantity. There are 276 transboundary water basins and 200 transboundary aquifers identified in the world. While 148 countries possess territory within one or more transboundary river basins, almost half of the world's population lives in those basins.

Furthermore, these basins have an impact on people's lives and are an important factor that directly affects interstate relations. Although it has not been a cause of war in itself, it has led to conflicts among states from time to time. It should also be noted that the first and only recorded water war took place between the states of Lagash and Umma in 2500 B.C. Transboundary water basins have caused both conflict and cooperation among states. Almost 450 agreements on international waters were signed between 1820 and 2007.

While emphasizing that the primary actors are states, NGOs, consumers, companies and state institutions also have quite important roles. The actors mentioned above were also represented at World Water Week in Stockholm.

Cooperation at every level paves the way for greater improvement and management of water resources, which are an important means of social and economic development at the intersection of many sectors. As World Water Week, where water is considered to be common property, encourages cooperation among all water's stakeholders (including central and local governments, civil society organizations, the private sector and academia), it also emphasizes the requirement for global cooperation despite water's nature as a local resource.

"World Water Week emphasizes 'cooperation'", 08/09/2013, online at: http://www.todayszaman.com/news-325706-world-water-week-emphasizes-cooperation.html

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❖ World Water Week: Dispatch From Stockholm

President Obama isn't the only one visiting Stockholm this week; about 2500 delegates from around the world have gathered at the 23rd Annual World Water Week meeting sponsored by the Stockholm International Water Institute. Stockholm has become a global focal point for the discussion of all-things-water. This year's theme is collaboration and partnership. From Stockholm, here's a primer on this year's conference and some of my takeaways as the meeting nears its mid-point.

First, the setting. World Water Week is being held in a conference center about ten minutes south of the city center by commuter train. The conference organizers have done a good job in "walking the talk" when it comes to conference logistics: Registration includes an ID badge that doubles as a public transportation pass; the *de rigueur* conference bag is made of recycled plastic bottles, and water filling stations have replaced the bottles of water often seen at meetings. Lots of international agencies are in attendance, most with their own kiosks in a massive hall surrounded by meeting rooms. It's a polished undertaking, from the music and dance kick-off to the soothing water sounds piped into the long (really long) halls that attendees traverse between sessions.

There are many topics being discussed this week, but three themes for me have emerged so far.

1. The water world is grappling with its role post-2015, the date set for achievement of the UN's Millennium Development Goals. MDG Goal 7.C called for halving the proportion of the population without sustainable access to safe drinking water and basic sanitation, a goal that the UN says has been met. As part of the Rio +20 meeting in 2012, the UN announced a process to build on the MDG's with a new set of Sustainable Development Goals, and consultation has been underway to develop their content. Much of the discussion so far this week has been about how to frame a SDG goal or goals to address key water challenges, including the 2.5 billion people globally that still don't have access to improved sanitation facilities. Supply, climate change, quality, policy innovations like integrated water management, energy. The list of water challenges and opportunities is long. There are a lot of views on what a water-focused SDG should include -- and how to best ensure the UN adopts one.

2. Public-private partnership is another theme so far. Representatives from a range of Fortune 500 companies are walking the halls and discussing their efforts to partner with governments and civil society representatives to address water issues -- often, as they acknowledge, to hedge the increasing water risks that impact supply chains. (I just left a session where a representative from H&M

discussed a partnership with WWF). Most of the examples highlighted here are taking place outside the United States. This may be happenstance or reflect different domestic and international dynamics.

3. Green Infrastructure, sometimes more broadly called green design, is getting deserved play here as a way of thinking and of designing holistic solutions to water challenges. Using nature, instead of fighting it, to improve water supply and quality is a hallmark of green infrastructure approaches, which have in common making urban environments function from a water perspective more like the natural environment. From the keynote address by this year's Stockholm Water Prize Laureate, Dr. Peter Morgan, emphasizing looking to nature for solutions to sanitation issues, to many of the sessions, green infrastructure approaches have emerged as a frequently mentioned, core strategic approach.

One final observation for now: Many conferences go light on the substance, with half or three-quarters of each day devoted to meetings and lots of down time. World Water Week is the antidote to that approach. It's possible here to be in session from 9:00 a.m. to 6:45 p.m. straight, every day, thanks to lunch and dinner events bracketing three hour morning and afternoon sessions. At World Water Week, it truly is all water, all the time.

"World Water Week: Dispatch From Stockholm", 03/09/2013, online at: http://www.huffingtonpost.com/david-s-beckman/world-water-week-dispatch_b_3859556.html

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❖ World Water Week: Competitors Must Collaborate on Water Risk Management

World Water Week is well underway, and as thousands of experts, decision-makers and professionals descend on Stockholm to collaborate on pressing global water issues, the private sector plays a larger role in the conversation than ever. More than 24 sessions dedicated to business show that the week's theme of collaboration and partnerships can apply to profit-driven enterprises.

As Coca-Cola, Unilever, SABMiller, H&M and Borealis, among others, gathered on Monday afternoon to discuss Taking Collaboration to the Next Level with a packed audience, one message stood out: the business case has been made, it's time to work with competitors to drive real change that has real positive impacts on the bottom line.

Competitors, unlikely partners

In water, shared risk is shared responsibility. But doesn't competition stifle collaboration on that responsibility? Coca-Cola, SABMiller, H&M and Borealis all say just the opposite. David Grant, Senior Manager of Water Risk & Partnerships at SABMiller, highlighted three points for turning competitors into collaborators:

In reality, global competitors nearly always share watersheds, riparian areas, floodplains and other water resources. For example, if a company has a high flood risk at a plant in Indonesia or a severe drought risk in Arizona, their direct competitor has that same risk for their Indonesia and Arizona operations.

When a company recognizes a particular water risk, it will need to develop a project to manage that risk. An improvement in water management in that watershed will benefit your competitor regardless of whether they are involved or not, so why not engage them? A competitor can help shoulder the burden of a risk mitigation project and consequently the scope of impact may be significantly increased.

