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Brookings Institution Saban Center for Middle East Policy Report "Water Challenges and Cooperative Response in the Middle East and North Africa"

Several reports on water policy and water law have been published in the year 2012. One of these important reports published in 2012 is the one that is published by Brooking Institution's Saban Center for Middle East Policy under the Project on U.S. Relations with the Islamic World and is titled Water Challenges and Cooperative Response in the Middle East and North Africa. Prepared with the contributions from the Ministry of Foreign Affairs of the State of Qatar, the report firstly presents evaluations on the water resources and on the water resources management in Middle East and North Africa. Then, the Tigris-Euphrates and the Nile basins as two important basins and Integrated Water Resources Management on the Arabian Peninsula are analyzed. (1)

The authors of the report are David Michel, Amit Pandya, Syed Iqbal Hasnain, Russell Sticklor and Sreya Panuganti. Among the contributors noted separately are the Head of Iraq's Ministry of Water Resources' Soil and Water Department Hassan H. Gatiea, Ali Shafqat Akanda of Tufts University, Director General of the Islamic World Academy of Sciences Moneef R. Zou'bi and the President of Turkish Water Foundation Zekai Şen.

Assertions from the Report

The reports' section on the Tigris-Euphrates basin starts with some data on the quantity of water resources in the basin. Next come the relationships among the basin countries and Turkey's GAP project. On the 12th page of the report, Turkey's attitude towards transboundary waters is explained. The striking feature of the report in this regard is the repetition of the prolonged claims of specialists both from Syria and Iraq and from other Arabian countries. The report claims, with regard to the utilization of its water resources, that Turkey puts forward the absolute sovereignty doctrine that ignores the concerns of the downstream riparians. According to the report, Syria and Iraq contrarily desire the implementation of principles of equitable and reasonable utilization and acquired historical rights by arguing that Turkey's policies violate the principle of not to cause harm. To prove that Turkey's view on the management of transboundary water resources builds upon the absolute sovereignty doctrine, the report also indicates that Turkey was one of the three countries that have



voted against the 1997 UN Convention on the Law of Non-Navigational Uses of International Watercourses.

On the 13th page of the report, it is indicated that Turkey's view of absolute sovereignty rights has changed in 2000-2001 into the direction of sharing joint benefits. Besides, it is argued that the marshes in Iraq would diminish by 550 km2 provided that all the GAP projects are completed. This section of the report that also cites some climate change projections claims that Turkey would be able to keep river waters in dams for irrigation and hydroelectric production with the declines in the snowmelt levels. Finally, it is argued that Turkey should approach the water rich southwest region with care, since the lack of sufficient dialogue and cooperation with the "Kurdish leadership" would lead hydroelectric projects to agitate separatist movements. (2)

Evaluations on the Assertions from the Report

Claims in the report are not different from those asserted for long years by Syria and Iraq. Turkey is targeted as the prime actor behind the current water management problems and potential difficulties in these countries. This attitude would be seen as the attitude of those specialists and organizations that remain under the pressure of Arabian countries and their views.

The first assertion that Turkish pushes the absolute sovereignty doctrine is baseless. Turkey had informed her neighbors, as early as 1965, before the construction of Keban Dam on the details and the potential effects of the project. The assertion that Syria and Iraq follow a policy that stresses equitable and reasonable use of water resources is plainly wrong from the viewpoint of any serious scholar that knows the hydropolitical history of the basin. Syria and Iraq, since the years in which the problem first appeared, have argued that the entire supply of water resources should be equally divided into three and "shared" accordingly. The view that Turkey's vote against 1997 UN Convention shows the adherence to the absolute sovereignty doctrine is also baseless. Turkey voted against this convention primarily because of the articles that yield approval rights to downstream riparians on any project. Turkey also objected the 6th article regarding the factors that determine the equitable and reasonable use of resources. Yet, none of these objections is enough to sustain the view that Turkey follows the absolute sovereignty policy. The mention of Syrian and Iraqi views on the



acquired rights with respect to transboundary watercourses in the report is to create the false image that these claims are usual and approved by internationally. However, such a claim does not exist in any international law rule, and, when it does, it is in fact rejected.

There is the argument related with the expected decline of 550 km2 in marshes in Iraq depending on the completion of Turkey's projects. That Turkey has no relation whatsoever with these marshlands in southern Iraq is actually well known by all parties. These marshes dried through opening drainage canals to catch the rebels fleeing from the government during the Saddam regime by Iraqi forces themselves. However, this issue is not mentioned in the report. Motivated by the worldwide awakening about the importance of marshes and wetland regions in the world ecosystem, Turkey and Turkey's projects are reflected as responsible in this matter to engage third parties in to the problem. The report can be seen as an appendix to such attempts.

The report not only predicts that, due to the global climate change, precipitation levels and river streams will be affected negatively but also argues that Turkey can keep these resources through dams for irrigation and hydroelectric. However, to produce hydroelectric, the water passing through the turbines is naturally flows to downstream. This leaves the question of how Turkey can prevent her neighbours from utilizing the water resources remains open. Additionally, it should be noted that water used for irrigation per hectare in Turkey has substantially declined and is now below 10000 m3 due to modernization in irrigation techniques and the education of farmers. This means that the same size of land can be irrigated with less water and more of water resources can be used for hydroelectric production and, thus, downstream riparians would utilize more water released from hydroelectric generation.

The content of the 15th page of the report clearly shows that the authors know nothing about the administrative and legal structure of Turkey. The last page of the Tigris-Euphrates section of the report includes a statement about potential separatist problems if Turkey does not generate dialogue and cooperation with the "Kurdish leadership." Such a term has no correspondence in Turkey's administrative and legal system, and it is not plausible to think that the Brookings Institution and the Ministry of Foreign Affairs of the State of Qatar does not have this information. This can be considered a lack of care with the modest terms.



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Another point to be noted about the report is the lack of information and analysis regarding Palestine. Due to being under occupation, Palestine faces several problems and cannot pursue an independent water resources management policy. Israel not only exploits the underground water resources in the West Bank but also considers any attempt by Palestinians to utilize underground waters as illegal. Despite this situation, the report does not pay attention to the water problem in Palestine. While there are separate sections for the Tigris-Euphrates and the Nile basins, no section is allocated to the rivers of the West Bank. In fact, this is the result of the Brookings Institution Saban Center's general policies. As the oldest think-tank, the Brookings Institution plays an effective role in the U.S. Foreign policy. Saban Center that can be regarded as the Middle East section of the Brookings Institution, which is in close links with Israel lobby, has been established and financed by the businessman Haim Saban who himself is in very close relationship with the Israel lobby. Hence, it is not expected from this Center to support and publish a work that can be taken against Israel.

"Brookings Institution Saban Center for Middle East Policy Report "Water Challenges and Cooperative Response in the Middle East and North Africa"", 03/01/2013, online at: http://www.orsam.org.tr/en/WaterResources/showAnalysisAgenda.aspx?ID=2051

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* MP Accuses Turkey of Limiting Water Supply

An Iraqi Member of Parliament has accused Turkey of limiting the supply of water to Iraq for political reasons.

MP Karim Elewi of the Parliamentary Agriculture Committee said Iraqi agriculture was being damaged by the shortage of the water amount coming from Turkey, and by governmental neglect for this important sector, which ranks after the oil sector in terms of revenue.

He told All Iraq News Agency (AIN):

"There are several factors that led to deteriorating the agricultural sector most notably the shortage of water amounts coming from Turkey where it is controlling the Iraqi water flow and using this topic for political aims ... The amounts of waters coming from Turkey are inadequate and do not meet the need of the irrigation.

"At the same time, there is clear negligence by the Iraqi Government to this sector through not giving it priority as it represents vital resource for the Iraqi economy."

"MP Accuses Turkey of Limiting Water Supply", 09/01/2013, online at: <u>http://www.iraq-businessnews.com/2013/01/09/mp-accuses-turkey-of-limiting-water-supply/</u>

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***** Winter storm brings devastation to Syria and neighbours

Syrians living in ruins, burning chairs and doors

* Roads in Lebanon washed away, electricity cut

* Worst storm in 20 years - Israel Meteorological Service

BEIRUT, Jan 9 (Reuters) - The worst winter storm in two decades has hit the eastern Mediterranean this week, bringing destruction and death to Syria and its neighbours who are already dealing with a refugee crisis from the country's civil war.

Opposition activists in Syria, where war has forced hundreds of thousands of people from their homes and cut off access to food, fuel and power for cities and towns, say dozens of people have died there in four days of relentless extreme weather.

At least 17 people have also died due to the storm in Lebanon, Jordan, Turkey, Israel and the Palestinian territories. Schools in some areas have been shut for days, refugee camps flooded and villages isolated by closed roads.

Meteorological agencies in Israel and Lebanon both called it the worst storm in 20 years.

Snowfall in the Syrian capital Damascus and the northern city of Aleppo did not halt the fighting between rebels and forces loyal to President Bashar al-Assad, which has killed more than 60,000 people in the past 21 months.

Abu Othman, a Syrian opposition activist in the eastern Damascus suburbs where temperatures reached minus 6 Celsius (22 Fahrenheit) on Tuesday night, said there had been no let up in street fighting and shelling, although the weather had at least halted air strikes by Assad's forces.



"Our conditions are getting worse and worse with this storm. Everyone is freezing, there is nothing to heat ourselves with. There is a growing food problem because all the rain and now snow has made road conditions very dangerous," he said, speaking over a satellite Internet connection.

In northern Syria, displaced civilians were sheltering in caves to keep dry, said Fadi Yasin, an activist from the north western Idlib province, one of the first areas where peaceful protests turned into armed rebellion.

Some of thousands of people who lost their homes in shelling or had fled fighting have moved into Syria's Dead Cities, 700 abandoned settlements from the Byzantine period, he said.

"They have taken plastic tarps and sheets to cover the frames of old buildings and have been living there but obviously it is dangerously cold to live there in a storm like this," he said. "Few people have anything like fuel for heating, and many just feel lucky to have blankets."

Families are burning doors and chairs to keep warm in the absence of fuel in Aleppo, Syria's most populous city, now largely in rebel hands, said Michal Przedalcki, from Czech charity People In Need, working in northern Syria.

"Unfortunately I think it quite likely that people will die from the severe weather conditions. Already people have not been eating enough for several months, and that exposes their bodies to more disease and infection, especially after also living through weeks of cold conditions," he said.

REFUGEE TENTS FLOODED

More than 600,000 Syrian refugees have fled to neighbouring countries exposed to the storm. Many in Lebanon and Jordan were forced to move after their tents were flooded.

In Lebanon's Bekaa Valley, a makeshift camp of around 400 people was flooded and tents were wrecked when torrents of rain surged into the area.



The Lebanese themselves are suffering, with many roads washed away. Much of Lebanon's Bekaa Valley, wedged between high mountains that separate Syria from the coast, has lost electricity and phone service, and dozens of mountain villages have been cut off from roads due to snow.

In Jordan's Zaatari camp, home to 30,000 Syrian refugees, torrential rains flooded several hundred tents and forced refugees to scramble for shelter in prefabricated caravans.

Hundreds of residents were moved to a school building and trailers after water flooded their tents and damaged belongings.

"I call upon anyone who has a conscience. We want heaters for our children. Many people have moved into caravans to shelter their children from the cold and from the flooding. The living conditions are horrible," said Um Bilal, holding a bucket to empty water from her tent.

In a makeshift camp in Qobbat Beshomra on Lebanon's Mediterranean coast, the tent that Sayyad Ali, 27, built from plastic sheeting to protect his family was scant shield against rain, wind and hail whipping in from the sea.

"It's like we've returned to ancient times," Ali said as rain pelted the tent's roof. "We're living without electricity, without water, without anything."

HAIL AND SNOW

The Israel Meteorological Service said the storm, which hardly let up since Sunday, had brought the most rainfall and the most straight days of heavy rain in 20 years. The Lebanese Meteorological Agency said that only a month of straight rain in 1992 top this weeks rainfall.

Snow was expected on Wednesday in Jerusalem, and municipal authorities ordered schools closed at noon.



Ofir Gendelman, a spokesman for Israeli Prime Minister Benjamin Netanyahu, tweeted: "Hail in Tel Aviv, 1 foot of snow expected today in Jerusalem. Lake Kinneret (the Sea of Galilee) is filling up after years of drought. Who can ask for more?"

In the Israeli-occupied West Bank, two women travelling in a Palestinian taxi in the Tulkarm area were swept away by the flood and were found dead on Wednesday morning. And in Gaza, one Palestinian died and others were wounded when a tunnel collapsed along the border with Egypt due to floods, local residents and medics said.

In Hadera, a city 45 km (28 miles) north of Tel Aviv, some 2,500 homes were without electricity. On Tuesday night rescue workers used rubber rafts to navigate flooded streets and evacuate people from flooded houses.

Turkish Airlines cancelled hundreds of flights. All schools were closed in many northern and eastern parts of Turkey as well as in Istanbul where a passenger bus skidded off an icy road into a lake in Istanbul late on Tuesday, injuring 30 passengers.

The government also issued warnings about natural gas leaks as people try to heat their homes, after 8 people died from poisoning in their sleep over the past week, a regular occurrence during cold snaps in Turkey.

Television channels and radios made frequent reminders on the issue and also called on animalloving Turks to leave bread crumbs and wheat outside their houses to prevent animal deaths.

"Winter storm brings devastation to Syria and neighbours", 09/01/2013, online at: http://www.trust.org/alertnet/news/winter-storm-brings-devastation-to-syria-andneighbours/?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=2a2155bb1e-RSS_EMAIL_CAMPAIGN&utm_medium=email

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• With a perfect storm, perfect failure

The incompetence of the Lebanese state, it is true, is the result of decades of training. At no time was this more obvious than in recent days, as Lebanon has struggled with the devastation from a storm in the Eastern Mediterranean.

With greater imagination, the leaders of March 14 might have legitimately demanded the government's resignation for its shortcomings. The Mikati government has dealt with the effects of the storm with the same ineptitude as its predecessors. This is a default setting for the state, which waits until disasters happen before taking measures to address or alleviate the outcome.

It's not as if we did not know ahead of time that the storm was coming. There were several days to take steps to prevent some of the worst consequences. It may be impossible to prevent the Litani River from flooding, but did the government plan ahead to prepare for more manageable contingencies? How is it that rescuers have not found a child lost Monday, Youssef Rakan Fadl? The search will be resumed tomorrow by a "specialized team" that has just arrived in Lebanon, we are told. In the interim, his family has been on its own.

Specialized or not, no team is likely to find alive a child who was swept away by the waters four days earlier. Where is Lebanon's rapid response system? And if we do not have one, then isn't it time to admit that we are no better than a third-rate state, one that should devote more time to improving governance than it does to ensuring that ministers have impunity and that their patrons are content?

Myriad pressures have been building. The United Nations High Commissioner for Refugees says that some 180,000 Syrians are receiving assistance in Lebanon. This is potentially catastrophic for a country that fears a rise in salaries would undermine the national currency. Nor is it enough to attribute our woes to outdated or depleted infrastructure. What about all the roadwork during the 1990s? Our new highways are as likely to be flooded as older byways.

To make up for the abysmal tourist season, which forced many establishments to close down, the government has embarked on a campaign to encourage Lebanese and foreigners to make purchases in Lebanon's stores. But why would tourists flock to Lebanon if the country cannot even clear streets of



water after rainfall? The scheme is interesting: 50 percent reductions on items for 50 days. But as critics have argued, the tourists did not stay away from Lebanon in 2012 because prices were high. They didn't come, because they were little reassured about the government's ability to deal with crisis. Will the latest debacle persuade them otherwise?

Even those who support parties represented in the government hardly seem convinced. A television crew ventured into the disaster zone of Hay al-Sellom, in Beirut's southern suburbs. There they met an old woman whose house had been flooded. She began by thanking Hezbollah for its help, before complaining of the poor response of the state. It was odd to hear her remarks, for what she really meant was that a government dominated by Hezbollah had done nothing for her, while the party itself had. It's remarkable how easily people will distinguish between the two. But then a system that discourages any sense of official collective responsibility does that to you.

Have we ever seen a Lebanese minister accept blame for errors by his ministry? When the public works minister, Ghazi Aridi, says that the destruction in Hay al-Sellom was "due to the population in that area" who have built along the Al-Ghadir river, we must pause. Yes, the state is little respected in Hezbollah's stronghold, so that if it were to warn against construction along the river, it would be ignored. But that doesn't prevent the state from issuing such warnings publicly, to show that it has a better grasp of future realities than the population.

Nor is it a good idea for Aridi to blame the population for a natural catastrophe, especially when the state has taken no precautions to alleviate the worst of that catastrophe. Or indeed when the state, through its lamentable oversight over public works projects, has virtually ensured that the infrastructure in place to avert flooding is wholly inadequate. For instance, the Beirut-Jounieh highway was closed Tuesday. At best, the highway is a procession of lakes when there is rain, even though work on it remains unfinished.

The key to addressing storms like the one that just came through Lebanon is foresight. Certainly, one cannot expect the state to perform miracles. But when it comes to supervising and fixing man-made structures that are not performing as they must, then the state has a responsibility to act. More can be done to inform the public of likely problems ahead of time, and prepare contingency plans if these



take place. And when manpower is insufficient, the emergency services must plan to collaborate with the Army.

One of the worst storms in Lebanon's recent memory occurred in February 1983. At the time, the multinational forces had to free villagers trapped by snow in the area of Qartaba, and people died in their cars at Dahr al-Baydar. Little has changed in three decades. The state is still unprepared, its response mostly ad hoc and unsatisfactory, and the impact on the Lebanese far worse than it needs to be.

Najib Mikati is a respectable man, but if he deserves to resign, it is for his government's deficiencies in what was a storm everyone expected and for which ministers should have been ready.

Michael Young is opinion editor of THE DAILY STAR. He tweets @BeirutCalling.

A version of this article appeared in the print edition of The Daily Star on January 10, 2013, on page 7.

Read more: http://www.dailystar.com.lb/Opinion/Columnist/2013/Jan-10/201567-with-a-perfectstorm-perfect-failure.ashx#ixzz2HcgcWwks (The Daily Star :: Lebanon News :: http://www.dailystar.com.lb)

Away with murder (editorial) January 11, 2013

Lebanon is picking up the pieces from its latest bout with bad weather, and most can identify the culprits responsible for a storm that killed several people and caused massive damage to the agricultural and other sectors.

The man or woman in the street can easily rattle off the problems: a lack of enforcement of public safety and urban planning laws, a lack of state resources used wisely, and a failure to take the needed precautions in advance.

But the real problem is that politicians, whether at the national or the local level, are often the ones leading the charge on this front. They can sound very well-informed when they talk about the



problems, leading the public on an intricate trip through the areas where Lebanon lacks this or that, or suffers from this or that.

