

ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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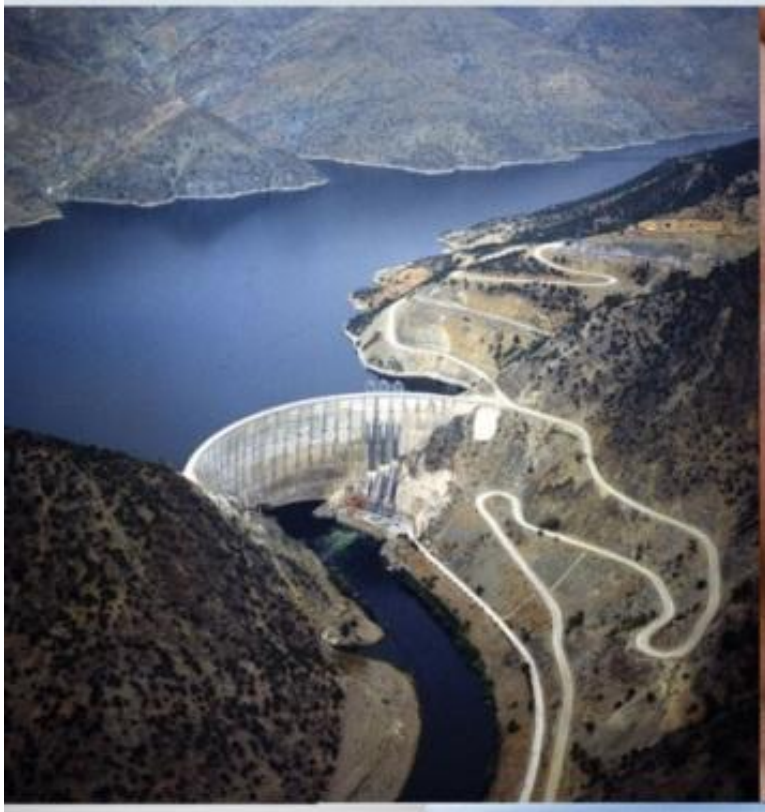



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❖ Turkey rules out cutting water flow to Syria

Turkey has ruled out cutting water flows to Syria from Turkey as part of sanctions on the Syrian regime over its brutal military crackdown on protesters and army defectors, underlining that all measures against the Syrian regime must not harm the Syrian people.

Foreign Minister Ahmet Davutoğlu, speaking at a conference in İstanbul on Thursday, said nations must be careful when imposing sanctions and taking measures against the Syrian regime. He said strong signals must be sent to the government, but people should not be harmed in this process. Davutoğlu added that Turkey will continue with its measures, but ruled out any sanctions that would affect the Syrian people, including cutting water flows.

Turkey is currently releasing on average 517 cubic meters per second instead of the required 500 cubic meters per second, sacrificing its own energy needs in the process. But both Iraq and Syria accused Turkey of taking too much from the rivers and their tributaries. Any cut in water flow to Syria will also affect Iraq, wrecking swaths of farm land and threatening drinking water supplies.

Turkey also earlier ruled out that it would cut electricity it shares with Syria out of humanitarian concerns, but said this week it might reconsider cutting power after pro-regime protesters stormed Turkish diplomatic missions across Syria and burned a Turkish flag.

But on Thursday, Davutoğlu categorically rejected that Turkey would ever consider cutting water flow to Syria. Turkey previously threatened Syria with cutting water supplies in the early 1990s when Syria was believed to be abetting the jailed leader of the terrorist Kurdistan Workers' Party (PKK), Abdullah Öcalan, and tolerating PKK camps.

For years, Syria has complained that Turkey is not releasing the required amount of water, but this has changed in the past few years as part of Davutoğlu's foreign policy strategy that includes good relations with neighbors.

Davutoğlu added that the Arab Spring is taking a different course in every country, warning that there is a serious possibility of everything being derailed in Turkey's southern neighbor, which sits on fragile fault lines of various ethnic and sectarian communities, and that careful steps must be taken for this reason. Davutoğlu particularly stressed that action that implies external pressures may lead to a backlash and that it is important the Arab League take a lead role in this process. He said Turkey will also have a say in this process as a neighbor, but will not make a decision regarding the fate of its neighbor.

Underlining that it is necessary to not give in to sectarian and ethnic divisions in Syria, Davutoğlu said all Syrian citizens are equal for Turkey. “Everyone in Syria is equal for us. We believe the

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Syrian National Council must be more inclusive," Davutoğlu added. He was referring to the council founded by exiled Syrian opposition in İstanbul recently that is believed to be coordinating some protests across Syria and seeking ways to topple the Syrian regime.

Speaking about possible measures in ending the crisis in Syria, Davutoğlu said the best thing to do is to deal with the problem multilaterally. He added that there must be a process based on multilateral cooperation and that the Arab League must take a leadership role in this process.

"As Turkey, we have a special position as we are neighbors. Everything we do will affect security, even domestic security," Davutoğlu said, without elaborating what he was referring to by domestic security. There were increasing concerns raised by observers lately that unrest in Syria may ignite instability in Syria's restive areas predominantly populated by ethnic Kurds and further complicate Turkey's conflict with members of the terrorists PKK.

Davutoğlu said autocratic regimes have used three fundamental arguments in justifying the legitimacy of their regimes. He said despotic rulers have told their people not to "ask for freedom and democracy" because they "are fighting against Israel." He also said Arab rulers often say chaos will sweep the region if they leave power and turn to the West, arguing Islamic radicals will come to power once they leave.

The Turkish foreign minister said a look at the model in Turkey with respect to developments in the past seven to eight years will prove that these arguments are null. "Democracy didn't bring chaos to Turkey. Democratic Turkey was able to raise its voice against Israel more than autocratic Egypt or Syria," Davutoğlu said.

In Washington, US State Department spokesman Mark Toner told reporters in a daily briefing on Thursday that the US administration and Turkey remained in close consultation throughout the process, and that Turkey's become an increasingly vocal opponent to what's going on in Syria and an increasingly powerful voice among the international community in calling for Syrian President Bashar al-Assad to end the violence and to allow for a democratic transition to take place. "As for possible steps that Turkey may take to increase pressure on Assad, we would certainly welcome those kinds of steps, but it's really for them to clarify what those might be," Toner told reporters.