Government engagement is a necessity in water management, from working on municipal regulations to allocating scarce resources, and collaborations can facilitate and streamline engagement. In SABMiller's experience, Grant said, "Governments are loathe to work with individual companies, and are much more apt to talk with collaborators" on water issues in particular. For example, when monsoons hit a SABMiller facility in India, water supply was cut by 70 percent. Because the company was able to demonstrate collaboration with other operations in the area, the government was more flexible and open to reaching a solution together.

Water running uphill: The supply chain

World Water Week Private Sector Panel

The panelists at World Water Week all agreed that the business case for water stewardship and management has been made and accepted within their own company walls. But who do businesses still need to convince that water stewardship is vital to business success? Moderator Stewart Orr, Head of Water Stewardship for WWF, pushed Greg Koch, Global Water Stewardship Director for Coca-Cola, on his supply chain (see this previous 3p post on Coca-Cola's partnerships).

While Coca-Cola may fully understand water risk, what about its suppliers? Koch explained that while his plants and the surrounding communities understand water stewardship, Coca-Cola struggles with water in its massive supply chain. Coca-Cola's supply chain, Koch explained, is the largest consumer of food in the world, including serving as the largest purchaser of sugar cane, the second largest purchaser of tea and third largest purchaser of coffee in the world. Significant dialogue is required to show those suppliers the water risk implicit in their operations, and partnering with other purchasers, including Pepsico, is often the only way to drive change.

Reaching scale

Long-term water sustainability is dependent on reaching scale. Coca-Cola is the fourth-largest employer in the world. If they achieve water sustainability within their company, they will have achieved considerable scale. Coca-Cola has partnered with WWF to work toward this commendable goal.

Koch then raised a vitally important question: while Coca-Cola is the largest purchaser of sugar cane in the world, they only purchase 2 percent of the world wide supply. What about the other 98 percent?

As Koch said, "We are not going to be transformative unless we lose our egos and have multiple entities working together."

"World Water Week: Competitors Must Collaborate on Water Risk Management", 04/09/2013, online at: http://www.triplepundit.com/2013/09/coca-cola-pepsicos-water-risk-management/

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❖ Governments call for urgent action on water

With some two billion people around the world still lacking safe drinking water, world leaders gathered in Stockholm for the 23rd World Water Week on Monday called for global co-operation in tackling the coming demand for water.

Although the target of halving the number of people without access to clean water sources under the Millennium Development Goals (MDGs) was achieved in 2010, problems still lie ahead as the world's population continues to rise rapidly.

By 2050, there will be nine billion people on Earth. However, the amount of water in the world will not increase, according to experts.

Addressing the opening session of the World Water Week, the Executive Director of the Stockholm International Water Institute (SIWI), Torgny Holmgren, warned: â€œMortgaging our future by draining water from the ground, surface and sky faster than it can be replaced by nature is untenable and unwise. It will undermine the stability and security of our entire civilisation.â€☐

He called for strengthened international co-operation over water, adding that collaboration over the world's most essential resource was more urgent than ever.

"For the sake of the generations to come, we need to change the way the world uses water. We cannot delay," Mr. Holmgren said.

Most importantly, he said, there was a need to make sure that every person on Earth got access to safe drinking water and sanitation.

Diseases caused by unsafe water, poor sanitation and hygiene kill more than 5,000 people every day. Despite these staggering numbers, the area of sanitation rarely receives the attention it so desperately needs, the conference heard.

Jan Eliasson, Deputy Secretary General of the UN, urged governments, development partners and the private sector to work together to help change the situation.

"Lack of sanitation has a direct impact on health, nutrition, education, women's and girl's rights and poverty reduction. We cannot accept that 2.5 billion people worldwide lack access to a clean and safe toilet and that over one billion defecate in the open," Mr. Eliasson said.

"I call on all concerned to do their part. No one can do everything, but everyone can do something."

The Paris-based Organisation for Economic Co-operation and Development (OECD), in its contribution to the debate, warned that water shortages and floods highlighted the risks posed by too little, or too much, water.

It said that by 2050 more than 40 per cent of the world's population would be living under severe water stress and nearly 20 per cent could be exposed to floods.

The economic value of assets at risk from floods was expected to be about $45 trillion by 2050, the OECD said, adding that water pollution was also increasing, compounding uncertainty over the availability of water in the future.

"These water risks are exacerbated by climate change. Governments must manage them, so they do not jeopardise growing populations and cities, economic growth and food or energy security,â€☐ the report said.

"Instead of just reacting to water crises, governments must assess, target and manage water risks proactively", urged OECD Secretary General Angel GurrÃa.

"We have been forewarned â€“ there is no doubt these risks are increasing. We must now arm ourselves with risk management strategies that will prevent water shortages and pollution and protect against the droughts and floods that are endangering human lives, ecosystems and economies."

The report, Water Security for Better Lives, set out a pioneering risk-based approach to water security and proposed practical steps to implement it.

The report noted that water security was ultimately about establishing an acceptable level of water risk by weighing the costs of improving water security against the expected benefits, and ensuring that responses were proportional to the magnitude of the risk.

It added that flexibility was important, allowing acceptable levels of risk to be adjusted to changing situations. For instance, New York City is reassessing its flood protection level following Hurricane Sandy and investing billions to avoid future disasters.

Using this risk-based approach, another new OECD report, "Water and Climate Change Adaptation: Policies to Navigate Uncharted Waters", reviewed countries' initiatives to adapt water management to climate change.

It revealed that nearly all countries projected increasing water risks due to climate change, with extreme events (floods and/or droughts) cited as a primary concern by 32 countries and 23 saying water shortage was a key issue.

About half the countries surveyed noted that climate change impacts on water supply and sanitation are a key concern, with a similar number highlighting concerns about the impacts on water quality.

Though countries were building the evidence base to inform decisions about water risks, faced with the impacts of climate change, they should do more to better target and manage them, the report suggested.

During World Water Week, which ends on September 6, there will be over 100 seminars, workshops and events. More than 2,500 participants are meeting under the theme, Water Cooperation - Building Partnerships. They will be encouraged to come up with innovative ways to move toward a water wise future where water is managed equitably and sustainably, according to organisers.