But politicians and state officials are ultimately responsible for the breakdown, and are not disinterested observers. The country's rivers and its coastline are lying in plain view of the public and their representatives, day after day. Throughout the year, illegal construction is allowed to flourish, whether by municipal authorities or those at higher levels. Quarries and construction sites receive minimal, if any, oversight. A whole set of safety measures are ignored, probably because of complaints that it will cost too much, and the problem is swept under the rug. Structures collapse, sometimes with deadly consequences, and still nothing of substance is done.

Politicians and others complain about negligence, which according to the law is a crime. But making the link between responsibility and accountability is a non-starter. Either authorities fail to follow through and hold someone responsible for physical and material damage, or the people fail to do their part. Time and time again, they vote for the same national politicians who have failed to carry out their oversight duties, or allow the government to evade responsibility for oversight. A substantial level of corruption and mismanagement exists at the municipal level, but again, at election time the overriding concerns involve seeing family A defeat family B.

Few politicians are serious enough to level with the public, and say that without paying for better infrastructure, people should expect to incur substantial damage and inconveniences every time a storm hits the country.

They probably refrain from doing so because they know that a drive to revamp water and road infrastructure would probably fuel corruption, and not solve problems. Elsewhere, a fairly simple case of mismanagement or corruption – or even the hint of graft – is enough to bring down public officials elected to the highest office.

But in Lebanon, many people have given up on demanding their rights. They don't have the will or power to stand up to their local representatives who fail in their jobs, much less take on the more powerful politicians at the national level.



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When parliamentary elections take place later this year, the scenes of January's flooded roads and homes will be a part of history, and not important enough to enter the election campaign rhetoric.

"A perfect storm of mismanagement and corruption", Daily Star, 11/01/2013, online at: http://mideastenvironment.apps01.yorku.ca/?p=6665

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* Israel's snow, wind and rain ease, as Kinneret rises

Lake Kinneret rose 67 centimeters during the recent storm, according to Israel Water Authority figures – between a quarter and a third of its annual average.

By Zafrir Rinat and Eli Ashkenazi | Jan.10, 2013

The stormy weather of the past week began to ease on Thursday, with light rain expected Friday mainly on the coastal plain and warmer, rainless days ahead. Heavy snow closed schools in Jerusalem and halted bus service for part of Thursday. Schools will remain closed Friday in Jerusalem, and in some surrounding communities.

The storms felled several trees on Mount Herzl, some of which had been planted by government leaders from Israel and around the world. The World Zionist Federation said it would begin restoration work in the area on Sunday.

The Kinneret rose 67 centimeters during the recent storm, according to figures released Thursday by the Water Authority – between a quarter and a third of its annual average. The surge represents 100 million cubic meters of water, which, according to the Water Authority's Dr. Amir Givati is "equivalent to the annual output of a desalination plant."

The Kinneret has risen 1.2 meters so far this winter, and is expected to rise a further 80 centimeters by the end of January. According to Givati, the lake will swell a total of 3 meters this winter. Still, the records of the winter of 1991–1992, when the lake rose by 4.5 meters, and 2002–2003, when it rose by 4 meters, are not expected to be broken.

The lake now lacks 2.3 meters to reach the point of where it floods the lakeside promenade and communities along its shores. But according to Givati, it is not likely this will happen unless something extraordinary occurs, although he said the Water Authority was prepared for any scenario.

The current prodigious rise follows several years when the lake was at an all-time low. Such extreme fluctuations can harm the ecology of the lake, and so the Water Authority is working to stabilize the water level by building desalination facilities whose water will augment the lake's supply. Dr. Doron



Merkel, head of the Water Authority's Kinneret department says stabilization of the lake's level is on the way, along with an expected positive effect on the lake's ecosystems.

The greatest precipitation over the past seven days – 273 millimeters – was measured at the Ramat Menashe station, southwest of Mount Carmel. In second place was Merom Golan with 258 centimeters. Mekorot, the national water company, said it had been able to impound 19 million cubic meters of flood water in its reservoirs.

The Southern Sharon Regional Council and the Yarkon Drainage Authority reported that a reservoir that had been created in an old quarry had taken in more than 3 million cubic meters of water and prevented the surrounding area from flooding.

The stormy weather also bodes well for the Dead Sea, the level of which is declining at an alarming rate. Due to the large quantity of water flowing this winter into the Yarmouk River, which flows through southern Syria and Jordan and into the Jordan River, Syria and Jordan have open some of the Yarmouk's dams, which brings more water into the Jordan. This water then flows south to the Dead Sea, along with the water from other tributaries along the way, which are also making more than their usual contribution this winter. "This month we apparently won't be reporting that the level of the Dead Sea has declined," Givati said.

"Israel's snow, wind and rain ease, as Kinneret rises", Haaretz, 10/01/2013, online at: http://mideastenvironment.apps01.yorku.ca/?p=6663

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* Israeli wall traps rain, sewage in Palestinian town

QALQILYA (Reuters) – Heavy winter downpours have turned some Palestinian lands in the occupied West Bank into a morass of filth and flooding as an Israeli barrier blocks the waters from draining away.

In Qalqilya, a town of 42,000 in the northern West Bank almost completely surrounded by the concrete wall, Khaled Kandeel and his family huddled by an open fire in a shed as trash-laden water swelled through his pear orchard.

"Before the wall, the water used to drain fine, and flowed down to the sea easily. They could just flip a switch and end our suffering, but they don't," Kandeel said, his breath steamy from the winter cold.

Israel started building the barrier, a mix of metal fencing, barbed wire and concrete walls, in 2002 in response to a wave of Palestinian suicide bombings.

Drainage channels run under the imposing ramparts but their automated metal gates are mostly closed and now clogged with refuse and stones that block the outflow of storm water.

The Israeli military, citing security reasons, generally bars locals from clearing the obstructions or digging their own channels close to the barrier.

Built mostly within occupied land and not on the "Green Line" which was Israel's de facto border before the 1967 Middle East War, the barrier inside the West Bank is deemed illegal by the UN's International Court of Justice.

It directly impacts the farming, grazing and environment of about 170 communities, the United Nations Relief and Works Agency, UNRWA, says.

Hemmed-in residents of northern towns in the West Bank have been deprived of large swathes of rural land, forcing poorly-regulated waste dumping closer to farms and homes.



Driving rain could not mask the stench of raw sewage being unloaded from a tanker on a village road outside Qalqilya on Tuesday, its putrid contents mixing with the brown torrent pouring past olive trees clustered on the hills.

"Raw sewage is disposed near, or on, agricultural land resulting in the contamination of soil and groundwater," UNRWA said in a report.

Sunk souq

Planning restrictions, inked as part of interim peace accords by Israeli and Palestinian negotiators almost two decades ago, widely limit locals' ability to build water infrastructure or repair damaged or polluted wells.

But in Hebron, whose old city is a flashpoint of conflict with Jewish settlers, rare coordination with the Israeli military allowed Palestinian officials to lift the concrete slabs which separate the ethnic enclaves to relieve flooding.

"We removed the concrete to prevent the passage of water to the old city souq, where flooding reached up to one meter," said Walid Abu Halawa of Hebron's construction commission.

"We also opened holes in the iron barrier built by the Occupation at the terminus of the souq," he told Reuters.

Ten years after work on the barrier began and with no suicide bombings against Israel for almost four years, construction has slowed amid opposition from local groups and international organizations.

Last month, Israel's high court and its Nature and Parks Authority urged the military not to build a wall near Battir, fearing it would damage the Palestinian village's millennia-old irrigation terraces.

In nearby Walaja village, dynamite and stone foundations used to embed a section of concrete wall degraded soil quality and impaired the natural flow of water downhill toward Jerusalem, residents said.



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Plans to complete the wall and enclose the village on all sides, with a single gate for entry and exit comings and goings, are opposed by locals and even some neighboring Israeli settlers, who regard the barrier as unnecessary given the current calm.

"Israeli wall traps rain, sewage in Palestinian town", Ma'an, 10/01/2013, online at: http://mideastenvironment.apps01.yorku.ca/?p=6667

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* State comptroller warned about Ayalon flooding

Plan to safeguard TA area's main highway went through series of committees, subcommittees and steering committees.

While a State Comptroller's Report from nearly a decade ago warned that the Ayalon River canal must be diverted to avert an eventual overflow, the relevant government authorities did not act quickly enough to prevent the deluge that crippled Tel Aviv's main traffic artery on Tuesday.

A chapter of the December 2004 State Comptroller Audit Report on Local Government, titled "Treatment of Drainage Infrastructure," took a look at the management – and mismanagement – of drainage facilities all over the country, where drainage pipes, canals and rivers funnel rainwater and runoff into the sea.

Related:

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Tel Aviv underwater: Rain brings city to halt

Because prevention of flooding is entirely dependent on the relationship between the capacity of the drainage system and the expected water flow, it is crucial to keep drainage infrastructure a top priority, the report said. A lack of investment in drainage facilities is likely to result in much greater future costs, the state comptroller wrote.

Following severe flooding that occurred in the winter of 1991-1992, the State Comptroller's Office conducted an audit in 1993, which revealed many deficiencies in these areas, and the office once again reassessed these issues for the months of July to December 2003.

One issue that the State Comptroller's Office dissected in particularly was the drainage situation of the "Netivei Ayalon" (Ayalon Highways) project. While traversing the Ayalon riverbed with a highway and railway, it became necessary to built a concrete canal to channel the river's floodwaters in the 1970s – a canal that would be under the auspices of the Yarkon River Drainage Authority, the report said.



While the flow capacity of the canal – both in 2003 and today – allows for floodwaters barreling through at up to 400 cubic meters per second, professionals have long agreed that according to the accepted standard for major drainage routes, the canal must be able to tolerate a flow of 600 cubic meters per second, according to the report.

"In this situation widespread urban areas are exposed along the Ayalon canal to flooding and to severe damage in a recurrence interval of 15 years or less," the State Comptroller's Office wrote.

Over the course of many years, professionals came to the conclusion that it was impossible to expand the canal or to increase its design flow, so one of two options must taken – regulate the flow from upstream or partially divert the Ayalon canal using tunnels to the west, into the sea, the report explained. Because choosing an Ayalon canal solution stretches beyond a single local authority, the plans were delayed for many years, the state comptroller said.

Only due to transportation demand, such as the desire to eventually add a fourth railway track, did the authorities begin to move the solution forward.

In 2002, a private planning company conducted an examination that reconsidered the westward diversion, a choice that the Transportation Ministry and the Yarkon River Drainage Authority supported after the review. In May 2003, the Drainage Authority plenary approved the partial rerouting of the Ayalon River, but the cost was expected to be very high – between NIS 800 million and NIS 1 billion, the report explained.

Afterward, the plan went through series of committees, subcommittees and steering committees, which analyzed its costs and benefits.

By early 2004, the Tel Aviv District Committee for Planning and Building generated an alternative plan, as part of the overall master plan for the future Ariel Sharon Park.

Within the park, a buffer reservoir could serve to adjust the upstream flow of the Ayalon River and reduce its flow downstream – significantly reducing costs associated with a tunnel diversion system, the committee argued.



The Ariel Sharon Park reservoir is the plan that is slated to move forward today.

The State Comptroller's Report from 2004, however, lamented the fact that for a decade no plan for the canal had been advanced, and instead, during that period, the volume of upstream construction grew – increasing the risk of flooding built-up areas.

"The State Comptroller's Office believes that it is not necessary to see drainage regulations and flooding prevention for built-up areas and high-speed roads as issues secondary to transportation or the establishment of a recreational park," the report said.

In response to a query from The Jerusalem Post, the Yarkon Drainage Authority said that the drainage reservoir plan for Ariel Sharon Park was prepared by a joint Israeli and international team that included the Tahal development group, the Palgey Maim company, the American firm MWH and architects Prof.

Peter Latz from Germany and Alisa Braudo from Israel. The program is based on a master plan for drainage drafted in 2005 and includes a buffer pool for runoff and floodwaters, the authority said.

"The program was designed to curb the tide of the Ayalon River and its tributaries, in order to protect Gush Dan from floods and to adhere to the demand for a 600 cubic meters per second flow," the authority said. "In addition, this program is an essential condition for building a fourth railway line on the Ayalon, as promoted by the Transportation Ministry."

"State comptroller warned about Ayalon flooding",Jerusalem Post, 10/01/2013, online at: http://mideastenvironment.apps01.yorku.ca/?p=6661

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* Farmers suffer heavy damage from rain

Extreme weather front that brought massive rainfall to Israel causes flooding of agricultural land; prompts possibility of 'natural disaster' status for industry

The heavy rainfall in Israel over the past several days may have been kind to Lake Kinneret, but Israel's farmers have not fared so well, as the extreme weather front has caused floods that have destroyed numerous crops.

According to Israel Farmer Association Director General Avshalom Vilan, "While we welcome the rain, the floods have caused untold damage to crops. If this continues over the next few days, we may have no choice but to ask for a 'natural disaster' status for the industry."

According to Vilan, the government is wary of enacting the status, which spells massive monetary compensation to farmers. "It's too soon to estimate how much damage was done," he said. "We have to wait for this system to pass, but we already know there are millions in damages."

Israel's Natural Disaster Compensation Act, which was introduced in 1989, mandated the agriculture minister – today Orit Noked – to ask the government to appropriate special funds to compensate farmers whose crops have been destroyed by extreme weather.

"Farmers suffer heavy damage from rain", YNET, 10/01/2013, online at: http://mideastenvironment.apps01.yorku.ca/?p=6659

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Massive storm pummelling Middle East good news for Israeli water system, not so much for Syrian refugees

Weather in the Middle East is usually not very interesting. In the summer, it's hot, and in the winter it's cool. Sometimes it rains.

But this week, it's rained and rained and rained. Snow is also predicted for Jerusalem and Amman, a rare occurrence that has children in both cities anxiously watching the sky.

In Israel, the level of the Sea of Galilee rose on Tuesday by more than eight and a half inches — the highest rise for a single day since Israel began taking measurements in the 1920s, according to Uri Schor, the spokesman for Israel's Water Authority.

"It's really good news that there's so much water," Schor told The Media Line. "We are still in the midst of the storm. We expect the Sea of Galilee to go up even further in the next few days."

From the Sea of Galilee the water is pumped throughout Israel by a system called the National Water Carrier. The heavy rainfall is welcomed in Israel where rain is often referred to as "rain of blessing."

But the storm has also done damage in Israel. Three Arab citizens were killed in an accident on the Jerusalem-Tel Aviv highway after attending an Orthodox Christmas celebration in Bethlehem. On Monday, a hiker in southern Israel was killed after he was swept away in a flash flood.

The Ayalon highway which runs through Tel Aviv was closed after heavy flooding in the area, snarling traffic throughout Tel Aviv. Train stations in the area were closed due to flooding and passengers arriving at Ben Gurion airport were taken by us to Tel Aviv. The highway closure came after the Ayalon River, which is usually a dry river bed, flooded and Schor said the water was flowing at a speed of 440 square meters per second, the fastest in 20 years.

At least six Israelis were injured when trees were knocked over by winds gusting up to 80 miles per hour.

Trees were also toppled on the plazas of the Dome of The Rock mosque and the Western Wall below in Jerusalem's Old city. Some 150 animals were endangered when mud slides and rains flooded a kennel of the Jerusalem Society for the Prevention of Cruelty to Animals. Many of the animals were taken to temporary homes.

Just a few miles away in Jordan, the hilly areas in the south of the Kingdom had the season's first snow. In the capital Amman, several neighborhoods flooded and traffic lights were damaged by the strong winds.



Especially affected were the almost 50,000 Syrian refugees living in tent camps in the Za'atari camp near the border between Jordan and Syria. Angry refugees attacked aid workers with sticks and stones after their tents were swept away. Police said seven aid workers were injured.

"The tents have been affected by the cold and rain and we are trying to move families to pre-fab mobile homes," Ali Bibi, the liaison officer for the United Nations High Commissioner of Refugees (UNHCR), told The Media Line. "We need a big international effort to meet the needs of the refugees. We estimate we need \$500 million dollars."

Bibi said 2,500 families are being moved into the prefab mobile homes that were donated by Saudi Arabia. His organization is also distributing kerosene heaters to the families who are still in tents. He said they need at least 12,000 more prefab units, each of which can house a family of five.

There are a total of 300,000 Syrian refugees in Jordan. The government has been providing them with medical care and education, and the United Nations has set up two large refugee camps. Bibi said Jordan is finding it increasingly difficult to cope with the influx of refugees and the international community must do more.

"We need heaters, blankets, support and assistance," Bibi said. "The Jordanian government has worked hard to help the refugees but if we have an additional influx they will not be able to cope."

Back in Israel, water authority spokesman Schor said that the huge quantities of rain come after seven years of drought in Israel. In the book of Genesis in the Bible, he said, seven plentiful years were followed by seven lean years and starvation.

"Let's hope we now have the seven good years," he said.

How much more rain will there be?

"I have no idea," Schor replied. "You'll have to ask the Creator of the World that one."

"Massive storm pummelling Middle East good news for Israeli water system, not so much for Syrian refugees", 08/01/2013, online at: <u>http://news.nationalpost.com/2013/01/08/massive-storm-pummelling-middle-east-good-news-for-israeli-water-system-not-so-much-for-syrian-refugees/</u>

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City of Palestine begins water system burnout

PALESTINE — The City of Palestine's utilities department conducted its first-ever water system burnout on Friday — a process needed to kill bacterial growth in the distribution system that is causing taste, odor and color issues.

During a presentation to the Palestine City Council in December, city utilities director Robert Sedgwick reported the burnout details to council, explaining that it was a "necessary action for removing the ammonia residual from the water.

"Residents may experience possible chlorine smell and red water, especially in areas that use cast iron water pipes," Sedgwick said. "The ammonia will be turned off and then turned back on in three weeks, and residents may experience the effects for approximately one week."

The burnout is a suggestion of the local Texas Commission on Environmental Quality (TCEQ) Regional office because of the city's struggles with maintaining its chlorine residuals, especially in the summer months.

A distribution burnout is accomplished by turning the ammonia off at the treatment plant. By doing this, a free chlorine residual is produced, which is much stronger than the combined chlorine residual the city's system normally has.

"This process will kill the bacterial growth in the distribution system," Sedgwick explained.

According to reports, the City of Palestine has struggled to maintain the required .5 parts per million chlorine residual.

"After checking with other cities that undergo the same process," Sedgwick said, "we have found that conducting a routine free chlorine burnout every six months may be the best way to ensure a safe drinking water supply for the citizens."



Citizens, media outlets and the TCEQ will be notified about the burnout as required by law. The process is safe and does not prohibit use of water by residents.

Residents who experience red water may pick up a product called Red-Be-Gone for free at the Public Works Utilities Office, located at 310 Debard St. in the Palestine City Hall Complex.

"City of Palestine begins water system burnout", 12/01/2013, online at: <u>http://palestineherald.com/local/x503820296/City-of-Palestine-begins-water-system-burnout</u>

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* Walls and winter rains afflict Palestinian towns

(Reuters) - Heavy winter downpours have turned some Palestinian lands in the occupied West Bank into a morass of filth and flooding as an Israeli barrier blocks the waters from draining away.