He added that the US would welcome any steps that that tighten the economic noose around Assad's regime, adding that any steps that increase pressure on the Syrian regime are constructive to what the American goal is.

Iran should behave responsibly in a nuclear standoff

Davutoğlu said Iran is an important country and one of the most significant powers in the region, adding that the dynamics of the Arab Spring and Iran are different. "We hope these [democratic]

values will reach Iran, too. But this is their choice," he added.

Speaking about a nuclear standoff between Iran and the Western nations, Davutoğlu said Turkey is against nuclear weapons in the region. "We want a Middle East that is free of nuclear weapons. There are already enough tensions in the region. We believe Iran will behave responsibly," he said.

"Turkey rules out cutting water flow to Syria", 18/11/2011, online at: http://www.todayszaman.com/news-263173-turkey-rules-out-cutting-water-flow-to-syria.html

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❖ Turkey imposes sanctions on Syria

Ankara - Turkey ratcheted up the economic and political pressure on Syria on Tuesday as Prime Minister Recep Tayyip Erdogan warned President Bashar al-Assad against feeding "on the blood of the innocent".

Turkey said it would halt joint oil exploration with Syria and threatened to stop electricity supplies as relations between the two neighbours soured further over the Damascus regime's bloody crackdown on demonstrators.

Erdogan said that Ankara had abandoned hope that Assad, once a close ally, would respond to international demands to halt violence and initiate democratic reforms.

"A future cannot be built on the blood of the innocent, otherwise history will remember those leaders as the ones who feed on blood. And you Assad, you are now coming closer to opening that page of history," Erdogan said.

Assad's regime is becoming increasingly isolated over its brutal crackdown on anti-government protests that has left around 3 500 people dead since March, according to the United Nations.

Turkish Energy Minister Taner Yildiz said Turkey's Petroleum Corporation (TPAO) has halted joint exploration with the Syrian national oil company and has also threatened to cut off power supplies supplies.

"We are currently exporting electricity (to Syria). If the situation continues like this, we may be in a position to revise all these decisions," Yildiz said.

Turkey has been exporting electricity to Syria since 2006.

However, the minister said halting the delivery of water from Turkey's Euphrates river to Syria was not among sanctions being considered.

"We have no decision made regarding water," said Yildiz, adding that a final decision on the electricity supplies would be made by Erdogan.

"We cannot act as if nothing had happened."

Tuesday's moves follow weekend attacks on Turkish diplomatic missions in three Syrian cities by demonstrators angry at Ankara's support for an Arab League decision to suspend Syria.

Thousands of pro-regime protesters armed with knives and batons attacked the missions in Damascus as well as the cities of Aleppo and Latakia on Saturday, prompting Ankara to seek a formal apology from Syrian authorities.

No-one was injured, but Turkey evacuated the dependants of diplomats from Syria over increasing security concerns.

Erdogan, once a close political ally and a personal friend of the Syrian leader, has for months expressed frustration at Assad's failure to listen to his people.

"We no longer expect the Assad government to show honest, persuasive, brave and determined leadership," Erdogan told members of his ruling Justice and Development Party (AKP) on Tuesday.

"No one expects him to respond to the demands of the international community anymore."

Erdogan's government had been expected to announce sanctions against Syria as early as October but escalating Kurdish rebel attacks and a massive killer quake in eastern Turkey delayed the plans.

"Sanctions will be in place if the situation continues like it is today," a Turkish diplomatic source told AFP. "But we are considering smart sanctions, sanctions that would not harm Syrian people."

In Morocco, where Arab League foreign ministers are to meet on Wednesday to discuss the Syria crisis, Turkish Foreign Minister Ahmet Davutoglu expressed his country's disappointment with the Assad regime.

"We gave them a last chance but they were unable to seize it," Davutoglu said, according to the private NTV television. - Sapa-AFP

"Turkey imposes sanctions on Syria", 16/11/2011, online at: http://www.iol.co.za/news/world/turkey-imposes-sanctions-on-syria-1.1179102

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❖ Turkey may share water with Cyprus'

Turkey is ready to share water with all of Cyprus in the event of a solution to the island's division, Turkey's deputy prime minister said yesterday.

A link providing Turkish water to Turkish Cyprus will be ready by 2014, Deputy Prime Minister Beşir Atalay said, adding that that water would suffice the entire island.

"We are ready to share the water with the entire island if a settlement is found in ongoing Cyprus negotiations," Atalay said in Nicosia, where he went to attend the ceremonies marking the 28th anniversary of Turkish Cyprus' foundation.

Turkey supports an equal, bi-communal federal structure in Cyprus, Atalay said, adding that Turkey and Turkish Cyprus had exerted necessary efforts for a settlement.

The deputy leader also said Turkey saw January's scheduled trilateral summit among the Turkish Cypriot and Greek Cypriot leaders, as well as the United Nations secretary-general, as a test.

"Turkey will continue to stand by Turkish Cyprus in its efforts to get economically and democratically strong whether there is a settlement or not," Atalay said.

On Nov. 15, 1983, the Turkish Cypriot Federal Assembly unanimously voted to proclaim the independence of the Turkish Republic of Northern Cyprus. Turkey is the only country that recognizes de facto state's independence.

Turkish EU Minister Egemen Bağış also released a message to mark the 28th anniversary of northern Cyprus' foundation while taking aim at the European Union, saying the bloc became one of those responsible for the deadlock on the issue by awarding the Greek Cypriot administration, which has not exerted any effort to find a solution to the country's division, with EU membership in 2004.

"We showed the world who is in favor of a solution and who is against it. Turkish Cyprus and Turkey were and have always been in favor of a solution," he said.