As the UN General Assembly gears up to discuss the Post-2015 agenda for the MDGs this month, the SIWI will come up with the Stockholm Statement, aimed at raising the status of water issues on the political agenda.

During the week, the prestigious Stockholm Water Prize will be awarded to Dr. Peter Morgan of Zimbabwe for his life-long work to protect the healt

"Governments call for urgent action on water", 03/09/2013, online at:
http://www.businessghana.com/portal/news/index.php?op=getNews&id=189715

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❖ Five Myths about the Business of Sanitation

A recent study by the Water and Sanitation Program (WSP) and International Finance Corporation (IFC) of the World Bank surveyed over 100 firms providing on-site sanitation services to the base of the pyramid in four countries (Bangladesh, Indonesia, Peru and Tanzania) and debunked widely held beliefs on the motivations and potential of firms in the growing sanitation market.

1. ***Firms serving the base of the pyramid are predominantly micro firms because the market is small. Myth.*** The market is huge. Between 2000 and 2010, the study countries' market is estimated at US$300 million a year, about five times the annual trading volume in the Dar es Salaam Stock Exchange. Considering people in the four countries that do not yet have access to improved sanitation, the potential market is even larger – estimated at US$2.6 billion. Of this potential, the poor represent a market worth US$700 million. The paradox is that sanitation is a large market dominated by small players. Why? It seems that there are presently no well-resourced players for whom on-site sanitation is a large enough business to warrant intensive efforts to develop and market solutions and coordinate activities across the supply chain. Eighty percent of firms catering to the poor are micro and small firms, constrained by capital, technology and in geographical reach. For larger players, the opportunity is not known and untested, implying significant investment outlays for research, development and commercialization to move into this business.

2. Sanitation is a low margin business. Myth. Actually, sanitation firms' margins per sale can climb relatively high up to 40% with space to increase by value-adding through labor. The range of firms' margin is between 15% and 40%, quite similar to margins in construction supply retail. Micro sanitation firms have already taken advantage of the dramatic increases in contributing margins by moving from manufacture and sale of sanitation components to manufacture of components and installation (adding labor). However, the earnings of an average firm tend to be modest. The challenge is in their low volume of sales. On average, most of the 100 firms surveyed sold between 10 to 15 units each month. As most of the firms surveyed are micro-firms that have limited labor and capital, plus the near absence of marketing activities, they are unable to realize the financial advantage of such margins.

3. Lack of interest in sanitation is driven by the lack of money. Myth. Sanitation is a low expenditure priority for households, but the lack of interest is not necessarily driven by lack of money. Sanitation remains a low priority even where money is not an issue. In the four countries studied, out of the 227 million people without access to improved sanitation, over 65% are non-poor and living above the poverty line. In Tanzania, 400,000 rural households wealthy enough to have cement floors in their homes do not have improved sanitation. Among the poor, the study found that they spend as much on mobile phones each year as it would cost to install a basic sanitation system.

The poor are faced with limited interesting sanitation options and significant coordination challenges, requiring a huge amount of motivation and capabilities on their part to overcome. For poor households, there seems to be just too many reasons not to improve sanitation and not enough compelling options to do so.

4. Poor households are looking for 'improved' sanitation. Myth. Poor households do not reference their desires against what governments or international standards define as "improved sanitation." To get households to invest in sanitation, they need an offer they cannot refuse: a quality, high value facility that is within their reach. In Peru, households at all income level that have a regular supply of water (80% of all households) aspired to a bathroom with a sink and a shower and regarded latrines as a symbol of poverty and social exclusion. The study found that in general, poor households aspired to a much higher level solution and knowingly quoted prices of what they might pay to get their 'ideal' that comprised a large portion of their average income. Some households, sensing the futility of this desire, 'made do' with a less desired option. An exceptional phenomenon of 'making do' is the popularity of *fake bathrooms* in Peru – a toilet with the shower and sink features even if the household was not connected to the water network! The poor are looking for a compelling offer and a better buying experience – one where quality products are affordable (or supported by financing) sold through a credible agent that presents options and complete solutions (such as all in -- labor and materials installed at the doorstep).

5. Policies promoting sanitation are critical for the private sector. Myth. Sanitation policies do not all have the same relevance to the private sector. The study found that with respect to engaging the private sector in the on-site sanitation market, the impact of current sector policies was limited. On the other hand, current policies do not seem to have hindered private action – the majority of poor people still look to the private sector to assist with self-supply. Interviews with enterprises directly providing services portrayed a situation where policies and government agencies were largely seen to be of no consequence. In Bangladesh, nearly all surveyed enterprises said they did not know, when asked for an opinion about the clarity of rules and standards for sanitation, while 55% of firms in Peru disagreed or strongly disagreed that rules were clear as did 50% of firms from Tanzania. Asked whether sanitation promotion programs were well publicized so that firms can look out for business opportunities, a similar pattern of responses emerged. The responses seem to reflect that public policies could be more relevant if they aimed at lowering specific barriers or addressing risks that the private sector perceived. So far, general statements of support and sanitation programs geared towards implementation through public institutions do not matter to the private sector.

And the one truth we confirmed…

Scaled delivery of sanitation service is constrained by the fragmentation of the supply chain. **Truth and perhaps, more than we knew before.** Currently, final delivery of sanitation either rests on households themselves or on micro- and small firms reliant on customization at the local level. Present solutions are not amenable to mass production and distribution. Why? Part of the answer is that the present supply chain is not geared towards generating value for sanitation - it is mainly a construction supply chain where inputs pass through agents for whom sanitation is a small part of their business – no one is innovating and vertically integrating inputs. Linked to the fragmented nature of the supply chain is that the cost of inputs carry high embedded costs of transport, which does not only add to the final price of sanitation construction, but has implications on the timeliness at which installations happen – often having the effect of sanitation being literally, out-of-reach. Transport and delivery is estimated to add between 10 to 20% of the inputs prices from wholesale or national seller to the local firm dealing with households. Transporting heavy and bulky items like cement slabs and rings is costly and difficult for households – sometimes resulting in breakage while in transit, which for them is a huge investment down the toilet. The reality is that under the current supply structures, households require a lot of coordination increasing the hardships in installing a toilet.