In Qalqilya, a town of 42,000 in the northern West Bank almost completely surrounded by the concrete wall, Khaled Kandeel and his family huddled by an open fire in a shed as trash-laden water swelled through his pear orchard.

"Before the wall, the water used to drain fine, and flowed down to the sea easily. They could just flip a switch and end our suffering, but they don't," Kandeel said, his breath steamy from the winter cold.

Israel started building the barrier, a mix of metal fencing, barbed wire and concrete walls, in 2002 in response to a wave of Palestinian suicide bombings.

Drainage channels run under the imposing ramparts but their automated metal gates are mostly closed and now clogged with refuse and stones that block the outflow of storm water.

The Israeli military, citing security reasons, generally bars locals from clearing the obstructions or digging their own channels close to the barrier.

Built mostly within occupied land and not on the "Green Line" which was Israel's de facto border before the 1967 Middle East War, the barrier inside the West Bank is deemed illegal by the U.N.'s International Court of Justice.

It directly impacts the farming, grazing and environment of about 170 communities, the United Nations Relief and Works Agency (UNRWA) says.

Hemmed-in residents of northern towns in the West Bank have been deprived of large swathes of rural land, forcing poorly-regulated waste dumping closer to farms and homes.

Driving rain could not mask the stench of raw sewage being unloaded from a tanker on a village road outside Qalqilya on Tuesday, its putrid contents mixing with the brown torrent pouring past olive trees clustered on the hills.

"Raw sewage is disposed near, or on, agricultural land resulting in the contamination of soil and groundwater," UNRWA said in a report.



SUNK SOUQ

Planning restrictions, inked as part of interim peace accords by Israeli and Palestinian negotiators almost two decades ago, widely limit locals' ability to build water infrastructure or repair damaged or polluted wells.

But in Hebron, whose old city is a flashpoint of conflict with Jewish settlers, rare coordination with the Israeli military allowed Palestinian officials to lift the concrete slabs which separate the ethnic enclaves to relieve flooding.

"We removed the concrete to prevent the passage of water to the old city souq, where flooding reached up to one meter," said Walid Abu Halawa of Hebron's construction commission.

"We also opened holes in the iron barrier built by the Occupation at the terminus of the souq," he told Reuters.

Ten years after work on the barrier began and with no suicide bombings against Israel for almost four years, construction has slowed amid opposition from local groups and international organizations.

Last month, Israel's high court and its Nature and Parks Authority urged the military not to build a wall near Battir, fearing it would damage the Palestinian village's millennia-old irrigation terraces.

In nearby Walaja village, dynamite and stone foundations used to embed a section of concrete wall degraded soil quality and impaired the natural flow of water downhill toward Jerusalem, residents said.

Plans to complete the wall and enclose the village on all sides, with a single gate for entry and exit comings and goings, are opposed by locals and even some neighboring Israeli settlers, who regard the barrier as unnecessary given the current calm.

"Walls and winter rains afflict Palestinian towns", 09/01/2013, online at: <u>http://www.reuters.com/article/2013/01/09/us-israel-palestinians-barrier-</u>

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✤ Jerusalem Snowstorm Shuts City as Region Hit With Heavy Rains

The biggest snowstorm to hit <u>Jerusalem</u> in more than two decades shut down much of the city today, after four days of heavy rain also caused flood damage and power outages in Lebanon, Jordan and Syria.

Two Palestinian women were drowned in flash floods in the West Bank yesterday, the Wafa news agency said.

Israeli army rescue units used military helicopters and naval boats to assist people stranded by rising waters at several locations throughout the country.

"The emergency and rescue forces are struggling around the clock in the storm in order to save lives," Israeli Prime Minister <u>Benjamin Netanyahu</u> said in an e-mailed statement.

The snow in Jerusalem, forecast to reach at least 20 centimeters (8 inches) before tapering off today, closed the main highway from Tel Aviv and shut down public transportation in the city.

The storm has cost Israeli industry at least 300 million shekels (\$80 million), with half of it attributed to absenteeism as people were prevented from reaching work by roadblocks set up by police due to flooding, the Manufacturers Association of <u>Israel</u> said in an e-mailed statement.

"Jerusalem Snowstorm Shuts City as Region Hit With Heavy Rains", 10/01/2013, online at: http://www.bloomberg.com/news/2013-01-10/jerusalem-snowstorm-shuts-city-as-region-hit-with-heavy-rains.html

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Biblical Flood Swamps Tel Aviv and Fills Reservoirs

Historic rains filled the once dry Ayalon River bed that runs through Tel Aviv, flooding highways, homes, and public buildings. Overnight, the <u>Sea of Galilee or Lake Kinneret</u> rose 22 centimeters and water reservoirs near the Golan Heights filled to capacity, prompting <u>Israel's Park and Nature</u> <u>Authority</u> to peg the storm a "water celebration."

But urban dwellers aren't celebrating at all. Sections of the central arteries of <u>Tel Aviv</u>, Ayalon Highway and Highway 1, were closed to traffic in both directions and all four of the city's railway stations are closed, reports *Haaretz*. Areas north of the Mediterranean city have been swamped as well and authorities are bracing for the real possibility that both the Ayalon and Yarkon rivers will burst their banks.

It has been one of the wettest winters on record for Israel, but according to local reports, rains were fiercest on Tuesday morning and afternoon, and social media has been flooded with images of water inundating coffee shops and other public buildings.

Traffic in the center of Tel Aviv was heavily congested and police are urging drivers to stay home. At least three people have been killed in weather-related vehicular accidents already.

Tel Aviv Mayor Ron Huldai said the municipality is preparing for an emergency situation if the two rivers overflow. Funds will be made available to help evacuate residents as necessary and to clear their homes of floodwater.

Power outages were reported throughout Tel Aviv and several telephone lines are on the verge of collapse; even small airports have had to divert flights as a result of the storm.

Trees have been uprooted and many businesses shut down as rain continues to pummel the drenched city.

While the influx of water is seen by many as a godsend for the dry country, floods typically have a deleterious affect on topsoil, and the Yarkon River – Israel's longest coastal river – has a dubious history of intense pollution.



WATER RESEARCH PROGRAMME -Weekly Bulletin-

Like <u>Hurricane Sandy</u> in the northeast USA, the flood in Tel Aviv underscores the importance for better disaster preparedness. Because thanks to climate change, there will be more to come.

"Biblical Flood Swamps Tel Aviv and Fills Reservoirs", 08/01/2013, online at: http://www.greenprophet.com/2013/01/biblical-flood-tel-aviv/

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WATER RESEARCH PROGRAMME -Weekly Bulletin-

Dust Storms

Study: Dust storms pose growing health hazard in south

Ben Gurion University researchers aim to explore nature, effects of dust storms which blanket area in winter; cause spike in air pollution

The Ben-Gurion University recently released a study on the effects of dust and storms, the likes of which often engulfs the greater Beersheba area, regardless of the season.

Such storms cause a considerable spike in air pollution and therefore are a considerable health hazard to the area's residents – people and animals alike.

When such storms blanket the area, the Health Ministry issues an advisory urging anyone suffering from respiratory diseases, pregnant women, young children and the elderly to stay inside and refrain from opening their windows if possible.

Researchers at Ben-Gurion University are conducting an on-going, two-phase study on the effects of the dust storms, which are caused mostly when cold fronts cross the area, BGU's Dr. Itzhak Katra, of the Geography and Environmental Development Department, explained.

The first phase of BGU's study, which has already been complete, explored the escalating patterns of dust storms over the past 10 years.

The second phase of the study, which is on-going, explores the nature of outdoor and indoor dust particulate matter in the homes of chronic obstructive pulmonary disease (COPD) patients, Katra explained.

As part of the study, researchers catalogued patients at Soroka University Medical Center between 2001 and 2010 with a primary diagnosis of COPD.

Across the entire decade, Soroka noted 7,582 admissions for 147 patients with COPD, averaging 68 years in age. The study found that 63.6% of the patients were men, 22.6% suffered from diabetes and 5.4% had a heart disease.


The researchers found that admission rates were up during the winter, when more dust storms take place. Also, the older the COPD patients, the more times they needed to be admitted.

Researchers have yet to determine how to advise their patients to better weather dust storms, but according to Dr. Victor Novack, head of the Soroka Clinical Research Center, the Beersheba community provides them "a frontier environmental lab for climate change."

The greater Beersheba area sees sand and dust storms about 10% of the year, and particulate matter levels become extremely high on these days, both inside homes and outside, he noted.

http://www.ynetnews.com/articles/0,7340,L-4327485,00.html

Beersheba dust storms a matter of life and breath - Jerusalem Post

By SHARON UDASIN 01/01/2013

A dark yellow-orange haze made the Ben-Gurion University campus barely visible in a February 2012 photograph that dominated a Power Point presentation screen in Jaffa on Monday.

The photograph captured one of the dust storms that often overwhelm the Beersheba region and cause widespread air pollution, Dr. Itzhak Katra explained to participants in an Environmental Health Fund conference that morning.

Researchers at Ben-Gurion University from a variety of departments are collaboratively conducting a two-phase study on the effects of the dust storms, which come from natural soil sources and are associated with the passage of a cold front system, explained Katra, of the geography and environmental development department.

"I call it the orange day," Alina Vodonos, a PhD student involved in the project, told The Jerusalem Post, referring to that specific February 29 day.



The first phase of the study, which is already complete, takes a retrospective look at the outdoor dust exacerbations that occurred in the last decade. A second phase, which is unfolding right now, examines outdoor and indoor dust particulate matter in the homes of chronic obstructive pulmonary disease (COPD) patients, Katra explained.

In the retrospective study, the researchers catalogued patients at Soroka University Medical Center during the years 2001 to 2010 with a primary diagnosis of COPD, said Dr. Victor Novack, head of the Soroka Clinical Research Center. Amid the dust storms, the team detected that the presence of the particulate matter tended to be two standard deviations above the standard level, he added.

During the entire decade, a total of 7,582 admissions for 147 patients with COPD exacerbation occurred, and the patients had an average age of 68.9. The majority of the patients were male, at 63.6 percent, 22.6% had diabetes and 5.4% had heart failure. The average length of hospitalization lasted around three days, while hospital mortality rate was about 1.8%, according to Novack.

At the study's conclusion, the researchers found that many more patients were admitted during the winter months – when the dust storms occur – than during the summer months. In addition, with increased age came increased admission for COPD patients, Novack said.

During the prospective phase, which has just begun in recent months, the researchers have recruited a total of 86 patients – 70 men and 16 women – at an average of 70 years old and with extremely low lung function. The team is examining what exactly occurs among these patients after a dust storm occurs, and has thus far measured particulate matter levels and patient reaction in 19 households, according to Novack.

While the researchers have not yet figured out how to advise their patients in handling the dust storms, the Beersheba community provides them "a frontier environmental lab for climate change," Novack said.

These storms constitute about 10% of the year, and particulate matter levels become extremely high on these days, both inside homes and outside.



"For now, I don't have a very good recommendation for my patients," Novack said. "I can't say don't breathe during these days."

"Dust Storms", YNET / Jerusalem Post, 07/01/2013, online at: http://mideastenvironment.apps01.yorku.ca/?p=6651

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Investing in Palestinian Water

The economic state of the newly recognised State of Palestine

In the face of the global financial crisis, the Palestinian economy seems to have made significant advances since 2007. Palestine's Gross Domestic Product (GDP) hovered around the US\$4.5 billion mark in 2007 and 2008, whereas the 2011 figures point to a GDP of some US\$6 billion. While growth of the Occupied Palestinian Territory's (OPT) economy is in and of itself commendable, it is imperative to consider the broader context, including the origins of economic growth and the actors who contribute to it.

According to a recent World Bank report, the OPT's economy continued to grow during the first four months of 2012, although not at its previous pace. A major decline in the Gaza Strip's tradable sectors, such as agriculture and fishing, has contributed to the stagnated economic growth rate witnessed during 2012's first quarter. In the same period, the economic growth rate in the West Bank did not exceed its 2011 level.

Notably, economic activity of the West Bank's tradable sectors also declined. Construction slowed down significantly as a result of the increasing amount of Palestinian Authority (PA) arrears to local contractors, and the growth rates of manufacturing and agriculture sectors diminished. Most of the West Bank's economic growth came from an expansion of services, VAT collections, and wholesale and retail trade.

The continuous expansion witnessed in non-tradable sectors not only contributes to a distortion of the state of Palestine's economy as one that is subject to consistent sustainable economic growth, it also clearly exposes the role of donor aid in driving the Palestinian economy. As such, various analysts, including the World Bank, have suggested that to halt the downward trend in economic growth and to subsequently make it sustainable, the potential of the Palestinian private sector must be explored. While there is undoubtedly a strong argument to be made for incubation of Palestinian private sector capital to generate development and growth across the OPT, the root causes of the stagnation of the OPT's economic growth rate must not be ignored. It is, furthermore, vital to work towards solutions that are informed by the broader context of the on-going Israeli occupation of the OPT.



The ever-increasing dependence on foreign aid, closely intertwined with the PA's protracted fiscal crisis, and the restrictions imposed by the Occupying Power form the ingredients of a dangerous cocktail of an impending economic implosion. Short-term "donor-funded Band-Aids" or medium-term solutions involving private sector investments cannot stand in isolation and must be accompanied by political efforts to lift Israel's multi-layered system of restrictions that continues to severely curtail sustainable economic development and growth in the OPT.

The lack of access to water as a root cause of the economic decline in the agricultural sector Prior to 1967, the agricultural sector accounted for more than a third of Palestine's GDP and was equal in size to the Israeli agricultural sector. Today, the agricultural sector contributes not even 5 percent and continues to shrink as a result of Israeli restraints.

Palestinian farmers across the OPT rely on the water resources of the Mountain Aquifer and the Coastal Aquifer, two major productive groundwater resources shared between Israel and Palestine, for irrigation of their lands. The bulk of Palestinian agricultural and grazing lands are located in the West Bank's Area C, which covers some 60 percent of the West Bank, including the majority of the Jordan Valley. Area C is considered the "bread-basket" of the West Bank because of the abundance of fertile agricultural lands and water, providing an economic foundation for growth in key sectors of the economy. As the only contiguous land in the West Bank, Area C connects the numerous Area A and B enclaves, which are fragmented by the surrounding Israeli settlements, established in contravention of international law. Since the Israeli occupation of the OPT, Israel has consistently implemented policies and practices that mainly revolve around exercising control over Palestinian land and water. This has made it virtually impossible for Palestinian farmers to access, cultivate, and irrigate their lands.

In particular, Israel's exercise of exclusive control over the region's shared water resources contributes to the decline in the agricultural sector. Since the Six-Day War of June 1967, during which Israel captured and occupied lands strategic for its natural water resources, Israel has exerted considerable military and political efforts to consolidate and conserve its exclusive control over the major surface and groundwater resources of the region. This has included military orders declaring all water resources subject to Israeli military control, the establishment of settlements, and the



discriminatory allocation of water resources, a restrictive permit regime, and frequent confiscation and destruction of water infrastructure, mainly in Area C of the West Bank.

Currently, Israel exercises control over some 80 percent of all shared water resources in the region, thereby hampering Palestinian access and use of its share. The remaining water and infrastructure available for Palestinian use is largely located in Area C and thus regulated and controlled by the Israeli Civil Administration, which has actively and systematically denied permits for any construction or maintenance of water infrastructure. Any water structure built without a permit from the Israeli authorities – permits that are virtually impossible to obtain – faces the risk of confiscation or demolition. At the same time, Israel has developed wells, mainly concentrated in the Jordan Valley, and allows its national water company, Mekorot, to pump copious amounts of water directly from the wells to the settlements. The water is intended for irrigation of high-intensive and specialised agricultural production, enabling settlers to develop and profit from flourishing agricultural enterprises.

The Jordan Valley settlements have plentiful water available to cultivate all their lands with crops that require significant amounts of water, often received against subsidised prices by the Israeli government. Illustrative are the dates of Tomer, the grapes of R'oi, the bananas of Shadmot Mehola, and the watermelons of Na'aran settlement. Next door, Palestinian farmers are forced to depend on Mekorot for their water supply, which Mekorot often significantly reduces during the summer months – sometimes by as much as 50 percent – to meet consumption needs in settlements. Due to the lack of control over and consistency of the amounts of water supplied, farmers have no choice but to purchase water from external vendors against high prices, adding considerable financial strain to already struggling businesses. Consequently, Palestinian farmers are limited to low water-intensive crops, such as potatoes, cabbage, beans, cauliflower, okra, and zucchini. Many farmers do not even have enough water to cultivate all their lands, leaving large portions of their highly fertile lands fallow.

The availability of and access to water enjoyed by Israeli settlers demonstrates that resources are available and that the lack of sufficient water for Palestinians to unleash the potential of their agricultural sector is a direct result of Israel's discriminatory policies in water management. Furthermore, Israel's illegal appropriation of Palestinian water resources violates the provisions of



international humanitarian law, as well as the international legal principle of "equitable and reasonable utilisation" enshrined in transboundary water law. This principle, binding on all states, determines equitable apportionment of shared water resources, considering various different factors. Among the factors are the social and economic needs of the sharing states. As such, the size, state, and needs of the agricultural sector of one state's economy could be significant when setting standards for equal apportionment.

Private-sector capital potentially futile

The World Bank has suggested that if Israel lifts restrictions on access to land and water in the West Bank and allows Palestinians to cultivate an additional 1.5 percent of Area C, an extra US\$1 billion could be generated per year. Others have argued that the amount of Palestinian land suitable for agriculture would triple if sufficient water were made available for irrigation, creating more than 30,000 jobs and allowing for an estimated potential income for farmers and hired labourers of some US\$600 million.

However, all these projected estimations and developments stand on the political will of the international community of donors. While incubation of private-sector capital, whether derived from local or foreign investors, would certainly be required, it will fall short in making the Palestinian economy sustainable if the broader context of the on-going Israeli occupation is ignored.

Moreover, it is highly unlikely that private investors would commit to investing in agriculture, or any other industry for that matter, if uncertainty over the ability to bring in materials needed to be able to compete with modern agricultural enterprises or to obtain construction permits for the necessary infrastructure, visas, and export licenses remains. As long as any development or construction of new economic activity in Area C continues to face the risk of demolition, private-sector capital will steer clear of the whims of the Israeli government.

Looking into the future

The current protracted fiscal crisis experienced by the PA due to falling donor aid demonstrates that sustainable growth of the tradable sectors is direly needed to continue to boost the Palestinian economy until after the donor community ceases its financial support. Therefore, the root causes of the rapid economic decline of sectors such as agriculture can no longer be ignored – even tolerated. If



the international donor community is serious about its endeavours of making the Palestinian economy sustainable, its political efforts must match its financial support.

Once Israel has abandoned its multi-layered system of restrictions, especially on access to land and water in Area C, the Palestinian government must promote investment by creating a favourable environment for foreign and local investment through direct and indirect investment incentives.