Meanwhile, Turkish Cypriot President Derviş Eroğlu received dignitaries including high-level Turkish Cypriot officials, Atalay, Turkish Parliamentary Administrative head Salim Uslu, Republican People's Party (CHP) leader Kemal Kılıçdaroğlu, Turkish Air Force Cmdr. Gen. Mehmet Erten, Democratic Left Party (DSP) deputy chairman Dursun Ertürk, Democrat Party (DP) leader Namık Kemal Zeybek and veterans of the Turkish Peace Operation of 1974.

A special ceremony was held at the Nicosia Atatürk Monument during which officials placed wreaths. Participants also sang the Turkish national anthem at the event

"Turkey may share water with Cyprus'", 15/11/2011, online at: http://www.hurriyetdailynews.com/n.php?n=8216turkey-may-share-water-with-cyprus8217-2011-11-15

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❖ Between Life and Death: Struggle in the Jordan Valley

Speaking to the American Congress in May, Israeli Prime Minister Benjamin Netanyahu remarked that Israel would maintain a long-term presence in the West Bank's Jordan Valley. In the months that followed, the Israeli army stepped up its attacks on the water wells of the Palestinians who live there.

On November 14th, two water wells were demolished in Baqa'a, east of Tammun, robbing hundreds of families of the ability to irrigate their land. On October 13, farmers received demolition orders on several water wells in Kufr al-Deek, a village in the town of Salfit near Nablus. In September, Israeli military forces demolished 6 water wells belonging to Palestinian Bedouin communities in the Jordan Valley, and have threatened to demolish six more. In all these cases, the unilateral IOF actions are explicitly illegal because these wells were built with full permission from the Palestinian Authority, in areas of the Valley supposedly under exclusive Palestinian civil and military control.

The injustice is especially pronounced in the Jordan Valley. On the 8th of September, 50 military jeeps, trucks and bulldozers sealed off Al Nasarayah as a closed military zone, and proceeded to illegally destroy 3 water wells and confiscate the attached water systems, the pumps of which cost $40,000 each to install. Five days later, the IOF returned to Al Nasarayah to demolish 2 more wells, stopping along the way to destroy another well east of Tamoun. The next day, IOF soldiers entered the village of Al- Fa'ara, near Nablus, to photograph and record the GPS coordinates of 6 more wells intended for demolition.

The IOF's actions are illegal under Israeli, Palestinian and international law because these 6 water wells had permits from the Palestinian Authority, and operated in the 5% of the Jordan Valley designated after the 1994 Oslo Accords Area A, under full Palestinian civil and military control. The motives behind Israel's actions on the ground, however, emerge into the light of day when seen in the context of other recent Israeli policy resolutions- a plan announced in September to uproot and transfer some 27,000 Bedouin out of Israel-controlled Area C in the West Bank (most Area C Bedouin live in the Jordan Valley), and a decision by the Settlement Division in early July to increase by 130% the land given to settlers for farming in the Jordan Valley, and to increase from 42 to 51 cubic meters per year the amount of water given to settlers to irrigate such farmland.

What do the destruction of Palestinian Bedouin water wells in the Jordan Valley, the transfer of Palestinian Bedouin citizens out of the Jordan Valley, and the expansion of land and water given to settlers in the Jordan Valley, all have in common? Together, they highlight the oppression and ethnic cleansing of the Jordan Valley that has typified Israeli policy since the Valley became occupied territory in 1967.

A focal point of this oppression- and a crucial locus of the Palestinian Bedouin struggle to resist the occupation and remain in their homeland- is the issue of water. For as Israel has seized absolute control over allocation and distribution of the resources of the 3 water aquifers under the West Bank for use on both sides of the Green Line, the Palestinian population of the West Bank and Gaza, and especially the Bedouin population of the Jordan Valley, have seen the steady drying-up of the once-flowing springs around which they have built their villages, have found themselves unable to dig sufficient wells of their own because of crippling Israeli regulations, and have watched themselves

become dependent on the exorbitant prices of their oppressor for access to so basic and indispensable a human right.

Far more than in the rest of the West Bank, the struggle over water for the Jordan Valley Bedouin is a struggle between life and death. The 'draining away' of Palestinian water rights in the Jordan Valley- to borrow the title of a 2010 report by Ma'an Development Center- has a long and tumultuous history. When the West Bank became occupied territory in 1967, the Israeli army established a military order to the effect that all West Bank water came under control of the state, and Israel's national water carrier, Mekorot, seized water aquifers and developed wells throughout the West Bank to serve Israel and its newly expanding settlements. Between 1967 and the 1994 Oslo Accords, the Palestinian Bedouin in the Jordan Valley saw first their land, and then their water, disappear behind the heavily-guarded gates of settlements, where settlers were granted ample supplies of the latter in order to make the former bloom.

The situation grew increasingly dire until a brief ray of hope in 1995, when Article 40 of the Oslo II agreements set an interim agreement, designed to be revised within five years (but still in effect to this day), whereby approximately one quarter of West Bank water resources would come under Palestinian Authority control, and a Joint Water Committee would be established, in the words of the 2009 World Bank report 'Assessment of Restrictions on Palestinian Water Development: West Bank and Gaza', "to oversee management of the aquifers, with decisions to be based on consensus between the two parties."

However, Oslo brought with it new institutionalized systems of oppression. Since Oslo 1 in 1993 consigned 95% of the Jordan Valley to Area C status (under full Israeli and military control), neither the Area C Bedouin communities themselves, nor the Palestinian Authority, nor the constant swarm of international NGOs, can commence with unregulated construction of their own initiative, because, in the words of Jordan Valley Solidarity, a grassroots movement, "across Area C, access to basic services such as water is restricted through the debilitating permit system which is regulated by the Israeli Civil Administration. Obtaining a permit for any form of construction –even for water- is notoriously difficult, nay impossible. This prevents Palestinians from building new infrastructure, or from making improvements to existing facilities."