"Five Myths about the Business of Sanitation", 03/09/2013, online at: http://blogs.worldbank.org/water/five-myths-about-business-sanitation?cid=EXT_WBBlogSocialShare_D_EXT

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❖ 5 Reasons Why Just Building Toilets Won't Improve Urban Sanitation

It's widely reported that most of the world's population lives in urban areas. UN-Habitat estimates that 40% of urban dwellers live in slums, and that number is growing by more than 20 million people per year. Perhaps, less commonly reported is that while population is growing rapidly, urban sanitation coverage has only increased slightly.

While toilet access is generally higher in urban areas as compared to rural, sanitary conditions in urban areas are aggravated by high-density living, inadequate septage and solid waste management, and poor drainage. Recent analysis by WSP concludes that to make any significant impact it is essential to adopt a multi-dimensional approach to this complex problem. Here are five reasons why urban sanitation is about more than building a toilet.

Urban sanitation is about a chain of services: Densely-occupied urban areas do not have space to bury excreta, which contains harmful pathogens, or relocate toilets when they are full. Given this, it's critical that fecal sludge is reliably and hygienically removed, taken elsewhere, treated, and preferably re-used. Failure at any step in this chain of services, from emptying, to transport, to treatment, has serious public health consequences, degrades the urban environment, and is inconvenient for residents. This is equally true for sewerage systems, where failures in both sewage transport and treatment services are common, despite huge sums spent on infrastructure.

Urban sanitation must be poor-inclusive and implemented within a citywide framework: Poor excreta management in one household or community results in contamination that affects many other citizens in the densely populated urban space, so partial solutions will deliver only minimal public health, economic, social, and environmental benefits. To be cost effective, urban sanitation services must be planned to serve all those who need them – rich and poor alike.

Urban sanitation cannot be tackled in isolation: Poor land-use control and drainage lead to flooding, especially in tropical climates, and flooding renders useless underground infrastructure like latrine pits, septic tanks and sewers, spreading fecal contamination far and wide. Defective solid waste management leads to blocked drainage systems, compounding flooding, and often increases the amount of solid waste disposed of in pit latrines, making them harder and more hazardous to empty.

Urban sanitation requires a strong enabling environment: Clear policy frameworks, legislation, and standards help ensure coherence and consistency among stakeholders along the service chain. An effective institutional framework needs to involve competent private and public sector actors in the specific areas where they are most effective, backed by adequate financial arrangements, a mix of market-based systems for delivering the private good elements of the service chain, and public funding for the public goods further downstream.

Urban sanitation needs clear accountability: A classic failure of urban sanitation development has been the delivery of infrastructure – from pit latrines, to drains, to sewers, to treatment plants – but without ensuring continuous and effective services. If the multiple service providers are to perform their essential roles, day in, day out, they must be held accountable through specific and effective accountability mechanisms.

"5 Reasons Why Just Building Toilets Won't Improve Urban Sanitation", 04/09/2013, online at: http://blogs.worldbank.org/water/5-reasons-why-just-building-toilets-won-t-improve-urban-sanitation

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❖ China's clean-water program benefits people and the environment, Stanford research shows

Rice farming near Beijing has contaminated and tapped the city's drinking water supply. For the past four years, China has been paying farmers to grow corn instead of rice, an effort that Stanford research shows is paying off for people and the environment.

The brown, smog-filled skies that engulf Beijing have earned China a poor reputation for environmental stewardship. But despite China's dirty skies, a study led by Stanford environmental scientists has found that a government-run clean water program is providing substantial benefit to millions of people in the nation's capital.

The Miyun reservoir, 100 miles north of Beijing, is the main water source for the city's more than 20 million inhabitants. Greater agricultural demands and a decline in precipitation, among other factors, have cut the reservoir's output by two-thirds since the 1960s. The water has also become increasingly polluted by fertilizer and sediment run-off, and poses a significant health risk.

Similar conditions shut down Beijing's second largest reservoir in 1997; shortly after, officials began implementing a plan to prevent the same from happening to the Miyun reservoir.

The system follows the successful model established by New York City, in which the government and wealthier downstream consumers provide payouts to upstream farmers, who in turn modify their agricultural practices to improve water conditions.

In the case of China's Paddy Land-to-Dry Land (PLDL) program, farmers are paid to convert their croplands from rice to corn, a solution that reduces both water consumption and pollution. Rice paddies are constantly flooded and are often situated on steep slopes, leading to significant fertilizer and sediment runoff. Corn, meanwhile, requires much less water, and fertilizer is more likely to stay in the soil.

Improving rural life

The program is indicative of China's recent efforts to improve living conditions for its rural citizens.

"At the top, China sees environmental protection and poverty alleviation as vital to national security," said Gretchen Daily, a biology professor at Stanford and senior co-author on the study. "The challenge is in implementing change. It's amazing that in four short years, the government got everyone growing rice in this area to switch to corn, which greatly improved both water quality and the quantity that reaches city residents downstream."
Farmers earn almost six times more money growing rice than corn, so the government compensated farmers with funds that more than made up the difference. Door-to-door surveys revealed that the compensation program had mostly improved peoples' livelihoods. Farmers were making more money and, because corn is a less time-intensive crop to grow, they had more time to pursue other activities.

Water quality tests showed that fertilizer runoff declined sharply while the quantity available to downstream users in Beijing and surrounding areas increased.

Even with overpaying for corn, the program provides a significant net benefit. The program cost about $1,330 per hectare of farmland to implement, but produced $2,020 per hectare of benefits, calculated as the value of increased water yield and improved water quality. (A hectare is equal to 2.47 acres.)

The researchers calculated that people on both ends of the deal were receiving similar returns: upstream landowners were experiencing a 1.2 benefit-cost ratio and downstream consumers were experiencing a 1.3 benefit-cost ratio. Altogether, the program has generated a 1.5 benefit-cost ratio.