Elisabeth Koek is currently working as a legal researcher for Al-Haq. Prior to her work with Al-Haq, Elisabeth worked in Johannesburg on socio-economic rights issues and in Amsterdam and New York in corporate law. Elisabeth holds an LL.M in public international law from King's College London, as well as an LL.M in corporate law from the University of Leiden Law School in the Netherlands. This article reflects the personal views of the author only. Elisabeth publishes regularly on the topic of human rights.

"Investing in Palestinian Water", This Week in Palestine, 07/01/2013, online at: <u>http://mideastenvironment.apps01.yorku.ca/?p=6641</u>

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***** Water price hike is all wet

According to the State Comptroller's Report from October, the Water Authority council should actually be contemplating a price cut.

We have been blessed with exceptionally abundant rainfalls and the level of Lake Kinneret has risen more in December than in any other month for a decade.

But while there is more water to spare, its price will not be going down. In fact, we will soon be paying more for every drop that comes out of the tap. In January, the Israel Water Authority's council, which sets water policy, plans to increase water costs for households by 3 percent to 5%.

If justified, such a price hike might actually be welcomed.

It would potentially have the positive side benefit of maintaining a strict regimen of water conservation at a time when too many Israelis, faced with impressive downpours, are mistakenly becoming complacent and allowing themselves to waste water. However, according to the State Comptroller's Report from October, not only is it inadvisable to raise water prices, the Water Authority council should actually be contemplating a price cut.

Since 2010, water prices have gone up by roughly 30% in accordance with a government decision that the price paid for water should reflect real costs. In theory this sounds fair. But the reality is much different. The sharp rise in water prices paid by households over the past two years reflects – at least in part – inefficiencies, cross-subsidization and taxation, not the real cost of water.

According to the comptroller's report, at the beginning of 2011 an advisory firm hired by the Israel Water Authority found that too many water corporations had been created as part of sweeping reforms first passed by prime minister Ariel Sharon's government back in 2001.

Only 13 corporations were needed to manage water and sewage services for 137 municipalities and local councils, according to the advisory firm, not 54 as is the case now. Reducing the number of corporations would do away with wasteful overlapping functions and redundant management and operation costs and would result in a 7% decrease in water prices.

Admittedly, the creation of the corporations was designed to remedy a situation in which municipalities were responsible for water and sewage services. Too often, these municipalities diverted revenues ostensibly collected for water to seemingly more urgent needs while water infrastructure was left untended and pipes and sewage leaked. But the advent of corporations have created another problem: politicians on both the local and national level have an interest in creating as many corporations as possible so that they can pass out jobs to cronies.



WATER RESEARCH PROGRAMME -Weekly Bulletin-

Another problem is cross-subsidization. An absurd situation has been created in which households – not the state – subsidize the low water prices enjoyed by farmers, industry and some hospitals, hotels and mikvaot (ritual baths). According to the comptroller's report, this subsidy made up 10% of the price paid by households in 2010 and 2011. It is perfectly legitimate for the government to encourage agriculture and industry by providing subsidized water prices, though the reasoning behind such a move is questionable. However, it is unfair to expect poor households who can barely afford their own water bill to pay extra so that businesses can benefit from particularly low water prices. Indeed, many poor families have had their water cut off because they can't pay the bill.

Another aspect of government policy that artificially jacks up water prices is taxation. Inexplicably, we pay value-added tax on water. Like other necessities such as fruits and vegetables there should be no VAT on water.

Doing away with the tax would significantly lower water prices.

The present government can still reverse the decision to raise water prices before January 1. At the very least, the planned price hike should be postponed. There is desperate need for a public debate on water policy.

Issues such as subsidies for agriculture and industry, VAT and streamlining of the water corporations should be discussed.

Perhaps the government will reach the conclusion that instead of a hike, what is in order is a cut in water prices. The increased rainfall after years of drought provides the ideal backdrop for a new focus on water price policy.

"Water price hike is all wet", Jerusalem Post, 07/01/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=6639

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✤ French soft loan to support water grid expansion

AMMAN — The Ministry of Planning and International Cooperation on Monday signed a 45million-euro soft loan from the French government. The loan will support the Jordan Water Company's (Miyahuna) project for expanding the water grid to receive water from the ongoing Disi Water Conveyance Project.

The agreement was signed by Planning Minister Jafar Hassan and French Ambassador to Jordan Corinne Breuze.

Hassan thanked the French government for its continuous support of the Kingdom by providing loans, grants and technical assistance in vital sectors like water and energy.

He said the Jordanian government would pay back the loan over 15 years, with a grace period of six years and a fixed annual interest rate of 0.05 per cent.

"French soft loan to support water grid expansion", Jordan Times, 07/01/2013, online at: http://mideastenvironment.apps01.yorku.ca/?p=6637

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Precipitation ups dam storage to over 100mcm

AMMAN — More than 44 million cubic metres (mcm) of water flowed into the country's major dams over the past 24 hours, according to the Ministry of Water and Irrigation.

Storage at the reservoirs went up from 62mcm on Tuesday morning to 105.5mcm by Wednesday morning, the ministry's spokesperson, Omar Salameh, told The Jordan Times.

"Storage at the country's dams rose by 14 percentage points between Tuesday and Wednesday mornings. The dams now hold 33 per cent of their total capacity of 325mcm," Salameh said.

During the same period last year, the dams held 59.58mcm or 18.31 per cent of their total capacity, he noted.

"A total of 65 per cent of the country's long-term annual average rainfall of eight billion cubic metres has been received this week," the official underscored.

He added that the country received more than one billion cubic metres of rain over the past two days.

"This week's depressions and cold air masses brought more rain that we have seen in years. Hopefully, by the end of the wet season, the dams will be at full capacity," Salameh said, noting that the Waleh (8.18mcm) and Shuaib (1.43mcm) dam have reached their full capacity and overflowed.

This week's rainfall has also allowed the JVA to stop pumping water to farmers in the Jordan Valley. The rain saved the authority from pumping around 500,000 cubic metres from the reservoirs for farmers to irrigate their crops. In addition, the rainwater is expected to raise the quality of water stored at the dams as it is clean, according to the ministry.

Salameh urged the public to protect their water gauges against freezing temperatures.

"People are urged to wrap their meters with a piece of cloth or rockwool insulation and place them inside a box to prevent the cold air and water from damaging them. If the meters are damaged, subscribers will be left without water and will incur the cost of fixing them," Salameh reiterated.



He also called on the public to contact the ministry's call centre on 06/5100180 or the toll free number 080022142 with any complaints

"Precipitation ups dam storage to over 100mcm", Jordan Times,10/01/2013, onliner at: http://mideastenvironment.apps01.yorku.ca/?p=6669

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✤ A perfect storm of mismanagement and corruption

BEIRUT: A combination of political corruption, poorly maintained infrastructure and a lack of planning contributed to the severe flooding that devastated wide swaths of Lebanon following a severe winter storm that struck the country this week, experts told The Daily Star Thursday.

The impoverished Beirut suburb of Hay al-Sellom and the Bekaa municipality of Barr Elias, where one person reportedly drowned in floodwaters, were particularly hard-hit. Both areas are located near rivers which flooded but residents and local officials have blamed nearby construction projects and blocked drainage and sewer systems.

Public Works and Transport Minister Ghazi Aridi defended his ministry, blaming the disaster on the strength of the storm, delayed funding and illegal construction, particularly near rivers. Critics have pointed out, however, that both building permits and construction regulation fall under the Directorate General of Urban Planning, which answers to Aridi's own ministry.

"The poor do the best they can to build their own houses, which tend to be on abandoned land, and this is thanks to the policies of the central government and the municipalities," said Leon Telvizian, an architect and former head of the Urban Planning Department at Lebanese University. "The whole process of planning is under the control of special interests, even at a municipal level."

Simon Moussalli, an architect and urban planner who has also served as chair of the architecture department at the American University of Beirut, echoed Telvizian's assessment that the problem is systemic, but added that Aridi must bear responsibility nonetheless.

"This storm may be considered a natural disaster, but the directorate and the ministry must foresee such situations," he said. "This is what we call planning."

But the gray area of responsibility among the ministry, the Council for Development and Reconstruction and the municipalities when it comes to building and maintaining infrastructure allows public officials to shift the blame when disaster strikes, as Lebanon had the occasion to witness this week.



Accusations have been flying since the storm struck Sunday, with political parties blaming municipalities, municipalities blaming the central government, the ministry blaming the Cabinet and the state-owned electricity company blaming workers.

Politics also plays a role in decision-making and the distribution of services, especially in areas like Hay al-Sellom where most of the residents moved to the metro-Beirut area from rural areas and are therefore not eligible to vote in local municipal elections. The current electoral law requires Lebanese to vote in their home village to preserve the sectarian balance of voting districts. This means that some municipalities are not held accountable to entire sections of the population living there.

Hay al-Sellom, a mixed Sunni-Shiite area belonging to the larger, richer and Druze-controlled Choueifat municipality, was declared a disaster area Tuesday, but residents who spoke to The Daily Star said the area suffers from regular neglect.

"It's the same story every time," said Zahra Mazloum, 39, who lives just a few streets away from the worst of the flooding. "The sewers need to be changed and the infrastructure is all ruined ... but the municipality doesn't care because most of the people here are from the Bekaa and the south."

In addition to the political and social complications arising from widespread, ad-hoc urbanization, it also affects soil permeability and drainage.

In Barr Elias, Mayor Abdullah Abdel-Rahim told The Daily Star that the unfinished Arab highway, which runs through the municipality and falls under the umbrella of the Council for Development and Reconstruction, created a natural dam which exacerbated the flooding from the nearby Litani River.

The CDR's press office had not responded to a request for comment by press time.

In the capital the storm was a nuisance for most people, but some areas, including Karantina, faced serious flooding and property damage.

"The infrastructure presently available in Beirut is simply not able to cope with the density of construction that the master plan of Beirut allows," said Moussalli, adding that even if the storm



drains and sewers had been cleared, the pipes do not have the capacity to handle the amount of rainfall from the past week.

"Another very serious issue is that the sewage system is obsolete and has not been maintained; surface water gets mixed with sewage and then you can imagine the result when it floods," he added.

But addressing the underlying problems of urban planning, poverty, and the uneven distribution of services requires government coordination at many levels, a dim prospect given the current political deadlock.

"It's a question of to what extent the public is able to take part in the future of their living conditions," said Telvizian. "We are pushing the limits of everything and it will only get worse without some reform in the democratic process, so hopefully this can be addressed in the new electoral law being discussed." – Additional reporting by Rakan al-Fakih

"A perfect storm of mismanagement and corruption", 11/01/2013, online at: <u>http://www.dailystar.com.lb/News/Local-News/2013/Jan-11/201767-a-perfect-storm-of-mismanagement-and-corruption.ashx#axzz2Hqug566S</u>

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* This water expert from Israel is on a mission to save the Noyyal

COIMBATORE: It was during a chance visit to Coimbatore two years ago, Israel's renowned water expert Dr Yoram Oren heard of the slow but steady death of the region's mighty rivers Noyyal and Bhavani due to the large scale discharge of toxic effluents by dyeing units along the river shores. He was in the city to address a water management conference in his capacity as an expert on desalination and reverse osmosis. After two more visits to the city and the setting up of a unique electro chemical water lab at Karunya University, Oren decided to devote his time and effort towards the revival of the two rivers by participating in an ongoing research to achieve zero discharge from dyeing units. The high court order closing down polluting dyeing units also prompted Oran to stay back and help find a solution.

It has been a year since Oren began his research work on the separation of textile dyes by means of nano-filtering. Oren believes that nano-filtration membrane separation is an effective way to ensure zero discharge from dyeing units. "I have completed more than half my research work. My team comprising water experts from leading institutions in South India find nano-filtration to be the most suitable option when compared to other methods including desalination and reverse osmosis. It is also cost effective and the filtered water can be recycled or released into the river without causing any harm," he said. Hailing from Ben-Gurion University in Israel, Oren would soon submit his findings to Union Ministry of Science and Technology and the state government.

"Nano-filtration is a proven success in Israel. Here also it is possible to make dry cubes of separated effluents which can be disposed off in safe places. It is up to the government to ensure such a facility to dispose off the dry wastes. In Israel, the government has demarcated the dump yard and this has helped restore several water bodies," he said.

Both the rivers remain contaminated despite court intervention. It is a matter of concern that many illegal dying units in Tirupur were shifted to the banks of Bhavani, he said. I come from a country known for effective preservation of its very limited water resources. When compared to Israel, India has adequate water but lacks the resolve to protect its natural resources. Ground water depletion is quite alarming," he said.



"Indian laws are the best, if implemented properly, to prevent water contamination and industrial pollution. But the authorities must have the courage to implement it as in the case of Tirupur. A few European countries have succeeded in preventing industrial units from polluting water bodies by permitting them to discharge only treated water. Countries like India must be more vigilant in allowing industrial units from water bodies," says Yoram.

He said that Tamil Nadu had more arid and semi-arid zones when compared to other southern states. Protection of water bodies in such areas along with rainwater harvesting can help meet drinking water needs. "The state needs to be more serious about water conservation," he said.

"This water expert from Israel is on a mission to save the Noyyal", 11/01/2013, online at: <u>http://timesofindia.indiatimes.com/city/coimbatore/This-water-expert-from-Israel-is-on-a-mission-to-save-the-Noyyal/articleshow/17976129.cms</u>

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✤ Afghan Water Infrastructure Threatens Iran, Regional Stability

As a US-NATO deadline approaches for withdrawing most international forces from Afghanistan, the prime security challenge to the region may not be the return of insurgents but the issue of water.

Both Iran, which has a water treaty with Afghanistan that predates the 1979 Iranian revolution, and Pakistan fear that Afghan policies will deprive them of resources crucial to the well-being of their populations and future development hopes.

A recent <u>report</u> by the US National Intelligence Council predicts that countries such as Iran are "heavily dependent on fossil and imported water" and could become embroiled in conflicts with neighbors over dwindling water from shared river basins.

Afghanistan has had disputes over water with Pakistan since the latter country was established in 1947. Close to 17 million acre-feet of water enters Pakistan from the Kabul River every year. Planned hydroelectric projects on the Kabul River and its two main tributaries — Kunar and Panjshir — would ultimately irrigate an additional 14,000 acres in Afghanistan on top of 12,000 acres at present. However, according to some estimates, construction of 13 dams on the Kabul River would reduce Pakistan's water supply from Afghanistan by 16-17%. Pakistani efforts to build dams and construction of the Kalabagh Dam have also been sources of tension. Several attempts to draft a water treaty with Afghanistan have failed. Pakistan media <u>blame</u> the lack of such a treaty on the Afghan administration.

Afghanistan has a water treaty with Iran over the Hirmand River, which was signed in 1973. However, a recent lack of rainfall has contributed to disputes over the allocation of water, which date to arbitration over the drawing of the current Iran-Afghanistan border by the British in the 19th century.

Events such as Afghanistan's 1973 coup d'état, Iran's 1979 revolution, and the Soviet invasion of Afghanistan in 1979, the Soviet withdrawal a decade later and an ensuing Afghan civil war have also had an impact. In 1998, the then-Taliban government of Afghanistan closed the sluices to Kajaki Dam, which blocked the flow of much-needed Hirmand water to Iran's Sistan Balochistan province. The blockade lasted until 2002 and coincided with one of the worst droughts in the region. It had a catastrophic impact on the region's ecosystem and led to extensive human migration in affected regions.



Since 2002, despite Iran's heavy involvement in Afghan reconstruction projects, the issue of Hirmand has continued to be a source of tension. The dispute has taken a new course since the start of the Khamal Khan Dam project, which would severely affect the amount of water that flows into Sistan Balochistan.

Iranian hard-line <u>media</u> has accused "ungrateful" Afghans, "who do not appreciate what Iran has done to help them," of violating the 1973 agreement. Afghan <u>media</u> quoted "Afghan officials" as saying that Iranian concerns are baseless and that "it is the right of Afghanistan to construct dams on its soil."

Iranians respond that recent drought and the decrease of water flow into Hamoon lake in Sistan Balochistan and subsequent drought in Hamoon have caused massive sand <u>storms</u> that also spread infectious <u>diseases</u>. Iranians also accuse Afghanistan of depriving Iran of Hirmand water in order to irrigate Afghanistan's <u>poppy</u> crop, the source of heroin that is a scourge for Iranian youth.

The dispute has also led to cynicism in Afghanistan over Iran's humanitarian help. One Afghan newspaper, Weesa, has referred to Iran blocking the transport of fuel <u>oil</u> to Afghanistan in 2010 as a means to put more pressure on the country over water. Meanwhile, Iran media request bolder action by the Foreign Ministry and state that any aid to Afghanistan should be <u>linked</u> to "Iran's rights to water."

In 2011, Mullah Dadullah, a Taliban <u>commander</u> captured in southwestern Afghanistan by Afghan authorities, claimed to have been trained in Iran to sabotage projects in Afghanistan including being offered \$50,000 to destroy the Kamal Khan Dam, a claim Iran has <u>rejected</u>. Shakila Hakimi, a member of the Nimroz provincial council, accused Iran in 2012 of conducting an <u>insurgency</u> in order to prevent construction of the Kamal Khan Dam.

These kinds of accusations are likely to increase in future if the dispute remains unresolved.

Afghanistan also suffers from its poor management of water resources. One of Afghanistan's missed opportunities in the last decade was its failure to legislate a comprehensive water law. Existing law does not define water rights. Land owners are also owners of water and landless farmers have no rights to water. The water management institutions are highly ineffective. The lack of a database of natural resources and the limited ability of the government to collect data is another challenge and a major obstacle to planning and development.

Decisions on constructing new wells for domestic water usage or irrigation are made quickly and without a comprehensive plan. Yet, there is a severe under-utilization of resources. Afghanistan lacks



the infrastructure to use much of the water that originates in the country and controls and utilizes only 15-30% of its water resources.

Water is a collective issue for Afghanistan and its neighbors. Any solution should therefore be multinational. Nations involved in Afghanistan, in particular US-led forces, should avoid politicizing this problem as it is so vital to the future of Afghanistan and the region as a whole. Investment decisions should be based not on efforts to deprive neighboring countries of water but on avoiding waste and improving utilization of resources. Without regional cooperation, Afghanistan will be faced with deeper and unresolvable challenges that will be even more difficult to solve after most international forces leave in 2014.

"Afghan Water Infrastructure Threatens Iran, Regional Stability", 07/01/2013, online at: <u>http://www.al-monitor.com/pulse/originals/2013/01/afghanwatershortageiranpakistan.html</u>

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***** Foreign experts to deliberate on water politics

LAHORE: The foreign and local experts started gathering at Government College University (GCU) on Sunday to deliberate on the politics of water between India and Pakistan at an international conference on "The Politics of Water Resources' Governance in the Indus Basin".

According to GCU spokesperson, besides scholars and experts from Pakistan, about seventeen eminent foreign experts from eight countries, including India, are also coming to participate in the two-day conference that will begin on Wednesday. The conference is being organised by GCU Political Science Department (PSD) and United Nations University's Institute for Water, Environment and Health (UNU-INWEH).