Atop this blanket layer of oppression, which effectively and intentionally squelches all trace of community autonomy, the Palestinian Bedouin in the 95% of the Jordan Valley which is Area C are deprived of the ability to improve their access to water resources through three interlocking buereacratic systems of control- the Joint Water Committee, where a group of Israeli and Palestinian decision-makers permits or denies water access or rehabilitation projects proposed by the Palestinian Water Authority (for Areas A, B and C); the Israeli Civil Administration, which, if an Area C project is permitted by the Joint Water Committee, pulls that project through a thicket of bureaucratic, technical limitations and scrutinies, effectively crippling its implementation if not grinding it to a halt completely; and, last but not least, the Israeli army, which ceaselessly continues, as it sees fit and irregardless of law, to demolish water wells, tankers, and infrastructure on the ground in Bedouin communities across Areas A, B and C, even if the proper permits are possessed.

Thus, what was promised under Oslo II to be consensus decision-making regarding water resources is in reality institutionalized unilateral control of the oppressor over the oppressed, and due to this

matrix of Israeli control, it becomes nearly impossible for the Palestinian Authority, as well as most NGOs, to commit themselves to meaningful, sustainable infrastructural development in Area C of the West Bank.

At the level of the Joint Water Committee, details Ma'an's 'Draining Away', "the fact that decisions are arrived at through consensus effectively means that Israel can veto Palestinian projects…[also], the PWA is not consulted regarding extractions from the aquifer for Israeli use (settlers or otherwise), which is not in accordance with the governance rules under Article 40. Nor does the Palestinian Authority have the right to access data on Israeli use of water resources, whereas Israel reserves the right for continual access to water resource data in the West Bank…around 150 water and sanitation projects are still pending JWC approval for "technical and security reasons", while only one new Palestinian well project for the Western aquifer has been approved since 1993. In contrast, Israel is able to construct pipelines to its illegal settlements without going through the mechanism of the JWC. Thus Israel effectively has full control of water resources in the West Bank and Gaza Strip."

The World Bank's 2009 report confirms the non-consensual reality of the Joint Water Committee's supposed 'consensus decision-making'- "[the] JWC has not fulfilled its role of providing a supportive governance framework for joint resource management and investment…politics and policy issues have limited the number of project approvals…fundamental asymmetries – of power, of capacity, of information – put into question the role of JWC as a "joint" institution…Israel takes unilateral water-related actions outside the JWC…only one third (by value) of projects presented to the JWC 2001-8 have been implemented…(1) the process is in general slow; (2) the rate of rejection of PA projects is high; (3) the PWA has almost never sought to reject Israeli projects (only one has not been approved); and (4) well drilling projects and – until very recently -wastewater projects have had very low rates of approval….in order to solicit approvals on vital emergency water needs, the PA is forced into positions that compromise its basic policy principles. Such an asymmetrical power balance (one party, Israel, has virtually all the power and is not driven by emergencies), together with the observed track record of the JWC, have contributed to a loss of trust and confidence and to very poor outcomes (for Palestinians) that undermine the rationale for the committee as a de facto "joint" approach to water sector management."

Deeb Abdelghafar, Director of Water Resources for the Palestinian Water Authority, relates how "we submitted our application two years ago to build two new production wells in the northern part of the Jordan Valley, [to supply] water for domestic and agricultural purposes, and we know that they have reviewed it, but up to now we have not gotten any response, and we are not optimistic…we have more than 80 agricultural wells that need to be rehabilitated in Jordan Valley, and we have had these wells in the JWC for more than 4 years, but unfortunately we could not get final approval from Joint Water Committee."

Even if the Joint Water Committee approves a project, its effective implementation is crippled by the red tape of the Israeli Civil Administration. Abdelghafar continues- "the most difficult step in the process for us is the Civil Administration because there are more than 14 departments, and each department must approve on the project. So we can never get a project through the civil administration, because some departments approve and some do not." Ayman Rabi, Assistant Director of the Palestinian Hydrology Group for Water and Environmental Resources Development, an NGO working to improve access to water and sanitation services in the Occupied Palestinian

territories. echoes Abdelghafar's frustrations that "there is a big problem now in implementing anything in Area C, and that is one of the major hindrances right now to our work in that area….we have to ask [for a] permit and this generally we do through Palestinian Authority, and then they are applying through the Joint Water Committee….[but] even if the Joint Water Committee approves any intervention or project, the Israeli Civil Administration requests more documentation procedures, the process is longer, they put more conditions for implementation in Area C, so you might end up not implementing any activity because of this long and complicated procedure." The World Bank report quotes an anonymous donor who reports the same difficulties- "first thing we request is a letter from PWA approving the project. Then we go to the JWC. But then we have to go to the Civil Administration – and there delays of 2-3 years are normal. In fact, we have no positive outcomes for Area C."

Since nearly every proposal for the construction of water infrastructure in Area C is shut down by the twin juggernauts of the Joint Water Committee and the Israeli Civil Administration, NGOs must focus their efforts, to quote Abdelghafar, on "civil emergency intervention- by delivering small water tankers, by supplying them with water tanks, by constructing rainwater cisterns- it's emergency humanitarian relief." While important, this small-scale aid is carried out in lieu of large-scale, long-term projects that would strike at the root of the problem, rather than merely seeking to alleviate its effects. Says the World Bank report, "in the light of the difficulty of implementing major projects, the reasonable response has been short term emergency projects, often small projects with NGOs, and these smaller projects have become a very large part of water sector development…however, the multiplicity of small donors and multiple projects are more difficult to fit within a planning framework…NGOs have a comparative advantage in a grass roots field presence and a certain demand-driven character…[they are] nimble…but are small scale and short term" (p.63).

In the village of Hamsa, near the Hamra checkpoint in the Jordan Valley, Abu Riyad, who has been living in Hamsa with his family for thirty years, must now travel long distances to get water for drinking and irrigation, after two huge water wells constructed for nearby settlements have dried up the springs upon which for generations the community of Hamsa has relied. Says Ma'an's report 'Draining Away'- "unconnected to the water network, Abu Riyad must now travel to Ein Shibleh for his water. Nor does the family know the quality of the water and if it has been treated. While he is fortunate not to have to pay for this supply, it costs 200 shekels to transport 10 cubic metres of water. As the water covers all of the family's needs, from drinking, washing and drinking water for the animals, Abu Riyad must transport this amount every four days. With the price of fuel rising, this means that water represents an increasing financial drain for the family…the community receives little support. While several tanks and water coupons have been donated from local and international NGOs, this is only ever for limited amounts of time, and thus provides only temporary relief."