Bigger gains possible

Daily thinks the returns could be better still.

"The work here shows there has been a win-win," said Daily, a senior fellow at the Stanford Woods Institute for the Environment. "But we hope to refine the process to get bigger win-wins, where we improve the monetary investment for people upstream and downstream, and also improve the natural capital underpinning rural livelihoods and services to urban areas."
For instance, there are some areas along the river that contribute too much fertilizer runoff. An unexpected consequence of the payouts was that some farmers, flush with cash, over-fertilized their fields to boost crop yields. The program is now using RIOS, software developed at Stanford by the Natural Capital Project, to pinpoint high-risk areas. In these spots, Daily said, it might make sense to provide farmers additional compensation funds to make even more drastic changes, if doing so would significantly improve the overall water quality picture.

The PLDL could serve as a model for similar programs already underway throughout Latin America and Africa. One of the key drivers of the PLDL's success, Daily said, was the government's willingness to adapt the program on the fly to meet the needs of the farmers. For example, while other compensation schemes have set hard long-term payout limits, when conditions in Miyun changed and farmers said they weren't being fairly compensated, China upped the payments.

Although such projects are typically instituted based on the cold calculus that land remediation is a better long-term solution and less expensive than filtration plants – indeed, such considerations drove the PLDL – Daily said that an added benefit is the opportunity to restore the natural landscape and other benefits that come from it.

Still, despite the many clear positives coming out of the PLDL so far, implementing these programs requires sensitive considerations.

"When is it right to tell people that they've got to change their way of life for the benefit of society?" Daily said. "These are tough political and ethical issues, and it doesn't always make sense for

everyone. Yet resource pressures are intensifying everywhere. We've got to find ways of compensating people that are fair, and of opening new opportunities. In most cases, there will be no simple, ideal solution, as we can see with the controversy over New York City's approach. These efforts underway in China today are important experiments with lessons for cities everywhere."

The study was published in the current edition of the *Proceedings of the National Academy of Sciences*. The report was co-authored by Hua Zheng and Zhi-Yun Ouyang of The Chinese Academy of Sciences; Brian Robinson of McGill University; Yi-Cheng Liang and Mary Ruckelshaus of the Natural Capital Project; Stephen Polasky of the University of Minnesota and the Natural Capital Project; and Dong-Chun Ma and Feng-Chun Wang of the Beijing Water Science and Technology Institute.

"China's clean-water program benefits people and the environment, Stanford research shows", 04/09/2013, online at: http://news.stanford.edu/news/2013/september/clean-water-china-090413.html?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=0ae33ae565-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-0ae33ae565-250657169

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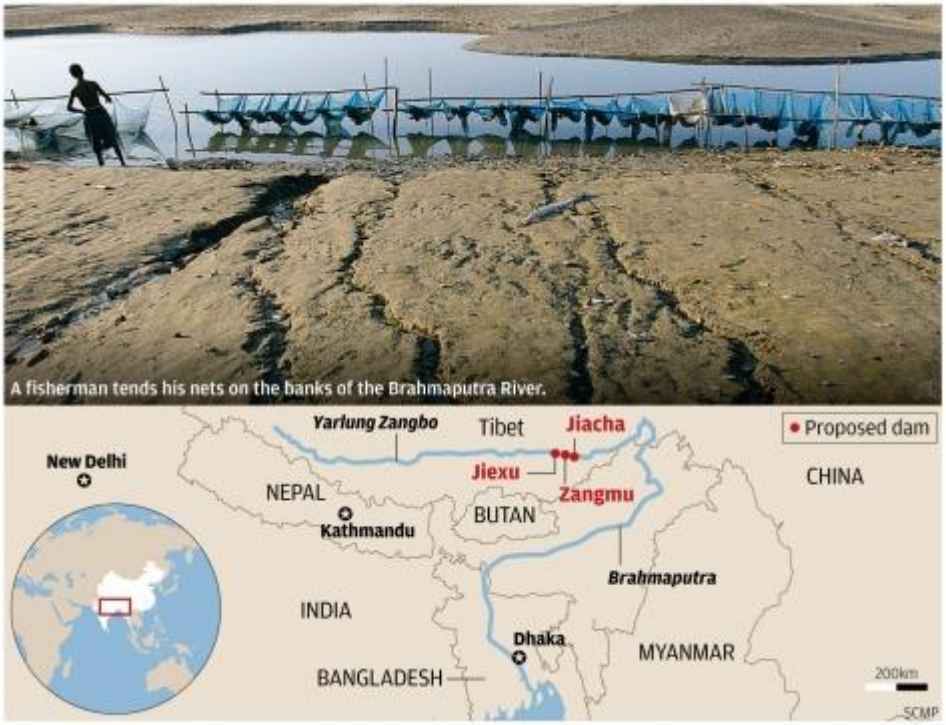
❖ Chinese dam concerns raise fears of future water conflict

Beijing's coyness over hydro plans for Tibet's Yarlung Zangbo sparks mistrust from India over downstream impact on Brahmaputra

The sensitive issue of water sharing between China and India is again under the spotlight.

India raised its longstanding concerns about Chinese dam construction on rivers that start in China and flow into the sub-continent at the 5th round of the India-China strategic dialogue in New Delhi last month.

However, the Chinese response to a proposed problem-solving framework for the issue was "less than enthusiastic", according to Indian media.



China is the world's most prolific builders of hydropower dams, and is the source of 10 major rivers flowing to 11 countries. It's not surprising that its neighgbours downstream fear that Beijing has a tight grip on "Asia's water tap".

Beijing firmly rejects speculation it may exploit its position to pressure its neighbours.

As far as India is concerned, Beijing currently has three dams mapped out on the mighty river in Tibet called the Yarlung Zangbo, not far upstream from where crosses into India and eventually Bangladesh as the Brahmaputra.

Despite assurances that China's hydroelectricity projects will not harm downstream flows, a perceived lack of transparency about the projects has not calmed Indian fears.