GCU-PSD Chairperson Dr Khalid Manzoor Butt said the conference would not only help produce critical mass of research in the discipline but also encourage local academics to research and formulate indigenous responses to the challenges posed by water scarcity and politics. According to him, David Gilmartin from North Carolina State University, USA; Dan Haines from University of London, UK; Douglas Hill from University of Otago, New Zealand; Lydia Powell from Observers Research Foundation, India; Giovanna Gioli from University of Hamburg, Germany; Awais Piracha from University of Western Sydney, Australia; Professor Ganesh P. Shivakoti from Asian Institute of Technology, Thailand, Yi-Chen E. Yang from University of Massachusetts, USA; Claudia Ringler from International Food Policy Institute, USA, Jürgen Scheffran University of Hamburg, Germany, Dave J. Devlaeminck from McMaster University, Canada, and several other foreigners will deliberate on the critical perspectives of the topic of the conference.

GCU Vice Chancellor Prof Dr Muhammad Khaleeq-ur-Rahman said the conference was highly critical, as water scarcity was becoming an increasingly important consideration of the larger political agenda. He said water was linked to the larger issues of food and energy security, and the environmental and social effects of climate change, with their related political challenges.

"Foreign experts to deliberate on water politics", 07/01/2013, online at: <u>http://www.thenews.com.pk/Todays-News-2-152912-Foreign-experts-to-deliberate-on-water-politics</u>

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* Water Summit to Focus on Resolving Scarcities in Mideast

UNITED NATIONS, Jan 11 2013 (IPS) - Amidst a growing water crisis in the predominantly arid Middle East and North Africa (MENA), some of the world's most influential water experts will meet next week at the International Water Summit (IWS) in Abu Dhabi, United Arab Emirates (UAE) to look for sustainable solutions.

The World Bank has already warned that MENA is the world's "most water-scarce region, home to 6.3 percent of the world's population but with just 1.4 percent of renewable fresh water."

The six countries that comprise the Gulf Cooperation Council – Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and UAE – are expected to spend a staggering 725 billion dollars over the next two decades on new water projects, desalination plants, infrastructure-building and high-tech innovations.

Asked to assess the water problems in the region, Dr. Anders Jagerskog, associate professor and director of knowledge services at the Stockholm International Water Institute (SIWI), told IPS, "The water crisis in the MENA region is severe."

The region, he pointed out, ran out of freshwater in order to achieve food self-sufficiency – mainly have the water needed for irrigation – already in the 1970s.

"But since then, the region has managed through increased import of 'virtual water'," he noted, meaning "the water embedded or used to produce the foodstuff imported to the region, for example".

The problem is perhaps worst in Palestine, where there is both very limited availability as well as the conflict that is severely affecting the possibilities for the Palestinians to develop a well- functioning water management since they are not in control of the water resources, he added.

Besides countries like Jordan and Yemen, the demand for renewable fresh water has also continued to increase in the six GCC countries, according to water experts.

At the Abu Dhabi summit, Jan. 15-17, Project Stream will offer a major opportunity for developers and investors to "connect and accelerate the building of sustainable water solutions".



The summit, which is is part of the Abu Dhabi Sustainability Week being hosted by Masdar, described as "a sustainable green energy city of the future", will also bring together financiers and some of the world's leading engineering, technology and service providers.

Peter McConnell, show director for IWS, says that GCC countries have been investing heavily in water sustainability over the last few years.

"And Project Stream will in essence become a networking platform that will connect solution providers from around the world to project developers from the region," he added.

These projects, McConnell, said range from multi-billion-dollar government infrastructure ventures to high-tech innovations in areas such as low-energy desalination, water leakage prevention and water efficiency.

"These will contribute in a significant way to address the worldwide challenges surrounding clear water supply," he added.

Asked if desalination was an answer, SIWI's Dr. Jagerskog told IPS that part of the solution lies in increased desalination, but desalinated water is only an economically viable solution for industrial and domestic uses while it is not economically efficient for irrigation.

While cost varies – and is decreasing somewhat – the price of 1,000 litres of water to be desalinated is between 0.8 and one dollar.

While a kilo of cereal requires about 1,000 litres of water, it is evident that only the cost of water to produce one kilo of cereal is close to a dollar.

"So, the future lies in a combination of things – desalination of water for cosmetic and industrial purposes, increased water use efficiency, increased re-use of treated waste water for irrigation, as well as continued reliance on imported 'virtual water'," Dr. Jagerskog said.

The industry think-tank Global Water Intelligence (GWI), which is collaborating with Project Stream in Abu Dhabi, has reported major planned investments by Gulf countries, amounting as much as 725 billion dollars over the next two decades.



Between 2013 and 2017, Qatar is planning to invest some 1.1 billion dollars in desalination capacity through independent water and power projects (IWPPs).

Kuwait has a combined municipal water/wastewater capital expenditure budget of 4.4 billion dollars from 2013 to 2016, while the UAE's budget reaches 13.0 billion dollars.

Saudi Arabia is expected to spend about 53.9 billion dollars over the next two decades to build, operate and maintain water projects to meet the growing demand in the Kingdom, according to GWI estimates.

Meanwhile, Secretary General Ban Ki-moon has warned that water shortages cause social hardships and impede development.

"They create tensions in conflict-prone regions. Too often, where we need water we find guns. There is still enough water for all of us – but only so long as we keep it clean, use it more wisely, and share it fairly," he says.

And according to the United Nations, some 700 million people in 43 countries suffer from water scarcity.

By 2025, about 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.

With the existing climate change scenario, almost half the world's population will be living in areas of high water stress by 2030, including between 75 million and 250 million people in Africa.

In addition, water scarcity in some arid and semi-arid places will displace between 24 million and 700 million people.

Sub-Saharan Africa has the largest number of water-stressed countries of any region, according to the United Nations.

"Water Summit to Focus on Resolving Scarcities in Mideast", 11/01/2013, online at: <u>http://www.ipsnews.net/2013/01/water-summit-to-focus-on-</u> resolving-scarcities-in-mideast/

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* Avert water crisis, Arab nations told

RIYADH – Prince Khaled Bin Sultan, Deputy Minister of Defense and Chairman of the Board of Trustees of Prince Sultan Bin Abdulaziz International Prize for Water, called on Arab countries to reconsider the ways they use water, especially in agriculture.

He warned, "If Arab countries do not act now in conserving water, then disasters of drought and deadly thirst are inevitable."

Prince Sultan was speaking at the opening of the fifth International Conference on Water Resources and Arid Environments here on Sunday night.

The conference is being held under the aegis of Crown Prince Salman Bin Abdulaziz, Deputy Premier and Minister of Defense.

Prince Khaled, in his address, thanked the organizers for holding this conference amid turbulent international political situations, critical economic conditions and very difficult water challenges.

He added, "Ninety percent of the Arab region is barren desert with low and limited water resources and high evaporation rates reaching 80 percent.

Also, 50 percent of water in the Arabian Peninsula is groundwater due to the nonexistence of rivers in most of the Arab countries. Aquifers are the main source for such water. Not only that, they are the only source of potable and replenished water."

"The confusion in the political situation in a number of Arab countries has led to economic repercussions as there is no progress and prosperity without stability and system," he said, adding that due to the Arab political scene and quasi-economic collapse, the most important pillars of human security are affected, particularly water, food, energy and environment.

He pointed out that the Arab world faces severe aridity. He added that there are factors contributing to worsening of the water scarcity, including that some countries spend money on arms or investing unwisely. These countries ignore the investment in the provision of water or in searching for alternative sources of providing water.



Prince Khaled said that one of the innovations is called "Dry Water" which contributes to the rationalization of irrigation water, especially in reforestation projects.

In a press statement, Prince Khaled praised King Saud University for its efforts in the fields of academic and scientific research.

In his speech, Abdulmalik Bin Abdulrahman Al-Sheikh, Secretary General of the prize and Chairman of the higher steering committee of the conference, said the meeting aims to provide a scientific framework for awarding Prince Sultan Bin Abdulaziz International Prize for Water. It also aims to exchange knowledge and share information in water resources and desert-related fields.

He added that the conference will explore the use of new technologies in the study of arid and semiarid environments and their natural resources.

Al-Sheikh stressed that the event provides an opportunity for decision-makers, experts and scientists to share their expertise in order to find integrative and comprehensive solutions for water resource problems. -SG/SPA

"Avert water crisis, Arab nations told", 08/01/2013, online at: http://www.saudigazette.com.sa/index.cfm?method=home.regcon&contentid=20130108148488

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Temperatures to rise by six degrees in Middle East countries

World Bank report says there will be lower rainfall, higher temperatures and continuing desertification in the region

Countries in the <u>Middle East and north Africa</u> will be among those hardest hit by global warming, unless the upward trend for greenhouse gas emissions can be checked, the World Bank warned last month at the<u>Doha climate change conference</u>.

There will be lower rainfall, higher temperatures and continuing desertification, said Rachel Kyte, World Bank vice-president for sustainable development, during her presentation of the report on<u>Adaptation to a Changing Climate in the Arab Countries</u>.

According to the forecasts, average temperatures could rise by 3C between now and 2050. But night temperatures in city centres could increase by double that figure. The report notes that over the last three decades 50 million people have been affected by <u>climate disasters</u>. Severe flooding is now a recurrent event. But the increasing scarcity of <u>water</u> resources is the biggest challenge for countries in the region, which already have some of the lowest per capita reserves in the world.

Kuwait and Qatar depend on desalination plants for almost 40% of their needs. With demand for water forecast to increase by 60% over the next 30 years, due to population growth and changing ways of life, the World Bank fears there is a high risk of shortages and conflict. Measures to adapt to <u>climate change</u> are still limited, even if a regional strategy for reducing the risks of natural disasters has been adopted.

The lack of reliable data is a stumbling block for any preventive measures. The launch of a research centre, announced by Qatar last month, could help remedy this situation. Funded by the <u>Qatar</u> <u>Foundation</u>, in partnership with the <u>Potsdam Institute</u>, the centre will focus on the impact of climate change on countries in the Gulf.

However, this positive move will not be enough to cover up the fact that Qatar, much as the other oilproducing countries in the Gulf, has still not made any commitment as part of the UN climate talks.

<u>Saudi Arabia</u> – though it refutes this suggestion – continues to play along with those angling for a business-as-usual agreement.

"We take climate change seriously and will reduce our CO_2 emissions," said an adviser to the Saudi oil minister, citing the kingdom's plans for carbon capture and storage facilities, and measures to



boost energy-efficiency and develop solar power. "The world will not be able to do without fossil fuels in the coming decades. We aim to produce 'climate-friendly' oil and gas that cause less pollution."

This story appeared in Guardian Weekly, which incorporates material from Le Monde

"Temperatures to rise by six degrees in Middle East countries", 08/01/2013, online at: http://www.guardian.co.uk/environment/2013/jan/08/middle-east-temperature-riseclimate?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=805b5f3eeb-RSS_EMAIL_CAMPAIGN&utm_medium=email

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Briefing: Turning Egypt's deserts into fields

CAIRO, 10 January 2013 (IRIN) - Political tension in Egypt in the aftermath of the revolution which began nearly two years ago, has hit tourism, led to <u>high food prices</u>, and caused an economic slowdown which is raising food security concerns.

In 2012, Egypt was the world's largest wheat importer, shipping in 11.5 million tons, and highlighting the gap between official food sustainability goals and reality.

"There is an urgent need to increase wheat productivity," said Nagui Saeed, head of Egypt's Wheat Producers' Association - not just to conserve foreign currency but also to cater for Egypt's growing population, which has nearly doubled in the last 30 years to 83 million.

Egypt's long-term food security faces a number of challenges: nearly 99 percent of the population live on about 4 percent of the land (adjacent to the River Nile where most of the fertile land is).

Arable land covers around 3 percent of the country, and is under threat from<u>desertification</u>, urbanization and salination, particularly north of the Aswan High Dam, leading to the loss of an estimated 11,736 hectares of agricultural land every year.

The grand dream has always been to transform little-used desert areas and expand out of the denselypopulated Nile valley.

What happened to Mubarak's Toshka project?

In the mid-1990s former leader Hosni Mubarak initiated the <u>Toshka Project</u> to cultivate 202,347 hectares of farmland in the western desert, irrigating it with water from nearby Lake Nasser, a vast man-made lake created by the construction of the Aswan High Dam on the Nile in the south.

Funding problems, mismanagement and wavering political support have hindered the large-scale project, which nevertheless still looms large in discussions on food self-sufficiency.



But in the current political instability, the dream of a single project turning vast tracts of desert into grain farms looks more like the pet-project of an authoritarian leader than the most pressing priority for the newly elected government.

The Muslim Brotherhood, to which President Mohamed Morsi belongs, opposes the scheme, but the wider policy idea of improving food security for a growing population remains part of state policy.

How can current farms be improved and expanded?

"There is determination at the national level to achieve self-sufficiency in wheat," Iman Sadek, a senior researcher from the Agricultural Research Academy (within the Ministry of Agriculture), and the head of the National Wheat Campaign (a project that aims to reduce Egypt's wheat production-consumption gap), told IRIN.

Using desert land seems a key part of the solution, she says.

"But we have to bear in mind that the variety of wheat that can be grown in the desert can be different from the one grown in the Nile valley or delta."

Away from mega-projects, some progress has been made, if slowly.

According to the Ministry of Agriculture, Egypt produced 8.7 million tons of wheat in 2012, 4 percent more than in the previous year, itself a good year.

"Productivity improvements can be done by both increasing the lands cultivated with wheat and also applying new technologies to raise the productivity of present fields", said Saeed of the Wheat Producers' Association.

"There is determination at the national level to achieve self-sufficiency in wheat" - Iman Sadek, senior researcher, Agricultural Research Academy



The total land area sown with wheat has increased to 1.2 million hectares in 2012, from 1.1 million hectares in 2011, according to Agriculture Minister Salah Abdel Mo'men.

The new Egyptian government has a target of producing locally <u>75 percent of domestic wheat</u> <u>needs</u>within the next three years. Pilots carried out in 2011 and 2012 by the Egyptian Agriculture Research Centre and Egypt's Academy of Scientific Research and Technology have shown productivity can be boosted by 30 percent.

The increased yields were attributed to new varieties developed by the Agricultural Research Academy and new agriculture methods (raised bed planting).

What's holding back greater food production?

Agriculture needs fertile land and water, both of which are in short supply in Egypt, but when it comes to persevering fertile land, water is ironically the biggest threat.

The Nile Delta generates a third of national agricultural production, but <u>saltwater intrusion</u> is now a major problem with the Mediterranean having risen 20cm in the past century.

Egypt is particularly exposed to climate change.

The country has an annual water shortfall of seven billion cubic metres, with the Nile the only regular freshwater source, and itself <u>threatened</u> by growing water-use upstream.

Agriculture will bear the strain of any decrease in water availability, consuming as it does 85 percent of supply, according to Egypt's <u>state of the environment report</u>, which criticises the "the continued use of unsustainable agricultural methods of planting and irrigation management".

With only 55 billion cubic metres every year, Egypt does not have enough water to quench the thirst of its growing population and irrigate its farmland (around 3.3 million hectares in total).



WATER RESEARCH PROGRAMME -Weekly Bulletin-

What's the government doing?

Current the government is importing cereals from global markets, leaving the country's poor heavily exposed to fluctuations in world food prices, effectively importing water in food form.

The lack of security on the open market - as shown when Russia banned wheat exports in 2010 - has even prompted the government to consider growing cereals in other countries, including Sudan.

A delegation from the Ministry of Agriculture is preparing to <u>visit Sudan</u> later this year to examine the possibility of growing wheat on as many as 470,000 hectares of Sudanese land.

While better use of current water supplies seems to be the most practicable idea for improving national food security, others see a broader solution just around the corner.

Scientists say the western desert is home to a huge groundwater reservoir that could help Egypt reclaim up to 1.5 million hectares of land in the future.

Khaled Abd El-Kader, a professor emeritus of stratigraphy from Assuit University, used satellite images of the Great Sand Sea, an area in the western desert that contains huge sand dunes up to 100 metres in height, to search for ground water.

<u>Findings from a field trip</u> to the area concluded that there may be a huge and accessible underground water oasis spanning Chad, Egypt, Libya and Sudan.

An earlier study by water expert Maghawry Diab pointed to the presence of huge amounts of underground water in the Western Desert, enough for the reclamation of 261,000 hectares of land, and suggested that Egypt could do without the Nile for reclamation purposes if this source could be tapped.

The government, according to Sadek of the Agricultural Research Academy, is digging experimental



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wells in the desert to try and reach this water but in the meantime researchers at the Academy are focusing on new varieties of drought- and salinity-resistant wheat.

"Briefing: Turning Egypt's deserts into fields", 10/01/2013, online at: <u>http://www.irinnews.org/Report/97215/Briefing-</u> <u>Turning-Egypt-s-deserts-into-fields</u>

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Ethiopian Dam Threatens to Destroy Indigenous Livelihoods and the World's Largest Desert Lake

Over the last century, the construction of big dams to generate power, supply water and control floods has unleashed a damaging cascade of social and environmental consequences – including the destruction of fisheries, subsistence farmlands, homes and communities.

More than <u>470 million people</u> around the world are estimated to be suffering from these and other downsides of dams, often with little or no compensation for their lost livelihoods.

Now, another big dam under construction – on the <u>Omo River</u> in Ethiopia – threatens not only the ancient ways of living of some 500,000 tribal peoples in Ethiopia and Kenya, but also <u>Lake Turkana</u>, the world's largest desert lake.

The Omo traverses the highlands of southern Ethiopia before it empties into the lake in northern Kenya.

The Ethiopian Government views the Gibe III Dam, under construction since 2006 and now about half complete, as essential to its drive for economic development. In addition to generating electricity for domestic use and export to neighboring Kenya, the dam will supply water to vast agro-industrial schemes, including plantations of sugar cane for biofuels production.

But without attention to the peoples, wildlife and ecosystems affected by this massive project, the cost of progress may be far too great, according to <u>a study</u> released this week by <u>International Rivers</u>, an environmental and human rights organization based in Berkeley, California.

If Ethiopia completes the Gibe III Dam and moves ahead with large-scale irrigation in the lower Omo Basin, "the result will be a cascade of hydrological, ecological and socio-economic impacts that will generate a region-wide crisis for indigenous livelihoods and biodiversity and thoroughly destabilize the Ethiopia-Kenyan borderlands around Lake Turkana," says the report, written by a natural scientist with many years of field experience in the region who wishes to remain anonymous.

Numerous indigenous peoples, including those of the Bodi, Karo, Kwegu, and Mursi tribes, rely on the natural flood cycles of the Omo for their sustainable practices of flood-recession farming, fishing and livestock grazing. Like generations of their forebears, they plant sorghum, maize and beans in



the riverside soils after the yearly flood, relying on the moisture and nutrient-rich sediment the Omo deposits each year.