Indeed, Abu Riyad is fortunate to receive water for free. Ayman Rabi of the Palestinian Hydrology Group laments that, regarding many of his organization's aid initiatives, "[the recipients of water] are asked to contribute, unfortunately. Although we do not like this, it is something that has been agreed on by the [Palestinian] Water Authority. They have been asked to contribute by 10 shekels, though we are not happy with this arrangement, for each cubic meter. and then we refill them whenever they ask us to."

Many organizations, instead of delivering water, deliver water tanks to imperiled communities, so that Bedouin may transport water from filling points. However, by delivering water tanks, instead of connecting communities to water networks, these NGOs, though well-intentioned, often compound the problem by forcing the Bedouin to drive long distances, through a myriad of checkpoints, to filling points in Areas A or B, in order to maintain a constant water supply. The World Bank report decries that "occupation checkpoints and curfews severely limit tanker access to communities…there are 36 fixed checkpoints across the West Bank, including the gates of the Separation Barrier, that seriously affect access of water tankers and maintenance teams to communities….Given the risks faced by drivers for their physical safety coupled with the longer routes, the price of water through tankers has increased exponentially".

The case of Abu Riyad illustrates how expensive this practice can become for Bedouin faced with no alternative. According to Fathy Khdirat of Jordan Valley Solidarity, "to use water tankers in this way costs the Bedouin 30 shekels per cubic meter of water, while their neighbors in Areas A or B pay on average between ½ and 3 shekels per cubic meter of water." The perpetuation of this inequality works in the occupation's favor, by encouraging Bedouin to move out of Area C into Areas A or B.

In addition, mobilizing short-term emergency relief is much more expensive for the NGOs than would be a project to install permanent pipelines linking the Bedouin to water sources. Fathy Khdirat estimates that a recent $700,000 initiative to accomplish the former could have achieved the latter with 10% of the budget. Between the Joint Water Committee, the Israeli Civil Administration and the IOF, however, the possibility of installing permanent water infrastructure for the Bedouin is practically foreclosed from the beginning, so that aid initiatives are forced to work within the restricting, oppressive parameters of Israeli law. Says the World Bank report, "at best, the PA role is reduced to improving water and sanitation services to Palestinian communities within the constraints laid down…stakeholders recognize the inefficiency and high costs of such fragmented and contingency development– but see no alternative."

The bueraucratic matrix of corruption and control, in which both Israeli and Palestinian political and civil organizations are enmeshed, causes on-the-ground human rights abuses in clear violation of The Right To Water, enshrined inGeneral Comment no. 15 of articles 11 and 12 of the International Covenant on Economic, Social and Cultural Rights by the United Nations Economic and Social Council in Geneva, in November 2002. The document stipulates that "the right to water contains both freedoms and entitlements. The freedoms include the right to maintain access to existing water supplies necessary for the right to water, and the right to be free from interference…by contrast, the entitlements include the right to a system of water supply and management that provides equality of opportunity for people to enjoy the right to water." The covenant goes on to list specific water entitlements- the right of "physical accessibility: water, and adequate water facilities and services, must be within safe physical reach for all sections of the population. Sufficient, safe and acceptable water must be accessible…within, or in the immediate vicinity, of each household, educational institution and workplace…"; the right of "economic accessibility: water, and water facilities and services, must be affordable for all. The direct and indirect costs and charges associated with securing water must be affordable…"; and the right of "non-discrimination: water and water facilities and services must be accessible to all, including the most vulnerable or marginalized sections of the population, in law and in fact, without discrimination".

Ma'an's report, 'Draining Away', clarifies that, in regards to the Right to Water enshrined in this document, that "while this right does not entitle people to unlimited use of free water or to household connection, it does mean that water and sanitation services should be affordable, that water and sanitation facilities should be in the immediate vicinity of the household, and that water should be used in a sustainable manner. This right exists irrespective of an individual's ethnicity, gender, age, religious or political beliefs…it also stipulates that individuals and communities can participate in, and influence, decision making relating to water and sanitation services on national and local levels."

Here are some quick facts taken from Ma'an's 'Draining Away', which should be measured against the UN-enshrined Right to Water:

In October 2009 Amnesty International noted that "180,000-200,000 Palestinians living in rural communities have no access to running water, and even in towns and villages which are connected to the water network, the taps often run dry."

According to the WASH monitoring project, the cost of private tankered water in 290 communities in the West Bank has increased between 100-200% for one cubic meter since the start of the intifada.

40% of Palestinians in the Jordan Valley consume less water than the minimum global standard set by the World Health Organization, which is set at 100 liters cubed per day.

56,000 Palestinians in the Jordan Valley consume an average of 37 Million Cubic Meters (MCM) of water per year, as compared to an average of 41 MCM for only 9,400 settlers.

Palestinians are charged more than their counterparts in Israel for water: Mekorot charges Israelis NIS 1.8 per cubic metre, compared to an average of NIS 2.5 per cubic metre for Palestinians.

There is near-universal consensus that there exists in the Jordan Valley a systematic policy of oppression and ethnic cleansing, touching upon not only water but all aspects of life for the 15,000 Bedouin who are unconnected to any water network in the 95% of the Valley designated Area C. Says Deeb Abdelghafar of the Palestinian Water Authority, "the Jordan Valley is a unique area from the Israeli point of view. They are trying to [establish] control over this area, and they are trying to prevent any permanent water infrastructure in order to prevent the people to be there… they don't want to support the existence of these people, they want to immigrate the people outside of this area."

Advocates like Fathy Khdirat of Jordan Valley Solidarity, a grassroots movement that works to build infrastructure for the Bedouin of the Valley, are determined to encourage those under occupation to resist the oppression, and remain in their native land. "I spent all my life under the Occupation," insists Fathy, "and I want to see a better future for my children. I am from there, and I will not shut up."