Indian politicians and activists alike have long railed against Chinese dam construction, with some saying water issues could outweigh the two countries' longstanding territorial disputes as a reason for potential conflict.

Meanwhile, Indian media have been quick to seize on outlandish ideas attributed to the Chinese - including rumours of a "peaceful nuclear explosion" in the Himalayas to change the course of the Brahmaputra river.

Experts in hydrological relations often argue that while past conflicts have been fought over territory, and present disputes are over access to energy resources, tomorrow's wars will be over water, and that nowhere are the stakes higher than between the two Asian giants.

India and China combined have more than a third of the world's population, but only a tenth of its water reserves. Both rapidly growing economies compete for access to the resource, yet they are among the world's least efficient users of water.

Almost two billion people in South and Southeast Asia depend on the melting waters from Tibet's glaciers, but few countries have been as alarmed as India over their vulnerability.

Avilash Roul, an expert on India's water security and senior fellow at the Delhi-based Society for the Study of Peace and Conflict, said China has not interfered in any neighbouring countries' unilateral development of shared water, except in controversial hydroelectric projects in Burma and Laos. "However, the potential to interfere is absolutely high," he said.

Wang Dehua , a South Asia specialist at the Shanghai Institute for International Studies who has written extensively on Sino-Indian water sharing, said China had no plans to divert rivers flowing from its territory.

India's water security fears had given rise to "exaggerated propaganda", but Beijing had always sought to be a good neighbour. "This cold war mentality needs to be dismantled," he said.

Wang said that China was willing to share its water, as well as the hydroelectricity it produces, with its neighbours, who could also benefit from flood control during the monsoon.

"The more dams that are built, the more downstream countries benefit," he added.

Meanwhile, leaders on both sides have played down the issue. As neither India nor China is party to any water treaty or bilateral agreement, legal mechanisms to settle disputes are largely absent. Neither water nor climate issues have been seriously incorporated in regional framework agreements such as the South Asian Association for Regional Co-operation (Saarc) or the Association of Southeast Asian Nations (Asean).

Above all, Chinese sensitivity over Tibet, the source of the major rivers, reduces chances of a settlement in a potential dispute.

The clock may be ticking, as both China and India have reason to fear increasing water shortages. China's lack of usable water resources is already causing a shortfall of 2.3 per cent of gross domestic

product, according to World Bank estimates - a problem likely to worsen with continued economic growth and the effects of climate change.

Its obsession with access to water triggered the controversial South North Water Diversion project, drawing water from southern rivers to the dry north.

New Delhi on the other hand has its own reasons to worry about disrupted access. With a projected population of 1.4 billion by 2050, India is forecast to become "water-stressed" by 2025 and "water-scarce" by 2050.

There are also concerns of the impact that disrupted river flows may have on people's livelihoods and native plants and animals.

"Chinese dam concerns raise fears of future water conflict", 05/09/2013, online at:
http://www.scmp.com/news/china/article/1303506/chinese-dam-concerns-raise-fears-future-water-conflict

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❖ Planned Mekong dams need environmental assessment

[BALI] The Cambodian government's plan to build 12 dams along the Mekong River and its tributaries, with a view to boosting energy security, could harm food security and biodiversity in the region, as well as ignite a regional conflict over sharing of the river's water, a conference has heard.

But, the energy from the dams is badly needed in the country where most people have no reliable access to electricity, said Chhun Khunvirya, assistant project manager at the state-owned Cambodian electricity agency, Electricite Du Cambodge (EDC).

The project needs an integrated assessment on its impacts on the environment, according to Khunvirya who presented the findings from his research project — a 'Study on Strategic Environmental Assessment (SEA) for Hydropower Development in Cambodia' — at the 6th Annual International Ecosystem Services Partnership conference in Bali, Indonesia, last week (26-30 August).

Khunvirya said constructing numerous dams on the river is likely to affect the conservation of freshwater fish — the main source of protein for South-East Asian countries in the Mekong region.

It could also threaten a number of vulnerable species that are native to the region, he said, as well as stirring up conflict among neighbouring countries over the Mekong's water management.

But he emphasised that the country badly needed the dams for hydropower and energy security, because only 40 per cent of Cambodia's 15 million people have reliable access to electricity, with most Cambodians still relying on small diesel generators.

Moreover, about 65 per cent of national electricity is supplied by neighbouring countries, mainly Vietnam, he added.

The Cambodian government plans to start building the first dam later this year, and to complete all 12 by 2030.

Khunvirya suggested the government should undertake a large-scale assessment of the potential environmental impact resulting from the dams.

"The government should look at the whole picture [regarding] impact," he said. "They cannot just see it from one project site because all the sites are related to each other."

But he pointed out that, regardless of possible environmental assessment results, in the end, the decision falls on politicians who will look more at the pressure of energy needs.

Lisa Mandle, an ecosystem services modeller from the Natural Capital Project, an environmental research centre at Stanford University, United States, says potential political conflict should be solved by doing a strategic environmental assessment about the dam project through an international panel such as the Mekong River Commission.

"The Mekong River is surrounded by Cambodia, Laos, Thailand and Vietnam [as well as China and Myanmar]," she says. "I am sure all those countries have different interests, [related to] both economics and ecosystems. I think they should discuss the strategic environmental assessment of the Mekong River as a whole."

“Planned Mekong dams need environmental assessment”, 03/09/2013, online at: http://www.scidev.net/asia-pacific/water/news/planned-mekong-dams-need-environmental-assessment.html

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❖ Damming the Mekong

Fish-friendly?
A dam takes shape, but fierce opposition continues
ALONG the banks of the Mekong in Laos, the forest has been stripped and the mountainside gouged out. Construction of the Xayaburi dam, the first on the lower Mekong, is in full swing.

The dam, which will cost $3.5 billion, is being built by Ch. Karnchang, a Thai construction company, and financed by Thailand's four largest banks. Over nine-tenths of the electricity from the 1,300-megawatt dam will supply Thailand. But WWF, an environmental NGO, has warned that the dam will contribute to the extinction of the endangered Mekong giant catfish, and put many other fish species at risk.