That cycle of flooding will disappear if the dam is completed, because the river's natural rhythms will be replaced by flows regulated to optimize the production of hydropower and to deliver irrigation water to industrial-scale farms.

"When we talk about the Omo River we are talking about our life," said the chief of the Karo people to Mark Angelo, chair of the Rivers Institute at the British Columbia Institute of Technology. "The Omo River is everything to us. But we don't have a say." (Read Angelo's article and see the video <u>here</u>.)

The lower Omo Valley is also the last unspoiled biodiversity hot spot in southwestern Ethiopia and an area crucial for elephant and other large mammal migrations. Harm to wildlife from the dambased schemes could be substantial, since among the areas slated for large-scale plantation-style agriculture is a sizeable portion of the Omo-Tama-Mago complex of protected areas, Ethiopia's most important wildlife territory.

Lake Turkana, situated at the northern end of Kenya's Great Rift Valley and one of the oldest lakes on Earth, could shrink dramatically if Gibe III is completed. The lake currently receives nearly 90 percent of its inflow from the Omo. Without the river's yearly supply, Lake Turkana would steadily lose water, because evaporation would no longer be balanced by inflows. Each year, about 7 percent of the lake's total volume evaporates under the hot desert sun.

Between the Omo water stored in the Gibe III Dam's reservoir and diverted to the large irrigated plantation schemes now under development in the lower Omo Valley, the level of Lake Turkana could drop by as much as 22 meters (72 feet), according to the study. Given that the lake's average depth is 30 meters, such a drop would alter its ecology, salinity and habitat immensely.

Indeed, the devastation to the lake's ecology and fisheries could rival that of Central Asia's <u>Aral Sea</u>, which has lost more than 80 percent of its volume of water through excessive diversions of the two rivers that flow into it.


Gibe III, expected to cost about \$2 billion (which is likely an underestimate, given the history of dam cost-overruns), is a public–private partnership between the state-run Ethiopian Electric Power Corporation and the Italian engineering firm Salini Costruttori.

International Rivers and Friends of Lake Turkana are calling for a halt to construction until there is a thorough and scientifically sound assessment of how the dam and irrigation projects will harm Lake Turkana, as well as a plan to ensure the lake does not collapse ecologically. As for the Omo, the government earlier proposed to mitigate the effects of the dam with a "controlled" flood, executed by releasing water from the dam's reservoir for ten days. The idea would be to mimic the Omo's historic natural flood, which is so important to the indigenous peoples' livelihoods.

However, an independent review of the Gibe III project, commissioned by the European Investment Bank, determined that the planned artificial flood had not been adequately studied to determine its effectiveness. But given the rapid growth of irrigation in the basin, it is likely the dam would not be managed to maintain ecosystem functions. As the new report states, "The designation of Omo riverbank lands for industrial agriculture immediately makes clear that artificial floods for ecological benefits will not be released as proposed, since these would harm the estates."

Ethiopia remains one of the world's poorest nations. There is no begrudging its quest for economic advancement.

But <u>there are alternatives</u> to grabbing land and water from indigenous tribes who have lived and farmed sustainably in the region for hundreds of years, and to destroying so much of the country's natural and cultural heritage for the sake of export-oriented agriculture that will do little to improve the lives of the very poor.

The government should halt the development of Gibe III until its full social, political and ecological ramifications are understood, and until the principles set forth by the <u>World Commission on Dams</u> for dam project assessment and compensation are fully taken into account.

*Note: I joined fifteen other scientists, including Richard Leakey of the Turkana Basin Institute, David Turton of Oxford University's African Studies Centre, Kate Showers of the University of Sussex, and Eric Odada of the University of Nairobi, in endorsing this study.



WATER RESEARCH PROGRAMME -Weekly Bulletin-

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"Ethiopian Dam Threatens to Destroy Indigenous Livelihoods and the World's Largest Desert Lake", 11/01/2013, online at: <u>http://newswatch.nationalgeographic.com/2013/01/11/ethiopian-dam-threatens-to-destroy-indigenous-livelihoods-and-the-worlds-largest-desert-lake/</u>

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Usable water, not oil, will be next big challenge for global economy

Here's a question for your next quiz night. How many litres of water are there in a half-litre bottle of any sugar-based carbonated beverage?

This was the query that in 2010 attracted the attention of three scientists in the Water Centre at the University of Twente in the Netherlands.

The university, along with big international players including World Wildlife Fund and the World Bank, is a founding member of Water Footprint, dedicated to connecting and informing "diverse communities interested in sustainability, equitability and efficiency of water use".

In a paper published in the journal *Water Resource Management* in 2011, the scientists steered clear of naming names, but made clear that the hypothetical drink in question was "realistic".

Most companies, they noted, focused only on their own performance when assessing their water use. What they demonstrated, however, by examining every detail of the process in minute detail, from the growing, harvesting and transporting of the crops to the making of the drink, the plastic bottle it came in and its delivery to market, was that 99 per cent of the water use came from the supply chain.

And the astonishing fact is that producing a single half-litre bottle of fizzy pop consumes between 150 and 300 litres of water, depending on whether the sugar comes from beet grown in the Netherlands or cane produced in Pakistan or Cuba.

And right there in that insane number can be found the central source of the world's water problems: we depend upon it for our existence, but we neither understand nor care how finite a resource it is.

This year has been declared the Year of Water Co-operation by the United Nations and the increasingly fraught subject of H2O will be under the spotlight at numerous conferences and summits around the world.

Tellingly, water will take centre stage at Abu Dhabi's annual World Future Energy Summit, which starts on Tuesday.

On day one, a ministerial panel will discuss the "water-energy nexus", noting that "the global energy sector uses vast amounts of water for fuel production and power generation, accounting for an estimated eight per cent of all freshwater withdrawals [and that] there are already signs that water scarcity may be constraining energy production in many parts of the world".



It is no secret, of course, that the UAE and other countries along the Arabian Gulf are dependent upon desalination for their fresh water - a process that consumes large amounts of energy - and that those nations are developing at a rate that threatens to outpace their ability to generate either enough water or electricity.

Renewables, the panel will suggest, may offer some solutions. But the Earth's hydrological cycle is highly complex. Tinker with one part of the machine and another goes out of whack, and even renewables, while doubtless a partial solution to the world's energy crisis and an area of research and development in which Abu Dhabi is leading the world, pose their own problems.

Take biofuels, an alternative to fossil fuels, derived from crops such as soya, corn or sugarcane. Forget the thirst of fizzy pop: each litre, says the UN, costs an astonishing 2,500 litres of water to produce.

After Abu Dhabi comes Seville, Spain, and April's Global Water Summit. "Water risk," say the organisers, water industry analysts Global Water Intelligence, is "the most important challenge the global economy will face over the next decade", thanks to the triple whammy of climate change, increasing population-driven demand for food and energy and a lack of investment.

Over the next decade, they predict, each of us "will experience a water related event - a shortage, a flood, an infrastructure failure, an interruption to business, an economic disruption - which will have a bigger impact on our lives than we have ever experienced before".

One of the problems with water in the developed world, says Geoffrey Parker, a water specialist at Cambridge University's engineering department who lectures each spring at the American University in Sharjah and has advised utilities in the UAE, is precisely that it has no perceptible impact on our lives.

Throughout most of the developed world, including the UAE, water is "much more cheaply available than it has a right to be. People think and know water is important, on some sort of commonsense level, but we expect it to be in our houses, to be clean and taste good and at exactly the right temperature. There are distortions in the way we deliver and manage water as a society that doesn't always reflect the true cost or value of it."

The perception that water is a free and plentiful natural resource is hard to shake off - especially in the United Kingdom, perhaps, which has just endured its wettest year since 2000.



But water does not fall from the skies evenly. India depends on the rains that fall during its monsoon season, which last year was one of the driest since Independence, resulting in widespread drought. On average, rainfall was down 20 per cent, with some regions suffering a shortfall as high as 70 per cent.

How much water is necessary to support human life? It varies hugely, depending on what you are doing and where you are doing it. But it's a strictly academic question, because while many in the world's poor regions often struggle to find enough water to survive, the lifestyles of most of those in the developed world mean they consume far more than they need to keep body and soul together. Last year, Arjen Hoekstra and Mesfin Mekonnen of Twente University estimated the total annual human water footprint at 9,087 billion cubic metres of water per year, with China (1.2bn), India (1.18bn) and the US (1.05bn) consuming the most.

But look at the same question in terms of national per-capita consumption - how much water is consumed by a nation when divided by the number of people in it - and a very different picture emerges. From 1996 to 2006, Mongolia was the worst culprit, consuming 3,775 cubic metres per person per year. In the UAE, in fifth place behind Niger, Bolivia and Brunei, the startling total was 3,136 cubic metres. That boils down to a daily consumption of 8,591 litres for every person. Very little of that is being drunk; the rest is soaked up by everything from air-conditioning and energy production to watering golf courses and shipping in most of the food eaten here. The average for the whole world is 1,385 cubic metres and there are 109 countries with above-average consumption.

The reality, says Parker, is that there is only so much water to go round and some of us are consuming more than our fair share. We are, after all, "using the same water as the Romans did". And we are not talking about a cycle of purely historical proportions: "Every drop of the Mississippi, for example, runs through 44 people, from one end to the other."

It helps to focus the mind on the problem by looking at the Earth, and all the water that is on it, as two spheres, side by side, as the US Geological Survey has done. There is approximately 1.38bn cubic kilometres of water on the Earth - or, seen in spherical form, a ball of water about 1,385 kilometres in diameter. That sounds like a lot. But if the Earth is represented by a tennis ball, every drop of liquid water upon it - both fresh and saline - is a sphere with a diameter no bigger than the base of a Triple-A battery.



Isolate all the fresh water in the ground, lakes and rivers, and you are looking at a ball about the size of a pinhead.

An interesting analogy, says Dr Parker, is to think of the planet as a perpetually journeying spaceship which sets off on its travels with full water tanks.

It has a highly efficient water system, which recycles 100 per cent of all the water it carries in its tanks, but those tanks can never be topped up and, as the number of people carried on the spaceship increases, there is proportionately less water to go round.

Seen in this light, it is only a matter of time before water does, as many commentators have suggested it will, become the new oil - an increasingly scarce and valuable commodity corporations and countries will, by necessity, have to fight to control. In fact, water is far worse a threat to peace than oil. As Alex Prud'homme observed in his 2011 book The Ripple Effect, "we can live without oil, but not without water".

Water is a leading concern of the UN, whose Ban Ki-Moon travelled to Davos in 2008 to lecture business leaders about the "looming water crisis" (and to berate them for failing to sign up to the UN's CEO Water Mandate scheme).

But the UN, though well-intentioned, finds itself at a loss in the water plant of the spaceship, desperately throwing switches at random.

On the one hand it urges countries and corporations to act to head off the looming water crisis. On the other, it works tirelessly under its Development Programme to reduce poverty - a noble objective but one with potentially disastrous consequences for the world's limited supplies of water.

As people become wealthier they consume more goods and food that in turn consume more water. And as it is, agriculture already consumes about 80 per cent of all freshwater used on Earth. Such excessive water consumption is, says Douglas Crawford-Brown, director of Cambridge University's Centre for Climate Change Mitigation Research, "partially driven by the globalisation of the food market. People in England think they ought to be allowed to have strawberries 24 hours a day, 365 days a year."

And take meat, which forms a larger proportion of the diet of those who can afford it. Research from the University of Twente last year demonstrated that the water footprint of any animal product was larger than the water footprint of a "wisely chosen crop product with equivalent nutritional value". In



industrialised countries, they calculated, a vegetarian diet alone could reduce the food-related water footprint of people by 35 per cent.

The basic problem is that there are just too many of us - and counting.

Until just after the end of the Second World War, population grew at a fairly linear rate. But from the 2.5 billion people around in 1955, the population started to shoot up exponentially, adding an additional billion every decade or so and passing seven billion last year.

How many people can the Earth support? That was the question asked in 1995 by Joel Cohen, an American mathematical biologist. He examined 65 calculation-based predictions, made between 1679 and 1994, which ranged from fewer than 1 billion to in excess of 1 trillion, with a median figure of 12 billion - very close to the UN's upper projection for the world's population in 2050. Clearly, he concluded, there was "no single right answer ... How many people the Earth can support depends both on natural constraints, which are not fully understood, and on human choices." We have our own ingenuity to thank for the population explosion, which has led to medical breakthroughs and improved living standards (including, ironically, wider access to clean drinking water) reducing infant mortality and lengthening lives.

But the extreme growth in human population, says the Population Media Center, which campaigns for population awareness, "is mortally taxing the Earth and its resources ... As a result, the Earth is attempting to impose its own checks on human population ... in the form of ... the emergence of new disease strains, food and water shortages, poor harvests and violent and destructive weather". And, as water becomes even scarcer, there is the very real prospect that humans could start imposing their own checks - on each other.

Last year, in the latest edition of its World Water Development Report, the UN predicted that, as demand for water increased at the same time as climate change reduced the availability of fresh water in many regions, these pressures would "exacerbate economic disparities between certain countries, as well as between sectors or regions within countries".

In the past, famine was frequently the trigger for riots throughout the world. But in the future, it may be a lack of water that drives people out onto the streets.

Since Ban Ki-Moon berated business leaders at Davos in 2004 for failing to act over water, selfinterest has stirred many corporations to act, says Professor Crawford-Brown. Agriculture is the



biggest consumer of fresh water - as much as 80 per cent of the total used on Earth, says the UN - "so any company that is having to rely on agricultural productivity is already acutely aware of the water shortage.

"I sit on sustainability panels for those sorts of companies and I think it would be fair to say that water is the biggest issue we talk about."

Companies such as Unilever, Pepsi and British American Tobacco "all have masses of people out in the field working with farmers in Africa, South America, Asia and so forth, teaching them to grow low-water-requirement crops".

So does that mean we can rely on big corporations to save Spaceship Earth from ultimate drought? In 2011 the World Resources Institute, launched in 1982 as a centre for resource and environmental policy research and analysis, formed the Aqueduct Alliance, designed to provide an "unprecedented level of water risk information for business and government".

With partners including Coca-Cola, Dow Chemical Company and General Electric, the Alliance went on to unveil a freely available online water mapping resource, which in some quarters was greeted with deep suspicion. It sparked concerns, reported AlertNet (the "humanitarian news site" run by the Thomson Reuters Foundation), that, faced with mounting global water shortages, water-dependent corporations were set to embark on a "liquid gold rush".

It was, says Betty Otto, director of Aqueduct, "certainly not our intent" to assist companies to prioritise their water needs over those of the communities in which they operated.

"I don't think we are going to solve the world's water problems without involving everyone, all the important sectors and actors, and the first step is having people just understand the dimensions of water issues around the world," she says.

"What we lack right now is good information, frankly, and that's why we think Aqueduct is a really important information platform ... [that] helps everybody, in civil society, government and the private sector, to understand the dimensions of water concerns."

Otto is loathe to see water as the new oil.

"If only water were so simple. Oil is a fungible commodity and you can move it around the world. A barrel of oil in one place is pretty much the same in another and that's not really true of water. It is much more challenging and complex and it is also a basic human need."

But will corporations plot to corner the market in it? Will nations go to war for a share of it?



She acknowledges the concern that water shortages will lead to conflict - "it makes sense, given that water is as precious as it is, and that demand is increasing". But she prefers the more optimistic view, "that it becomes the catalyst for more co-operation. There are places where there is other kind of conflict occurring and yet there is relatively good collaboration around management of water resources, because there is an understanding that there is a shared future associated with it."

Understanding problems and solving them are, however, two different things.

One of the fundamental problems with human consumption of water is its price-value disconnect we see water as something that shouldn't have a price attached to it, and typically its price is far below its actual value to us.

Managing demand by pricing water at a realistic level is a fundamental problem facing governments everywhere, and nowhere more so than in the oil-rich, water-poor nations blossoming on the banks of the Arabian Gulf.

"It is very easy to say, 'Oh, can you put up tariffs to a more sustainable level?'," says Tom Scotney, the Middle East editor for Global Water Intelligence.

"But with the way politics are going in the Middle East at the moment, no government there is going to want to jack up water prices. The region as a whole is very used to high levels of subsidy and there's very little you can do with that.

"You've only got to look at Egypt. It is obvious they are sorely in need of financial changes there in the amount of money that's being spent on subsidy, but there is very little they can do about it without causing a lot of internal trouble."

Thanks to modern development, much of the world's water is in the wrong place - and, so far, at least, it is not considered economical to ship water in the same way as we ship oil.

Once upon a time, humans expanded only where there was a ready supply of water - this was why civilisation first sprang up in Mesopotamia, on the fertile plains between the Tigris and Euphrates rivers.

Likewise, it was not by chance that the Arabian shores of the Gulf remained only sparsely populated for millennia. It was only the discovery of oil, coupled with the human ingenuity that such wealth was able to purchase, that allowed the deserts to bloom and populations to spring up out of all proportion to what was naturally supportable.



"Both wealth and the technology that comes with wealth have allowed people to not pay any attention to the natural limits of the places where they live, which always through human history we did," says Professor Crawford-Brown.

The UAE relies on desalination for its water and in many ways is a world leader in the technology. But, he says, it knows it can't go on this way for ever.

"That's why we have the 2030 programme down there, to begin to understand what those limitations are. They do have the wealth to be able to push against natural resource limitations, but to their credit, starting from Sheikh Zayed and the royal family, they recognise this issue. They will not be a wealthy oil producing state at some point in time and they are already planning for what that is going to look like."

But the central, long-term issue lurking in the background, he says, is the one that will ultimately confront every expanding nation across the globe.

"They haven't yet settled on the idea that the solution is, well, we just won't grow any more, or we'll shrink back in size to the level that natural resources allow."

There is, says GWI's Scotney, "definitely a sense that things are starting to change in the Middle East, where they are looking at alternatives to throwing money and energy at this problem, and ways to curb and reduce the water usage rather than just increase the amount of water going in."

The key realisation dawning on governments and corporations alike, he says, is that water cannot be considered in isolation.

"It's all about the water-energy nexus; it takes water to generate energy, it takes energy to generate water. One thing that's going to be a very big issue, around the world and particularly in the Middle East, is looking at ways to make it a more sustainable cycle.

In the Middle East desalination has been a hugely successful industry, but one that has thrived on the availability of very cheap energy to power energy-hungry desalination plants."

But energy is not the only issue with desalination. Once again, we return to the complex nature of the water cycle, where one interventional "solution" always seems to create another problem.

In the face of increasing water stress, desalination is an "emerging research space" around the world, says Professor Parker.

In some respects, he says, the UAE, with its four decades of experience, is at the forefront of desalination know-how, but he believes the technology may be self-limiting.



Most of the plants are on the west coast, close to the main population centres. As the number of plants increases, the fear is that the level of brine being pumped back into the sea will "perturb the local eco system to such a degree that you get this 'red tide', these harmful algal blooms that release toxins into the water.

"So at some point you may build another water salination plant to increase your water security and find that now you have decreased it."

That, he says, is the complex nature of all such systems: "You lean on one side a little too heavily and it has these unanticipated and paradoxical effects.