"Between Life and Death: Struggle in the Jordan Valley", Ben Lorber, 16/11/2011, online at: http://www.palestinechronicle.com/view_article_details.php?id=17253

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❖ Gidon Bromberg on Jordan River Rehab: 'No Longer a Pipe Dream'

With enough 'political will,' the Jordan River could be taken off life support, says the Director of the Israeli Office of Friends of Earth Middle East.

Once a beautiful waterway of rapids and waterfalls, the Lower Jordan River is, in no uncertain terms, dying of thirst: an estimated 97 percent of its historical flow has been diverted by Israel, Syria, and Jordan.

In large parts of the LJR, there is virtually no water flowing. In other parts, the remaining river is nothing more than a brackish cesspool of floating raw sewage.

We try to empower the youth to improve their water realities, to undertake simple, inexpensive rainwater harvesting systems or gray water systems that can help prevent pollution.

While some have said that the river's current unholy state might cause it to dry up completely by the end of 2011, a new report says that resuscitation of the river that is sacred to the religions of Judaism and Christianity could "absolutely be possible."

"If we were to find and create the political will on all three sides, in the Israeli government, the Jordanian government, and in the Palestinian authority, we can see a clean, healthy river flowing again," says Gidon Bromberg, the Director of the Israeli Office of Friends of Earth Middle East, which this week released a study, "Roadmap for the Rehabilitation of the Lower Jordan River."

Along with Erin Brockovich, Bromberg stars in *Last Call at the Oasis*, a thought-provoking documentary in which citizens, activists and scientists prepare for the impending global water crisis. The film will be released in spring 2012.

TakePart spoke at length with Bromberg about the Middle East's water crisis, his organization's cross-border peace project, Good Water Neighbors, and why he genuinely sees hope for the LJR.

TakePart: How did you get started in the green movement in the mid-1990s?

Gidon Bromberg: I fell into it, actually. I had always been interested in green issues because I grew up in Australia and my parents had a farm outside of the big city of Melbourne. This always brought

great interest of green issues to me. Later, I moved to Israel and I was much more focused on the politics of the Israeli-Arab peace effort. And I really fell into the environmental issues as issues I came to understand would be helpful toward peacemaking. Later, while I was in the United States getting a master's degree, I asked the question: was sustainability on the negotiation table? My thesis came to the conclusion that the environment was not on the table of the political discussions. Therefore, the thesis concluded, there was a need for civil society—Israeli, Palestinian, Jordanian, environmental NGOS—to start working together and possibly create an organization that would place sustainability in the center of peacemaking.

"Gidon Bromberg on Jordan River Rehab: 'No Longer a Pipe Dream'", Salvatore Cardoni, 16/11/2011, online at: http://www.takepart.com/article/2011/11/16/gidon-bromberg-jordan-river-rehab-no-longer-pipe-dream

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❖ Restoration of Jordan River up for debate

Environmentalists and farmers clashed in a heated debate about whether agricultural water consumption should be significantly reduced, at a conference on Wednesday at Kinneret College on the Sea of Galilee.

The conference, hosted by green group Friends of the Earth Middle East, focused the organization's newly released study called "Roadmap for the Rehabilitation of the Lower Jordan River," which, among under recommendations, suggests that farmers reduce their water consumption for agriculture by 30 percent. While farmers and representatives on their behalf argued that such a cutback would be impossible, the environmentalists contended that the reductions would be necessary to restoring the Jordan River to reasonable water levels, according to a statement released after the gathering.

"An estimated 97% of its historical flow of some 1,250 million cubic meters per year has been diverted by Israel, Syria and Jordan," the report says, noting that in large portions of the river there is very little flowing water. "The river has already lost 50% of its biodiversity and has essentially been converted into a sewage canal."

The purpose of the report, drafted for Friends of the Earth by Gilad Safier, anenvironmental consultant, hydrologist at DHV MED Environmental Infrastructure Engineering, is to provide the government with an "implementable vision" for the firstphase of the Lower Jordan River rehabilitation plan. This phase focuses on the Israeli side of the river between the Sea of Galilee and the Bezeq Stream, according to the report.

The author bases his research on a previously conducted Friends of the Earth report, which revealed that the countries bordering on the river needed to return 400 million cubic meters of water per year to the river – with Israel responsible for the brunt of it, at 220 million cubic meters.

Safier's report – and the topic of Wednesday's conference – studies how Israel could successfully meet the goal of reintroducing the 220 million cubic meters annually. His recommendations build upon an existing "Zero Scenario," which predicts that with already approved government plans like heightened desalination efforts, the river's situation is already expected to improve in the next 30 years – and Israel will succeed in restoring around 100 million cubic meters of the total 220 annual goal.

However, the report notes, "the anticipated improvement is not enough to sustain a healthy biological system in the Lower Jordan River and further actions will be needed."

To fulfill the remaining approximately 120 million cubic meter deficit, Safier recommends a number of measures.

He suggests a change in operation of the Deganiya dam, a dam currently closed at the northern portion of the Lower Jordan River, as well as transferring brine from the Saline Water Carrier – an artificial conduit built to lower the salinity of the Kinneret – to the Dead Sea instead of Emek Hamayanot, an area whose springs gush into the southern portion of the uppermost portion of the Lower Jordan River.

Meanwhile, he also proposes a pumping reduction from the river to the national water carrier, desalinating an additional 1.5 million cubic meters per year of the Saline Water Carrier water and reducing agricultural consumption by 30% and fishpond consumption by 50%.

For their losses, which would amount to about 30 million cubic meters total, farmers and fishpond owners could receive financial compensation, the report explains.

"For the first time in Israel, a public, intensive and open debate has been conducted on the fate of the Jordan River," said Dr. Yuval Arbel, vice president of Friends of the Earth Middle East.

"The environmental demand to restore water to rehabilitate the Lower Jordan requires a reduction in water allocations from the national carrier and from the agricultural water associations, which will need to conserve more water and reduce the scale of fish ponds and agricultural irrigation. Exchanges of words about these intents will enable different bodies that will be influenced by the necessary changes in water policy to express their voices, in order to reach joint solutions that will be acceptable to all parties."