After Xayaburi, eight more dams in Laos are planned for the Mekong, including one at Don Sahong which would block the only channel for fish migration close to the spectacular Don Khone waterfalls on the border with Cambodia.

The cumulative effects of all the dams on the river's rich biodiversity and on a vast inland fishery have alarmed scientists, campaigners and neighbouring governments. But the Mekong River Commission, an intergovernmental body that co-ordinates management of the river, is powerless to block the unilateral push by Laos, despite strong protests from Cambodia and Vietnam, both commission members and both dependent on the river for fish and for its rich sediment which spreads across farmland during the flood season.

Before construction began in 2012, the Laotian government hired Poyry Energy, a Finnish company based in Zurich, as a consultant on the dam. Poyry was then awarded an eight-year contract to supervise the dam design and construction. Several foreign campaigners accused Poyry of conflicts of interest, which Poyry strongly denies.

Poyry Energy and Xayaburi Power Corporation Limited (XPCL), Ch. Karnchang's local subsidiary, claim that their redesign of the dam incorporating modern "fish-passage technology" will allow fish to migrate up- and downstream. This experimental technology includes a fish pass, a fish lift and a navigational lock along with "fish-friendly turbines" tested in America.

An XPCL presentation on the dam claims that the German government, the European Union, and the International Union for the Conservation of Nature (IUCN), an NGO, all warmly support the project. Yet IUCN, for one, has filed a complaint.

A study in 2011 comparing two North American rivers and the Mekong concluded that decades of research would be needed to ensure that specialised fish-passage facilities "actually meet the needs of these diverse fisheries of the Mekong". Poyry's senior project manager has conceded that "whether the fish get across [the dam], you'll only see when it is built."

Laotian officials say the dam will little harm the river's health, but Jian-Hua Meng, an engineering expert and WWF consultant, says Poyry is gambling with technology that has never been tested on a tropical river. It is high-risk, he says. "They are playing roulette with the livelihoods of over 60m people. It would not be acceptable in Europe, so why is it different in Asia?"

"Damming the Mekong", 07/09/2013, online at: http://www.economist.com/news/asia/21585000-dam-takes-shape-fierce-opposition-continues-fish-friendly

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❖ World set to use much more wastewater - U.N.-backed study

OSLO, Sept 5 (Reuters) - The world is set to use far more treated wastewater to help irrigate crops and feed a rising population as fresh water supplies dry up, a team of U.N.-backed experts said on Thursday.

A study led by Japan's Tottori University and U.N. University's Canadian-based Institute for Water, Environment and Health (UNU-INWEH) forecast "a rapid increase in the use of treated wastewater for farming and other purposes worldwide".

It did not forecast volumes, saying that many nations lack data on sewer and drain water. Of 181 nations studied, only 55 had information on wastewater generation, treatment and re-use.

Many governments and companies have so far overlooked the economic potential of vast amounts of wastewater, UNU-INWEH director, Zafar Adeel, said.

North America generates about 85 cubic km (20 cubic miles) of wastewater every year, of which about 61 cubic km is treated, roughly the amount flowing over Niagara Falls, and only four percent of that is re-used.

Wastewater also often contained nutrients such as potash, nitrogen and phosphorus which saved fertiliser costs, the study published in the journal Agricultural Water Management said.

"Properly treated, wastewater is a huge economic resource," Adeel told Reuters.

However, many developing nations cannot afford the equipment to treat wastewater even though recycling it can be cheaper in the long term than pumping water from deep aquifers, the report said, and, in Pakistan, like many other emerging economies, large areas are irrigated with mostly untreated wastewater.

Per-Arne Malmqvist, an associate of the Stockholm International Water Institute, said treatment costs were coming down. Orange County in California found it cheaper to recycle wastewater into drinking water than alternatives such as pumping it from the distant Colorado River, he said.

"It costs a lot of energy to treat the water with membranes but the technology is getting cheaper," he said.

Manzoor Qadir, an author of the study at UNU-INWEH, said costs of treatment could be kept down according to purity - for drinking water, for food crops or for crops such as biofuels.

"World set to use much more wastewater - U.N.-backed study", 05/09/2013, online at: http://www.reuters.com/article/2013/09/05/environment-wastewater-idUSL6N0H035Y20130905?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=0ae33ae565-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-0ae33ae565-250657169

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❖ Moving Towards True Collaboration: Synergizing Our Strengths

This year, the guiding theme of World Water Week is "Water Cooperation: Building Partnerships." Throughout the week, sessions have ranged from talks on private-public partnerships to science-policy links, transboundary water management to stakeholder engagement. Many water nexuses – energy, food, health, security – have been discussed, and a call for action towards a sustainable, holistic water management strategy has provided a guiding principle for collaboration.

Of course, building partnerships requires time to form trust and ambition to translate ideas into actions. At the UCCHM, our aim is to move beyond a conversation about cooperation and towards tangible solutions. Over the past few years, we have actively built partnerships to share our data and support informed water management decisions. Our goal is to inspire action rooted in science. During the opening plenary, Mr. Angel Gurria, General-Secretary of OECD, perfectly highlighted the role of data: "if you can't measure it, you can't manage it." Without comprehensive data about our water resources, any efforts to effectively manage our water systems will fail.

Even though research is essential to understanding our global water problems, one significant challenge is to frame research in a context that is comprehensible for other water stakeholders: policy-makers, private sector industries, and the general public. Communication is key. Mr. Peter Bakker, President of the World Business Council for Sustainable Development, argued for the creation of a shared language to facilitate dialogue and to build a foundation for cooperation. He described an ideal where "water is defined as *risk*" and we begin to *value* water in economic terms. NGOs, governments, private companies, scientists – we all understand risk. In our own work with the GRACE satellites, we can see risk in our global trend map where clear "hotspots" of water scarcity emerge, often in transboundary basins.