"We have started to realise that the running out of resources may be outstripping the rate at which we get to be terribly clever with our technologies."

In the end, in other words, our ingenuity will take us only so far. We can work tirelessly, as individuals and nations, to reduce our water footprint but even if we learn how to recycle every drop of water we use, continuing population growth will eventually outpace the Earth's ability to keep all of us alive.

"Usable water, not oil, will be next big challenge for global economy", 12/01/2013, online at: http://www.thenational.ae/arts-culture/usable-water-not-oil-will-be-next-big-challenge-for-global-economy#page1

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* Tanzania to set up water project in Musoma municipality

Jan. 7, 2013 -- Tanzania is set to start a water project in the Musoma municipality of Mara Region at a cost of TZS40bn (\$25.1m) to provide safe and <u>clean drinking water</u> to residents in the area. An official inauguration of the project work, which is expected soon, will involve laying foundation stone by the Ministry of Waters.

Musoma Urban Water Supply and Sewerage Authority (MUWASA) managing director Genes Kaduri was quoted by Daily News as saying: "The contractor is already on the site mobilising facilities, and official inauguration of the project is scheduled to take place any time from now." It was reported that Kenya-based firm Spencon and French company Degremont has been selected to carry out the project work.

The scope of the project involves constructing several <u>water treatment</u> plants to improve the w<u>ater</u> <u>quality</u> in the area, replacing old <u>water pipes</u> with new ones and carrying out other water improvement related works.

It is expected that the formal treatment of water will take about 18 months and will increase safe and drinkable water access to the urban population of Musoma from 76 percent to 94 percent.

Officials of the municipality expect that the project will also increase the cleanliness in the town.

French Development Agency (AFD), an international development agency, is funding the project.

AFD assists in financing projects and programmes in developing countries.

MUWASA currently draws water from Lake Victoria.

"Tanzania to set up water project in Musoma municipality", 07/01/2013, online at: <u>http://www.waterworld.com/articles/2013/01/tanzania-to-set-up-water-project-in-musoma-</u>municipality.html?cmpid=EnlWaterWorldInternationalJanuary102013

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Efficient water and wastewater management key to sustaining MENA's food and beverage industry

UNITED ARAB EMIRATES, Jan. 7, 2013 -- Countries in the Middle East and North Africa (MENA) rely heavily on imports to meet at least 50 percent of their food requirements. Post 2008, dependence on food imports had made the region more vulnerable to international food price hikes. Therefore, the MENA countries had to undertake measures such as subsidies and price control to provide basic supplies. This made the Governments in the region review food security in terms of food sovereignty, which translates to meeting demand from domestic sources as far as possible. Being the most water-stressed region in the world, the food security issue has become even more pertinent.

Globally, the food and beverage industry's focus on health and wellness is increasing, alongside smart and green production. This is expected to result in re-assessment of safe solutions while promoting process efficiencies. Taking a cue from the global food and beverage industry, the trend of <u>water reuse</u> practices will accelerate development and ascertain improvement in <u>water recycling</u>technologies in the MENA.

According to Frost & Sullivan, high organic content in wastewater and overall water scarcity has further emphasised the need to adopt innovation and technological upgrades in <u>wastewater treatment</u>, in order to enhance <u>water management</u> in the MENA. Many companies in the region, including National Food Industries Company (NFIC, Saudi Arabia), are already emulating best practices for water recycling and reuse, thereby reducing their water intake significantly. With food security high on agenda, such practices are expected to become a norm in coming years.

"Proliferation in the food and beverage industries inclusive of production units for juice, dairy products, oil processing, canned fruits, and vegetables, has led to implementation of sustainable water management practices. Within the MENA, the Kingdom of Saudi Arabia, Egypt, Qatar, and the UAE are experiencing significant growth in the food industry, including meat production; thereby opening up huge opportunities for <u>water technology</u> companies," Kshitij Nilkanth, Program Manager, Environment and Building Technologies Practice, Frost & Sullivan.



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Frost & Sullivan forecasts rapid growth for the MENA water and wastewater treatment market in the food and beverage industry. This will further result in industrial customers approaching water specialists to improve operational efficiency and successfully meet stricter environmental standards. In addition, food and beverage manufacturing corporations are expected to take up water conservation as a priority, by setting clear targets and improving water use ratios and wastewater discharge levels.

"Efficient water and wastewater management key to sustaining MENA's food and beverage industry", 07/01/2013, online at: <u>http://www.waterworld.com/articles/2013/01/efficient-water-and-wastewater-management-key-to-sustaining-mena-food-and-beverage-industry.html?cmpid=EnlWaterWorldInternationalJanuary102013</u>

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* Nestle Taps China Water Thirst as West Spurns Plastic

Nestle SA's (NESN) water business has suffered as western consumers turn to the tap due to environmental concerns about plastic bottles. Fortunately for the Swiss company, in China environmental concerns are instead driving growth.

"China is a key priority for us," said Gilles Duc, the head of Nestle Waters in the country. "The market is increasing a lot and we want to participate in that growth."

Enlarge image

Bottles of Nestle pure water are on display in Shanghai, China. Photographer: Imaginechina via AP Images

While the tough economy and green opposition to bottles are weighing on the water business in Europe and the U.S., it's growing fast in China where industrial and agricultural expansion have polluted supplies.

SLIDESHOW: The Life of a Plastic Bottle

Sales of bottled water in the country will climb to \$16 billion by 2017, versus \$9 billion in 2012 and \$1 billion in 2000, according to researcher Euromonitor International. The market in western Europe will remain flat at \$21 billion and North America will increase 18 percent to \$26 billion over the same period, Euromonitor predicts.

"You don't dare drink the tap water in China and so many people are moving from rural areas to work in the cities" where bottled water is more common, said Hope Lee, a Euromonitor analyst in London.



Sharp Contrast

Nestle's water business in China climbed 27 percent last year, according to Euromonitor, trailing only China Resources Enterprises Co. Nestle was the ninth-biggest seller of water in China last year, with 1.7 percent of the market by value, up from 0.7 percent in 2009, according to Euromonitor. Local rival Hangzhou Wahaha Group Co. is the leader with 14 percent.

China is Nestle's eighth-biggest water market by volume and is "probably moving up one or two places each year," Duc said.

The Swiss company's growth in China contrasts sharply with its fortunes in more developed markets. In Europe, the U.S., and Australia, Nestle's share by retail sales fell to about 10 percent in 2011 from more than 12 percent in 2006, according to Euromonitor.

 $\hat{a} \square \alpha People$ would have considered it okay to just boil tap water a few years ago, but consumption is changing because of environmental concerns."

Water has shrunk as a percentage of Nestle's revenue for four years running and accounted for 8 percent, or 6.5 billion Swiss francs (\$7 billion), of its 2011 sales. Its bottled water revenue increased 5 percent in 2011 at constant exchange rates, versus 16 percent growth at rival Danone, which makes three- fifths of its water sales in emerging markets -- more than double what Nestle does, according to Bloomberg Industries.

While Nestle continues to rely on developed countries for the bulk of its water business, "it recognizes that emerging markets are high-growth and profitable and that it has to increase its presence," said Richard Withagen, an analyst at SNS Securities in Amsterdam.

Electric Tricycles



Nestle owns more than 60 water brands including Vittel and Pure Life, the world's best-selling label.

About half of the water Nestle sells in China is delivered in five-gallon (18.9 liter) jugs. In Shanghai, Nestle has opened 12 water stores where customers can phone in orders. Tucked between a pharmacy and a beauty salon, a store in the affluent Lujiazui district sells 400 to 500 containers daily. On the busy street outside, workers stack about two -dozen bottles onto electric tricycles for delivery to homes and offices.

"People would have considered it okay to just boil tap water a few years ago, but consumption is changing because of environmental concerns," Duc said. "There's a big psychological factor pushing this market forward."

Plastic Bans

The trend in China stands in contrast to western countries, where opposition to plastic bottles is mounting. San Francisco in 2007 barred city agencies from buying bottled water. Concord, Massachusetts, this month forbade the sale of single-serve plastic water bottles, following the lead of Bundanoon, Australia, where in 2009 voters approved a similar ban.

About 70 percent of China's lakes and rivers have been polluted by industrial facilities such as power and chemical plants and paper and textile factories, according to the Worldwatch Institute, an environmental research group.

Availability of natural fresh water in China is just one quarter of the global average, and the north of China already faces a scarcity of water, the World Bank reports. In Shanghai, "almost all" surface water has been polluted and doesn't meet drinking standards, according to the city's Water Authority.

Sediment, Bacteria



Purified water from treatment plants is often contaminated again en route to homes. About half of tap suppliers provide substandard water due to deteriorating pipes harboring contaminants, sediment and bacteria, according to China's Ministry of Housing and Urban-Rural Development.

Nestle highlights such concerns with television advertisements such as one for its Pure Life brand that shows children making faces after tasting water. One child pours his glass into a fish tank instead of drinking it, then his face lights up when his mother offers the Nestle brand instead.

Nestle Waters has opened two facilities in China since 1998, one close to Beijing that extracts spring water from a local source, and another near Shanghai that taps an aquifer. The company, based in Vevey, Switzerland, also bought Yunnan Dashan Drinks Co., a natural spring water producer in the southwest of China, in 2010.

Nestle charges about 16 yuan (\$2.57) for a five-gallon container of purified water and 18 yuan for mineral water. A container of Coca Cola Co.'s Ice Dew costs 16 yuan, while Nongfu Spring Drinking Water Co. charges 20 yuan.

"Chinese consumers tend not to be very confident about some local products in terms of quality and safety," said Duc. "We want consumers to understand that for the same price they get European technology and Nestle quality, and if that's something they value, they go for our brand."

plastic.html?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=e3865c967b-RSS_EMAIL_CAMPAIGN&utm_medium=email

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[&]quot;Nestle Taps China Water Thirst as West Spurns Plastic", 11/01/2013, online at: <u>http://www.bloomberg.com/news/2013-01-10/nestle-taps-china-water-thirst-as-west-spurns-</u>



* Regional cooperation on Mekong River in tatters

Gland, Switzerland – Ministers from Cambodia, Laos, Thailand and Vietnam meeting next week in the Lao city of Luang Prabang must put derailed decision-making on Mekong River mainstream dams back on track or risk sabotaging management of one of the world's great rivers, warns WWF.

Environment and water ministers had agreed in 2011 to delay a decision on building the US\$3.5billion Xayaburi dam pending further studies on its environmental impacts. This agreement was swept aside last November when <u>Laos decided to forge ahead with construction of the controversial</u> <u>dam</u>.

The 16-17 January Ministerial-level meeting of the Mekong River Commission (MRC) – an intergovernmental agency made up of representatives from the four lower Mekong countries – will put transboundary cooperation to the test and the fate of the Mekong River, vital to the livelihoods of 60 million people.

"The Xayaburi dam experiment threatens the health and productivity of the Mekong River and Delta, and could leave millions of people facing critical food insecurity," said Dr. Jian-hua Meng, WWF's Sustainable Hydropower Specialist. "Ministers must take a stand against Xayaburi-style diplomacy or it will be the dangerous precedent for the future."

Xayaburi dam is a crucial test case

As the first dam to enter the MRC's consultation process, the Xayaburi project is a crucial test case for 10 other dams proposed for the lower mainstream of the river. The MRC process requires countries to jointly review development projects proposed for the Mekong mainstream with an aim to reach consensus on whether or not they should proceed. Laos is now constructing Xayaburi dam without consensus among its neighbours or notifying the MRC.

In November last year, the MRC delivered the much anticipated concept note for a joint study aimed at filling critical data gaps and guiding sustainable development of the Mekong River, including



mainstream hydropower projects. The study was requested by Ministers at the 2011 MRC meeting.

"Without the results of the study, dam development on the lower Mekong mainstream is now largely guesswork," added Dr. Meng. "A fix it as you go approach with Xayaburi dam, and throwing money at problems as they inevitably arise, is not sound engineering nor smart development."

Thai banks back dam despite severe risks

Thailand is slated to be the prime consumer of the electricity produced by Xayaburi dam, and at least four Thai banks have confirmed their interest in financing the project, despite the acute environmental and social costs, and the uncertainties surrounding the financial return of the project.

"Thailand must act responsibly and cancel its premature power purchase agreement until there is regional consensus on dams," added Dr. Meng. "And if the Thai banks do their risk assessment homework well, and value their international reputation and financial returns, they'd do well to reconsider and to pull out of this project."

WWF urges Mekong ministers to defer a decision on the dam for 10 years to ensure critical data can be gathered and a decision can be reached using sound science and analysis.

Future of MRC hangs in the balance

"If decision-making continues to occur outside of the MRC, the institution will soon lose its legitimacy and US\$300 million of international donor support to the Commission will be wasted," added Dr. Meng. "Mekong countries need to stop wasting time picking apart the MRC process, and start using common sense and sound science again to reach joint decisions that are to the benefit of all."

Reviews of the dam development have identified serious gaps in data and weaknesses with the proposed fish passes for the mega dam, and confirmed the Xayaburi project will block part of the sediment flow, destabilising the river's ecosystem upon which farmers, fishers and many other



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economic sectors depend.

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WWF advises lower Mekong countries considering hydropower projects to prioritise dams on some
Mekong tributaries that are easier to assess and are considered to have a much lower impact and risk.
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"Regional cooperation on Mekong River in tatters", 11/01/2013, online at: http://wwf.panda.org/wwf_news/?uNewsID=207205

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* Mountains Are Only Minor Contributors to Erosion and Climate Regulation

Jan. 7, 2013 — Though churning smokestacks, cud-chewing cows and gasoline-burning vehicles are contributing constantly to greenhouse gas emissions, there are also many processes that do the reverse, pulling molecules like carbon dioxide out of the atmosphere. One of these is chemical weathering, which occurs when rock turns into soil. Carbon dioxide molecules and rain combine to dissolve rock, and the weathering products, including sediment, eventually make their way through waterways to the ocean where some become trapped on the ocean bottom and in coral reefs and seashells.

For years, geologists believed that mountains, due to their steep slopes and high rates of erosion, were large contributors to this "carbon draw down" effect. But a new study led by the University of Pennsylvania's Jane Willenbring suggests that mountains do not play a significant role in this activity, turning a geological paradigm on its head.

Willenbring, an assistant professor in the Department of Earth and Environmental Science, led the research, working with Alexandru Codilean of the GFZ German Research Center for Geosciences and Brandon McElroy of the University of Wyoming.

"High mountains have been the go-to field area for people interested in studying how much sediment goes into the ocean and how tectonics perturbs global climate," Willenbring said. "But what we found was that mountains contribute only a small amount of the total sediment produced on Earth."

This finding, published in the journal *Geology*, directly challenges previous studies, which suggested that small mountain rivers contributed most of the sediment to the world's oceans.

What these other scientists neglected to account for, according to Willenbring, was that even the steepest, most erosion- and weathering-prone slopes take up only a tiny fraction of Earth's surface. So while these steep protrusions have very high rates of carbon absorption per unit area, they are far outstripped by the much more abundant expanses of gently sloping land.

"These small mountain streams are packing a big punch for their size," Willenbring said. "But even though they have a lot of erosion going on, the amount of the Earth covered by mountain ranges is too small to produce the amount of sediment that less steeply sloped areas produce."



The previous studies lacked access to a new investigative technique that was developed relatively recently. The method involves an examination of cosmogenic nuclides, which are rare forms of chemical elements produced only when supernovas explode, sending high-energy radiation to Earth and breaking up other atoms. Counting these chemical isotopes allows researchers to determine how long sediment has remained in a particular watershed over long time periods.

In contrast, techniques used previously, which involve physically measuring sediment flow in rivers and streams, only capture a snapshot of sediment erosion and deposition rates over a short time frame.

The researchers analyzed published data on cosmogenic nuclide concentrations from around the world to determine the levels of sediment flux over a time frame of thousands to hundreds of thousands of years. They also gathered topographical data to determine the slopes of the surrounding areas. They then extrapolated these rates of sediment deposition to the whole Earth's surface.

"What the cosmogenic nuclides tell us is that chemical weathering still happens in these low sloping areas," Willenbring said.

Other scientists had believed these gently rolling or flat areas, such as floodplains, to be "trappers" of sediment, but the research team's analysis demonstrated that, despite being areas of net deposition, they are in fact still drawing large amounts of carbon dioxide from the atmosphere.

Given these findings, geologists interested in understanding the contribution of erosion to climate fluctuations may want to spend less time on mountaintops and more time in big, lower-lying rivers like the Mississippi and the Amazon, Willenbring said.

"We're going to need to start studying 'boring' rivers if we're going to understand carbon and sediment cycling."

"Mountains Are Only Minor Contributors to Erosion and Climate Regulation", 07/01/2013, online at:

http://www.sciencedaily.com/releases/2013/01/130107121055.htm?utm_source=feedburner&utm_medium=feed&utm_c ampaign=Feed%3A+sciencedaily%2Fearth_climate%2Fwater+%28ScienceDaily%3A+Earth+%26+Climate+News+--+Water+Conservation%29&utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=805b5f3eeb-RSS_EMAIL_CAMPAIGN&utm_medium=email

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***** Role of Agricultural Sector in Renewable Energy Promotion

The continuous rise in fossil energy prices, combined with climate change concerns and progress in renewable energy sector, has catalyzed interest in clean energy systems across the MENA region, especially in the Mediterranean. The Mediterranean region has abundant renewable resources, such as wind, solar, and biomass, which makes it a fertile zone for renewable energy developments. The agricultural sector has played a key role in the progress of global renewable energy sector. The sector provides large areas where renewable energy projects are built and is also the predominant feedstock source for biomass energy projects. For example, German agricultural sector accounts for one-fifth of the total installed PV capacity. The main objective of this article is to explore the role that Mediterranean agricultural sector can play in tapping tremendous renewable energy potential available in the region.

Wind Energy

In countries where there is a lack of available land to build wind turbines, the agricultural sector is playing a key role by providing enough spaces. For instance, in Denmark farmer cooperatives are diversifying their incomes by investing in wind energy. Almost a quarter of wind energy sourced from wind turbines are owned by the Danish farmers. The same trend is taking place in Germany where farmers have established private companies to develop wind energy projects. Wind farms can be built in farms without any harmful impact on agricultural activities.

Wind energy potential is abundant across the Mediterranean region due to geographical location marked by a long coastline. The integration of wind energy projects in the agricultural sector is an interesting economic opportunity for agricultural enterprises in the region. However, as wind energy projects demand heavy capital, there is a need to mobilize funds to develop such projects. In addition, there is need to create attractive financing mechanisms for farmers and to build their capacities in developing and managing wind projects. The development of wind energy projects owned by farmers will help them to have an extra revenue stream. It will also lead to decentralization of electricity production, which will not only reduce transmission losses but also decrease reliance on the national grid.