To the dissatisfaction of Friends of the Earth, the Water Authority was only willing to commit a total restoration of 30 million cubic meters annually, out of the total approximately 120 that the green group had recommended.

Meanwhile, it did not stipulate that any of the water would come directly from farmers' reductions.

"The rehabilitation activities of the Jordan River need to begin with utilizing treated waste water – that today pollutes the river – for agricultural purposes, and with the release of reused water for agriculture and nature," said Ze'ev Achipaz, director of the Water Authority's Operations Department, also according to the statement. "This way we can guarantee the restoration of 30 million cubic meters per year, which will include a mixture of Kinneret and brackish waters."

Regarding the proposed reduction in water allocation, Achipaz warned: "It is necessary to take under consideration...the severe water shortage in the Kingdom of Jordan.

It is possible that in the future there will be a need to transfer to Jordan more water than the amount Israel transfers today, and this is likely to come at the expense of the increase of quantities for the river rehabilitation."

Farmers and their representatives were far from pleased with the suggestions made by the report.

"Reducing the water for agriculture by 30% means that the farmers can only lose 30% of their fields and fishponds and 30% of the profit.

so somebody has to pay for it or to find alternative sources," Gil Korati, head of the Emek Hamayanot Water Association, told *The Jerusalem Post* on Thursday afternoon.

While the report proposed that farmers receive financial compensation for their losses, Korati said he had doubts that this would actually occur.

"In the report it's very easy to write, but who will do it? The government?" he asked.

"Drying 30% of the fishponds and the fields also has very bad [repercussions] on the ecosystem around the area and on tourism, Korati said. "I think that the plans of the Water Authority are also going to improve the salinity and cleanliness and enlarge the quantities [of water in the Jordan].

They're good plans that will benefit the Jordan without damaging the area."

"Restoration of Jordan River up for debate", Sharon Udasin, 18/11/2011, online at: http://www.jpost.com/Sci-Tech/Article.aspx?id=246049

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❖ Experts discuss agriculture, water energy investment data in Jordan

Amman,Nov.14(Petra)- Experts discussed in a meeting organized by the Office of Food and Agriculture Organization(FAO) in Amman on Monday a study on Investment Data for agricultural, water and energy sectors in Jordan.

The study prepared by the private sector water advisor, Dr. Lo'ay Farrukh and Dr. Amani Assaf from the Faculty of Agriculture at the University of Jordan covers a number of Arab and Middle Eastern countries.

Data revealed that Jordan is one of the smallest and poorest economies in the Middle East and still faces major challenges in the areas of agriculture, water and energy. The population is rapidly increasing despite limited natural resources especially water which is one of the main challenges facing the Kingdom.

Figures showed that the total population economically active in agriculture was estimated at 129,822 inhabitants, which is 1.1 percent of economically active population in 2010.

Total internal renewable water resources are estimated at 682 million m3/year, while long-term average internal renewable surface water resources are approximately 382 million m3/year. Surface water resources are unevenly distributed among 15 basins, while ground water renewable sources are around 259 mcm/year.

Statistics showed that the land suitable for cultivation in Jordan is around 27.6 percent of the total area of the country, with a cultivated area forming around 77% of the total suitable area for agriculture.

Data through the last three decades showed an increase in irrigated land and in land planted with permanent crops. The contribution of agriculture to GDP is low and around 2.3%.

The latest assessment report published by the Intergovernmental Panel on Climate Change showed that Jordan will suffer from reduced agricultural productivity due to more erratic rainfall patterns, reduced freshwater resources and increased temperatures.

"Water for Life" is Jordan 's Water Strategy which sets the pace for Jordan ’s efforts for the years up to 2022, stresses the need to exploit the full potential of surface water and groundwater at a reasonable level. The strategy also stressed the need for using lower quality water and brackish water for irrigated agriculture and desalinated seawater as an additional resource for towns and industrial and commercial use.

The new figures showed that food imports bill has rapidly increased over the past 34 years, going from around US$ 63 million in 1970 to nearly 1996 million in 2007. Cereals and wheat contribute the largest share of the bill. The bill has never stabilized because of wars and the political instability in the region.

The high oil prices increased the energy bill in Jordan and affected the development in the water and agriculture sectors.

The study pointed to insufficient management for the implementation of national strategies adopted by the ministries of these sectors and to the imbalance in the exports and imports of agricultural products, especially wheat, barley, and corn.

Another obstacle is that water , agriculture and energy projects are still financed by foreign aid, while a large number of proposed projects regarding dams still need to be funded.

"Experts discuss agriculture, water energy investment data in Jordan", 14/11/2011, online at: http://www.petra.gov.jo/Public_News/Nws_NewsDetails.aspx?Site_Id=1&lang=2&NewsID=49168&CatID=13&Type=Home&GType=1

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❖ Study: For a healthy Jordan River, divert less water to agriculture

Israel would also have to divert less water from the Kinneret to the National Water Carrier, according to study by Friends of the Earth Middle East.

The southern stretch of the Jordan River will remain in poor condition unless less water is diverted for agriculture, a study sponsored by Friends of the Earth Middle East says.

The study, carried out by Dutch consulting firm DHV, was commissioned due to the river's deterioration south of the Kinneret - a stretch fed by saline springwater, fish-farm water and wastewater, but very little clean freshwater. The findings paint a picture of a river becoming increasingly salty, which in turn badly harms plants and animals.

The study looked at a number of possible scenarios, including what would happen if the current situation continued. In that case, there would be only a minor improvement in the southern stretch of the river - due to current plans to purify wastewater.

The study also examined the river's future if the flow of salty springwater is reduced and less water is drawn from the Kinneret. Israel could draw less water from the Kinneret if it increased production of desalinated water. In that case, the volume of water in the Jordan south of the lake would increase, though its quality would not improve significantly.

Friends of the Earth Middle East has Israeli, Jordanian and Palestinian members. The study's findings were presented at a conference last week at Kinneret College.

The study suggests that a substantial improvement would require much greater flows of freshwater from the Kinneret and the Jordan's tributaries. This would require an additional reduction in the water diverted from the Kinneret, a freshwater lake, to the National Water Carrier, so the lake would rise and the amount of water flowing into the Jordan's southern stretch would be augmented.