Yet even with the common terminology of "water risk" the obstacle still exists to link multiple stakeholders' definitions with the goal to develop a shared strategy. Typically this role falls to our policy-makers. During a fiery session on Middle East water collaboration, Mr. Anders Jagersky explained that "when politics are not effective, we must move to track-two approaches: academics or civil society" to push water management. This is exactly what we have attempted to do through our Water for Peace Global Outreach Campaign. Starting with a trip to the Middle East last February,

UCCHM is attempting to organize national water agencies, NGOs, and research universities in Israel, Jordan, and Palestine to share data and collaborate on a project to better understand regional water issues, particularly the sustainability of groundwater systems.

Through this initiative we are again realizing the power of data. Despite the fact that political tensions may inhibit the respective central government agencies from collaborating, a research project based on shared data and a holistic study of water resources in the region is a an exciting and achievable opportunity for collaboration. During our trip to the MENA region, we found that the *data managers* in the Israeli, Palestinian, and Jordanian water authorities all knew each other, conversed, and were aware of the need for a watershed-based, transboundary water management strategy. These data specialists want to collaborate, and will be the leaders as we move forward with our project.

Trust, communication, and valuing the individual assets of each stakeholder forms the base of effective collaboration. No session highlighted that more perfectly than a Tuesday evening seminar titled, "Cooperation Across and Within Jurisdictions and Levels for Good Water Governance – Local to Global." The session was presented as a four-act play, "The Tragedy of the Absurd" – a fun, creative, and engaging approach to get the participants thinking about what true cooperation looks like. It was communication at its finest. While the presentation was filled with humor, movie clips, and witty dialogue, it also contained a subtle, yet profound commentary on the core elements of effective collaboration.

One of my favorite quotes was by Andras Szollosi-Nagy, Rector of the UNESCO-IHE Institute for Water Education. After Act 2, a hilarious "demasking" of the stereotypes and clichés of key water stakeholders (private sector, scientists, youth, among others), he declared that, "to collaborate is to synergize our strengths, not demonize our weaknesses." For us at UCCHM, our strength is our data, our research. We do not have the high-level clout of policy-makers, nor the endless funds of the private sector, but we do have an asset – data – that, when merged with political power and financial investment, can drive solutions.

At the end of the session, the audience was left with optimism and inspiration. For me, it was one of the most exciting sessions at World Water Week because of the genuine emotions it evoked from the audience, not the typical lip service and perfectly tailored conversations. People were sincerely

excited. As the final presenter, Mr. Adeel Zafar, Director of the UN University, summarized this hopefulness perfectly: "We are all here because we are passionate about water. We have committed our lives to this endeavor. We have that commonality even though we work in different sectors and approach these problems in different ways. So let us build momentum from that shared commitment to collaborate for solutions."

"Moving Towards True Collaboration: Synergizing Our Strengths", 05/09/2013, online at: http://newswatch.nationalgeographic.com/2013/09/05/moving-towards-true-collaboration-synergizing-our-strengths/

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❖ Namibia to Start Building $281.5 Million Dam This Month

Namibia's Treasury will finance the building of a 2.87 billion Namibian dollar ($281.5 million) dam that will be the country's biggest source of inland water.

Construction of the Neckartal Dam on the Fish River in the south of the country officially starts on Sept. 22. and will take three years, Joseph Iita, permanent secretary in Namibia's Ministry of Water and Forestry, said in an e-mailed response to questions today. Milan-based Salini Costruttori SpA, won the building contract.

The southern African nation is in the grip of the worst drought in at least three decades, compelling the government to declare a state of emergency in May.

Neckartal will provide drinking water and irrigation for as much as 5,000 hectares (12,355 acres) of crops, Iita said.

"Namibia to Start Building $281.5 Million Dam This Month", 06/09/2013, online at: http://www.bloomberg.com/news/2013-09-06/namibia-to-start-building-281-5-million-dam-this-month.html?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=2056ddd2ed-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-2056ddd2ed-250657169

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❖ Learning innovative water Technologies

The Israeli water market is known internationally as a highly developed one as it benefits from the several years of experience in managing scarce water resources. Its national industry is widely regarded as the center of world class expertise in the water field.

Local business leaders recently learned about Israel's water technologies with the opportunity to form partnerships during "A Seminar on Innovative Water Technologies" at the law office of Greenberg Traurig in Miami. The Consulate General of Israel to Florida and Puerto Rico presented the conference.

"We are promoting Israel's technologies," said Revital Malca, the local Israeli deputy consul general. "We have a big conference coming up that takes place every two years. It's an international trade show [Water Technology and Environmental Control Exhibit and Conference in Tel Aviv from Oct.22-24] and we're encouraging local companies to go to Israel to visit the conference and as a result of that to have cooperation with Israeli companies. Any business cooperation can help both countries."

The conference featured keynote presentations from Adam Putman, Florida's commissioner of agriculture, and Professor Noah Galil from Israel Institute of Technology.

"Water is a question of education," Galil said in an interview. "It's not only a question of technology and I think that the more people hear and learn about water problems, no matter if they are lawyers, or technologists, or politicians, the more they'll understand that one of the most important achievements in water in my country is that we started a long time ago with education."

Galil added, "Israel's population has a lot of respect and a lot of understanding of water problems and I think for this reason this type of meeting is very important because the people who come, whether for business or other reasons, would bring home this message that water is important and there is scarcity and there's not enough water."

During his discussion, Galil mentioned that almost half the water demand for Israel is for agriculture. He mentioned that recycling in Israel is up and that almost 80 percent of waste water there is being treated and recycled in agriculture. He also mentioned that waste water is being reused for cooling water purposes.

The conference also featured panel discussions. One of the panelists, Ian MacLeod, a resident of Dallas, TX and representative of the company Master Meter, discussed in an interview what he hoped the guests could take from his discussion.

"I hope they get an awareness and excitement about Israel's contributions to technology and water space and the story of how a country with no water in a desert environment is forcing new thinking and a new approach," he said.

"Learning innovative water Technologies", 03/09/2013, online at: http://www.sun-sentinel.com/florida-jewish-journal/news/miami-dade-county-news/fl-jjdc-water-0904-20130903,0,1648960.story

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