Solar Energy



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The Mediterranean region receives one of the highest solar radiation in the world. Large availability of unexploited lands in the region, especially in the Eastern and Southern countries, makes solar energy systems, especially photovoltaics an attractive proposition for regional countries. Agricultural farms in the Mediterranean region can use PV systems for domestic as well as commercial power generation. In addition, there are a handful of applications in agricultural sector such as water pumping and irrigation.

Off-grid photovoltaic systems ensure a reliable and completely autonomous water supply at low cost – without fuel-powered generators, battery systems or long power lines. Solar energy can make irrigation independent of grid power. Low-pressure drip irrigation systems can be operated with any photovoltaic-powered pump, making them ideal for areas not connected to the grid. Photovoltaic projects require low capital investment and can be developed at small-to-medium scales.

Bioenergy

A variety of fuels can be produced from agricultural biomass resources including liquid fuels, such as ethanol, methanol, biodiesel, Fischer-Tropsch diesel, and gaseous fuels, such as hydrogen and methane. The agricultural resources include animal manure and crop residues derived primarily from maize, corn and small grains. A variety of regionally significant crops, such as cotton, sugarcane, rice, and fruit and nut orchards can also be a source of crop residues. Globally, biofuels are most commonly used to power vehicles, heat homes, and for cooking. Biofuels are generally considered as offering many priorities, including sustainability, reduction of greenhouse gas emissions, regional development, social structure and agriculture, and security of supply.

One of the species that is cultivated and exploited for these purposes is Jatropha curcas which is widely cultivated in Brazil and India for producing biodiesel. Jatropha can be successfully grown in arid regions of the Mediterranean for biodiesel production. These energy crops are highly useful in preventing soil erosion and shifting of sand-dunes. Infact, Jatropha is already grown at limited scale in some Middle East countries, especially Egypt, and tremendous potential exists for its commercial exploitation.

Conclusion



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The time has come for the Mediterranean region, especially the agricultural sector, to undertake the shift necessary to contribute to sustainable development of the MENA region by making the best use of latest technological developments in renewable energy sector.

"Role of Agricultural Sector in Renewable Energy Promotion", 08/01/2013, online at: http://www.ecomena.org/agriculture-renewables/

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From Floods to Drought: Preparing for erratic climate risks

We know that climate change will bring more frequent and intense extreme weather events. Less discussed is the likelihood that very different types of extreme events, sometimes within a very short span of time, are increasingly likely to occur in the same place. In particular, widely varying water-related events – whether there is too much water or not enough, could become a destructive, see-sawing norm. Below is a look at three locations around the world currently making headlines for having to manage both drought and flood extremes, all in a very short period of time.

The United Kingdom. The UK went from one of the driest years on record (2011), to the wettest (2012), and with it an extensive list of <u>disruptions and damage</u>. Studies show that the wet extremes are <u>linked to climate change</u>, and the <u>Met Office notes</u> that extreme rainfall for the UK is increasing. Here is <u>a poignant image</u> showing the region under drought and under flood conditions.

The Andes. A <u>series of studies</u> on the glaciers of the Andes indicates that the region will see a period of repeated extreme flooding, followed by drought. The floods and droughts could have serious consequences for hydroelectric power production, as well as sharing and management of the erratic water supply by multiple countries dependent on the glacial waters.

Sri Lanka. Sri Lanka experienced a year of <u>extreme drought and floods</u>. The end-of-year torrential rains and flooding came on the heels of ten months of drought. The drought destroyed over 20% of the secondary rice crop, putting thousands of farmers at risk of food insecurity, and the floods displaced over 30,000 people.

In short, it is not always a question of either too much water, or too little. It may often be both. Developing the institutional capacity to predict and respond to multiple types of climatic events will be of critical importance to the each of these regions, and other parts of the world.

"From Floods to Drought: Preparing for erratic climate risks", 08/01/2013, online at: <u>http://climateandsecurity.org/2013/01/08/from-floods-to-drought-preparing-for-erratic-climate-risks/</u>

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Supreme Court to Decide on Texans' Bid for Oklahoma's Water

It was largely overlooked last year when Fort Worth, now<u>boasting a population of 758,000</u>, moved closer to overtaking San Francisco in population. Yet in some ways, the Texas city's early-21st-century growth spurt recalls the issues that San Francisco faced a century ago: if Fort Worth doesn't get more water, its opportunities for growth will diminish rapidly.

As of the 2010 census, about 1.8 million people lived in <u>Tarrant County</u>, which surrounds Fort Worth — 25 percent more than a decade earlier. So, like the Bay Area in the early 20th century, the county is looking far upstream for the water to support a booming population.

Six years ago, the Tarrant Regional Water District sued the Oklahoma Water Authorities after being denied permission to take water from an Oklahoma tributary of the Red River, a water source to which both states have separate rights under a 1980 compact.

The Oklahoma Water Resources Board, backed by all branches of the state's government, has set very high bars for any water authority like Tarrant's that wants to pull water from its rivers. Tarrant has argued that it is in "dire need" of new supplies, and the state of Texas <u>contends</u> that Oklahoma's barriers, upheld by the 10th Circuit Court of Appeals, put "one of the most populous and productive" areas of the country at "risk for insufficient water."

On Friday, the Supreme Court agreed to take up the case.

One central argument the justices will wrestle with is whether Oklahoma's restrictions on the transfer of its water to Texas violate constitutional prohibitions on restrictions in interstate commerce, or whether the 1980 compact, approved by Congress, clearly exempts water divisions from the interstate commerce clause.

Texas and Oklahoma have suffered prolonged, damaging droughts in the last two years, and there is some evidence a new one could be beginning. Against this backdrop, the Supreme Court's decision, whichever way it goes, is likely to raise tempers.



Already, Oklahoma water officials are trying to block the efforts of the Choctaw and Chickasaw tribes in the southeastern part of the state to exert some control over any transfer of water from their section of the Kiamichi River basin to allow for continued growth in Oklahoma City's expanding suburbs.

If the history of the San Francisco Bay Area offers any lessons, the Supreme Court's decision will not end the fight. Some Bay Area residents still mourn the construction of the O'Shaughnessy Dam on the Tuolumne River and the creation of the Hetch Hetchy Reservoir 90 years ago and are trying to get both reversed, although most of the region is happy to be drinking water from the Tuolumne.

If the court were to rule for Tarrant County and clear the way for a water transfer, the Kiamichi River, like the Tuolumne, will be serving suburbs 100 or more miles away.

"Supreme Court to Decide on Texans' Bid for Oklahoma's Water", 07/01/2013, online at: <u>http://green.blogs.nytimes.com/2013/01/07/supreme-court-to-decide-on-texans-bid-for-oklahomas-water/?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=2a2155bb1e-RSS_EMAIL_CAMPAIGN&utm_medium=email</u>

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Oil sands' toxins 'accumulate in freshwater ecosystems'

Toxic pollutants released by oil sands mining operations are accumulating in freshwater ecosystems, research by Canadian scientists suggests.

A study of sediment in nearby lakes showed the level of pollutants, known as PAHs, had risen since the 1960s when oil sands development began.

However, the researchers added that PAH concentrations were still lower than those found in urban lakes.

The findings appear in the Proceedings of the National Academy of Sciences.

PAH refers to polycyclic aromatic hydrocarbons - a group of chemicals that have been shown to affect aquatic organisms and birds. PAHs have also been described as being responsible for damaging food crops.

The chemicals occur naturally in coal, crude oil, and petroleum; they are also present in products made from fossil fuels, such as creosote and asphalt.

PAHs also can be released into the air during the burning of fossil fuels and organic matter - the less efficient the burning process, the more PAHs are given off. Forest fires and volcanoes produce PAHs naturally.

Digging the dirt

Using sediment cores from five lakes within a 35km (22-mile) radius of major oil sands facilities and one remote lake (90km/56 miles from the facilities), the researchers assessed the ecological impact of oil sands developments on freshwater ecosystems.

Core samples showed a rise in PAH concentrations since the development of oil sands mining

Analysis of the samples showed that PAH levels were now 2.5-23 times greater than levels from about 1960.

In their paper, the team wrote: "PAH ratios indicate temporal shifts from primarily wood combustion to [decomposed organic material] sources that coincide with greater oil sands development.



"Canadian interim sediment quality guidelines have been exceeded since the mid-1980s at the most impacted sites."

Oil sands, also known as tar sands, have only recently considered to be a viable component of the world's oil reserves as a result of rising energy prices and the development of technology that has made its processing profitable.

These factors has resulted in a marked increase in the extraction and processing of oil sands in northern Alberta and Saskatchewan, which account for 97% of the nation's proven reserves and is the world's third largest reserve.

The researchers say that in 1980, daily production was 100,000 but has grown to about 1.5 million barrels a day, It is projected to reach 3.7 million barrels by 2025, they added.

Sticky situation

The development of the oil sands sector has been controversial, prompting an at-times polemic debate between those in favour of utilising the resource to cushion the Canadian economy from shocks in global energy prices and those who say the environmental costs are too high.

"Start Quote

Canada has strong rules and regulations in place to ensure that the Canadian environment is protected"

Adam SweetPress secretary for Environment Minister Peter Kent

In 2010, The Star newspaper reported that concerned residents on the shores of Lake Athabasca (downstream from one of the region's major oil sands facilities) had called for the federal government to commission an independent study to assess the impact on the area's water bodies.

The call came after local people said a growing number of landed fish where showing signs of deformities.

They voiced concern that there was not an effective system of environmental monitoring was in place.



At the time, the federal environment minister said he was listening to calls for a monitoring programme.

The researchers behind the PNAS study said that there was conflicting findings among the few longterm PAH datasets that existed, with some suggesting increases in limited areas, while other recording no increase between the 1950s and 1998.

"Establishment of background PAH concentrations and historic loadings is essential and would allow the impacts of development, including industrial PAH contributions, to be compared with the natural range... in lake sediment from the region," they wrote.

"As noted repeatedly in previous assessments of the impacts of the Alberta oil sands operations, insufficient monitoring data and a poor understanding of pre-development conditions have attempts to determine the scope of pollution from oil sands development."

Muddy waters

The team concluded that the findings from their study had to be considered in a wider environmental context.

"As a consequence of climate warming, the physical processes that lakes experience can be altered," they said.

"Longer ice-free season and enhanced thermal stability, coupled with higher surface-water temperatures and the redistribution of nutrients within the water column, contribute to greater algal production within many lake ecosystems."

They concluded: "Analyses of sediment cores from five lakes near major oil sands operations and remote Namur Lake demonstrate that modern PAH concentrations and fluxes, including DBTs, are well above 'natural' pre-development levels."

But, they added: "The ultimate ecological consequences of decades-long increases in aquatic primary production, coupled with greater PAH loadings to lakes in the oil sands region, are unknown and require further assessment."



Adam Sweet, press secretary for Canada's Environment Minister Peter Kent, said the Joint Canada-Alberta Implementation Plan for Oil Sands Monitoring, announced in February 2012, was committed to a "scientifically rigorous, comprehensive, integrated, and transparent environmental monitoring program for the region.

"It is important to note that the results in this paper come from field studies that were conducted prior to the announcement of the Joint Plan," he told BBC News.

"In fact, the Joint Plan was created, and implemented, to address the very concerns raised by such studies - it was designed to provide an improved understanding of the long-term cumulative effects of oil sands development.

"Canada has strong rules and regulations in place to ensure that the Canadian environment is protected, and our government will continue to ensure that Canada's oil sands are developed responsibly."

"Oil sands' toxins 'accumulate in freshwater ecosystems'", 08/01/2013, online at: <u>http://www.bbc.co.uk/news/science-</u> environment-20933000?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=805b5f3eeb-<u>RSS_EMAIL_CAMPAIGN&utm_medium=email</u>

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* The US water paradox: falling demand, less money for infrastructure

Declining demand for water across the western US has created funding problems for systems that rely on volume sales to repay infrastructure costs

Spiralling demand for water, shrinking supplies and a warming climate has the job of water manager in the US a suitable feature for NBC reality show America's Toughest Jobs. The epicentre of course is the water-strapped Colorado River Basin, which spans seven states and is the source of water for 35 million people.

A federal study released last month outlined the enormity of the basin's water supply gap and the complexities of solving it, whether with fanciful and expensive new supply projects or less glitzy water demand management.

I have a strong bias toward the less glitzy, and our new report, Water Ripples: Expanding Water Risk for US Water Providers, explains why. It also explains why silver bullets, such as a 600-mile pipeline from the Missouri River, could have dire financial impacts, especially on local water users and investors who would bear the burden of such projects.

A Bureau of Reclamation study found that within 50 years, the Colorado Basin's annual water deficit is likely to reach 3.5m acre-feet (152,460 cubic feet). That's nearly 25% more than the river's forecasted annual flow, factoring in climate change, which is expected to diminish river flows.

The study lists dozens of options for supplementing basin supplies, including water desalination plants, towing an iceberg wrapped in plastic to California and various new pipelines.

There are numerous reasons why these big project solutions, many costing more than \$1bn, are risky. The biggest problem is paying for them.

A problem with infrastructure and debt

Like the rest of the country, western water projects are typically financed by issuing bonds that cover a project's upfront costs. The subsequent debt – and interest costs – are then repaid to bond-holding investors using revenues the water utilities generate by selling the water.

This arrangement was relatively painless years ago when the federal government paid for the vast majority of water infrastructure projects. But those days are over; federal funds have largely dried up. That means water utilities are assuming far larger debt obligations to finance new pipelines, reservoirs and other infrastructure. And that means they need to sell more and more water – and at higher rates – to repay those debts.

And therein lies the rub. Water demand is falling in many parts of the country. Between the 1970s and the late 2000s, the amount of water used by American households fell everywhere, by tens of thousands of gallons each year in Louisville, Kentucky, to nearly 100,000 gallons a year per



household in Las Vegas. The trend is due to wide-ranging factors, including smaller households, water-efficient indoor fixtures, conservation programs, and even the protracted economic slowdown that devastated housing markets, especially in the western US.

Whatever the cause, declining demand has surprised US water systems and created complex financial challenges.

Most water systems' revenues are highly dependent on volumetric water sales – sales that mostly represent outdoor water use. One of the biggest water hogs is lawn grass, which accounts for as much as 80% of summer water sales in the west. If those sales evaporate, systems have to find another way of replacing that revenue to make good on the debt obligations that built their systems.

To offset declining household demand, many water systems turned to connection fees paid for new houses that were added to the system. But when the housing market stalled, that lucrative revenue source plummeted – most precipitously in Las Vegas which saw its water connection fees from new housing starts fall to \$3m in 2010 from a peak of \$188m during the housing boom. As a result, the Southern Nevada Water Authority is now allowing customers to replant the lawns they once paid them to tear up, a short-term revenue fix that only contributes to the region's dire supply shortage.

A love affair with grass

Our love affair with grass was stoked by dirt-cheap water prices that were only financially feasible when the federal government footed the bill for big pipeline projects. Now that local communities are paying for these projects, the question is: how much do westerners really want to pay to keep their lawns green in August?

In the case of the Colorado River Basin, this dynamic also begs the question: how necessary are some of these hugely expensive new projects? And if they are built, will there be enough water sales and revenues to support the debt payments?

For those thinking such scenarios are implausible, take a look at the Las Vegas Valley water district, where nearly \$2bn of bond debt was downgraded last year due to a double whammy of declining water sales and emergency supply expenses to finance a new water intake pipe from water-deprived Lake Mead.

Or Colorado Springs, whose water system was placed on a credit watch for a possible downgrade (lower bond ratings mean higher borrowing costs) in light of slow economic recovery and a nearly \$1.5bn capital program to build its own big pipeline, which will pump water from a tributary of the Mississippi River.



WATER RESEARCH PROGRAMME -Weekly Bulletin-



An even worse scenario is playing out in drought-stricken Australia, where four of six new water desalination plants are not being used amid declining water demand, triggered in large part by the projects' big price tags, which forced higher water rates.

The country's first large-scale desalination plant in Florida is operating below capacity for similar reasons.

Australia and Florida are two cautionary tales of a fundamental truth often ignored in water management: people's demand depends on the price they pay for water. As prices increase, we can be assured that Americans will use less water.

Instead of committing ratepayers to water they may not want to pay for, water managers should be harvesting every drop of water they can get from demand management. Thanks to groups like the Alliance for Water Efficiency, water system managers have numerous tools at their disposal to curb supply pressures while maintaining revenue stability.

The water use chart above shows the astonishing opportunities for reducing household water demand. We're also seeing breakthroughs in limiting agricultural water demand, the basin's biggest overall water user by far, through creative water leasing arrangements like Colorado's super ditch that keeps some farmland fallow while providing affordable water to growing urban areas.


This sort of co-operative supply arrangement between the urban and rural is the future we need to be building – it may look different to the Hoover Dam, but it is the face of 21st-century water infrastructure.

The bottom line is that warming trends, price-sensitive demand and growing populations are creating unprecedented challenges to our western water resources. How water managers solve these challenges – and pay for them – should be less about pie-in-the-sky solutions and more about old-fashioned conservative thrift.

Sharlene Leurig is a water financing expert at US-based advocacy organisation, Ceres, and author of the Water Ripples: Expanding Water Risk for US Water Providers report

"The US water paradox: falling demand, less money for infrastructure", 08/01/2013, online at: http://www.guardian.co.uk/sustainable-business/blog/us-water-paradox-demand-infrastructure

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* A coherent water policy

In his article (January 3), architect Philip Grech argued against legal notice 376/2012, which revoked the obligation of developers to construct a well for the collection of rainwater from the roofs of their buildings and permits the connection of rainwater disposal infrastructure with the public sewage system or directly into the street.

This regulation, once again, illustrates the Government's lack of a coherent water policy.

In recent weeks, we have had Minister George Pullicino boasting about the implementation of a flood relief project that is meant to siphon rainwater from flood-prone areas while now we have a situation where the same minister, who is also responsible for the Malta Resources Authority, which issued this regulation, has published a regulation that permits a substantial additional amount of rainwater to flood our streets.

This is not a case of one minister not knowing what another minister is proposing, as was the case with Bisazza Street, Sliema when Pullicino wanted to pedestrianise the street while Minister Austin Gatt had contractually agreed with Arriva to let buses travel through this street. It is now a case where, literally, the right hand does not know what the left is doing.

This new regulation is totally irresponsible when one considers the huge water supply problem we continually face. Our authorities should insist on the responsible use of water and the elimination of waste of this precious resource. To be able to achieve this goal, the very first thing that needs to be done is to ensure that water is collected at source for eventual reuse.

This new regulation also means that with more rainwater entering our foul drainage mains we will be creating more sewage overflows even after a light downpour as happens regularly in Hali Street, Żebbuġ. I shudder to think what will happen during heavy rainstorms if this regulation is implemented.

Water is a very scarce resource and, therefore, we need to have a water policy that ensures that we maximise the harvesting and reuse of all our water sources. For this reason a new Labour Government will implement a water policy which ensures the sustainable use of this precious resource.

"A coherent water policy", 12/01/2013, online at: <u>http://www.timesofmalta.com/articles/view/20130112/letters/A-</u> coherent-water-policy.452866

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