The most drastic option is the reduction of water consumption in the area for agricultural use by 30 percent, along with a substantial curtailment of water use by area fish farms. This option, however, offers the farmers a concession; they would be allowed to draw water further south along the river. The study's authors said implementation of the last option would significantly improve the river's condition within 10 to 15 years.

The recommendations sparked opposition at the conference, not only from farmers but also from water resource management officials, who expressed doubts about the recommendations' feasibility.

The Water Authority's operations director, Ze'ev Ahipaz, said the Jordan's rehabilitation must start with the use of treated wastewater for agriculture - treated wastewater that is currently polluting the river. Freshwater must also be freed up from agricultural use. He said the Water Authority could only commit to a fraction of the volume of additional freshwater that Friends of the Earth Middle East is suggesting be added to the river.

"Study: For a healthy Jordan River, divert less water to agriculture", Zafrir Rinat, 20/11/2011, online at: http://www.haaretz.com/print-edition/news/study-for-a-healthy-jordan-river-divert-less-water-to-agriculture-1.396537

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❖ Underground Water Reservoirs For The Jordan Valley

Water scarcity in the lower Jordan valley is extreme and political differences among the neighboring countries are high. To supply the population living in this region with sufficient clean water, Israeli, Jordanian, Palestinian, and German researchers cooperate under the direction of KIT. The SMART (Sustainable Management of Available Water Resources with Innovative Technologies) project focuses on technical solutions as well as on ecological and socioeconomic aspects.

The catchment area of the lower Jordan river between the Sea of Galilee and the Dead Sea is characterized by a very dry climate. Evaporation by far exceeds the amount of precipitation. The team of international experts of various disciplines is developing an integrated water resources management (IWRM) concept taking into account all water resources available. Apart from groundwater, these resources also include processed wastewater, desalinated brackish water, and, after strong rainfall in winter, flood water that flows via wadis into the Jordan river and then into the Dead Sea. Among the academic partners participating in the project funded by the Federal Ministry of Education and Research (BMBF) are the Ben Gurion University of the Negev, the University of Tel Aviv, the Palestinian Al-Quds University, and the Jordanian University of Amman. In addition, ministries, water supply companies, and authorities as well as local decision-makers are involved.

One of five German and three Jordanian young scientists writing their PhD theses at KIT within the framework of the SMART project is the geoecologist Moritz Zemann. His diploma thesis at the KIT Institute of Applied Geosciences already focused on the possibility of storing flood water after rare, but sometimes abundant [G1] precipitation in the geological underground. This “managed aquifer recharge[G2] ” in natural reservoirs protects the water against evaporation. The scientists use their geological and hydrological knowledge to explore suitable natural reservoirs in sediments and rock and to develop technical solutions for storing water in the underground. Zemann’s PhD thesis now deals with the question of how the quality of the groundwater can be evaluated and protected. “The willingness to cooperate is high, the project contributes to reducing mutual prejudices,” he says. In total, 20 PhD students [G3] are involved in the project. Among the German partners are the University of Göttingen and the Helmholtz Centre for Environmental Research (UFZ), Halle. Apart from the acquisition of engineering competence, it is also aimed at finding out which technology is politically feasible and affordable.

The project started in 2006 and has now entered its second phase, namely, practical implementation of research findings. At KIT, several institutes and scientists are involved in SMART apart from the coordinating Chair for Hydrogeology of Professor Nico Goldscheider. The Chair for Water Chemistry of the Engler-Bunte Institute (EBI), for instance, focuses on the desalination of brackish water. “This brackish spring water or groundwater is less salty than seawater, as a result of which energy expenditure for desalination is smaller. Moreover, brackish water can also be found inland,” says Goldscheider. The processed water does not have to be transported from the coastal region, but can be made available for drinking purposes and agriculture in a decentralized manner.

Among others, the dramatic scarcity of water in the lower Jordan valley is related to the population development. “In Jordan, population has grown from about 500,000 people in 1952 to six million today. This means that ten times more people need drinking water,” explains Goldscheider. The KIT professor adds that “the SMART project so far has survived all crises, even in times of major

political tensions. On both sides, there probably is a silent, peaceloving majority and obviously, many of these reasonable people are scientists and researchers."

"Underground Water Reservoirs For The Jordan Valley", 18/11/2011, online at: http://www.eurasiareview.com/18112011-underground-water-reservoirs-for-the-jordan-valley/

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❖ New Superpower Rice Could Save the Middle East

Water shortages don't bode well for agriculture in the Middle East, but a new rice variety developed in India could change all that!

Lack of water is a serious problem in the Middle East. It is felt in Egypt, where even the fertile valley of old can no longer feed a growing nation, in Gulf countries, where desalination floats entire populations, and in the Levant, where behind the scenes negotiations between Jordan, Israel, and Palestine trump politics in order to find water-sharing solutions.

Food grows where water flows, so these shortages don't bode well for agriculture. Because of this, many countries in the region are gulping up land in other parts of the world, Africa especially, in order to secure food for decades to come. But a new variety of rice developed in India that requires 60% less water to grow and has nearly double the protein of conventional crops has us cautiously optimistic about our future.

The new hybrid rice called MAS-26 or aerobic rice may have a rather unappetizing name, but its potential as a new super crop is quite delicious. Unlike conventional varieties, it is able to go without water for up to 15 days, an excellent prospect for arid regions.

It is also more nutritious. Most of the rice currently available on the market only has 8% protein, whereas the aerobic rice has up to 15%. This means that it will take longer to digest and provide more energy. In addition to being a healthier option for children who require a lot of energy to get through the day, diabetics will benefit from eating fewer carbohydrates as well.

It can be harvested more quickly, and yields are comparable to existing rice crops.

There's more. Rice fields are a major contributor to greenhouse gas emissions, which in turn are responsible for global warming and unsettling climate change. Given that it is the staple for several populations throughout the world, there's no chance that we'll stop producing rice any time soon. But aerobic rice emits less methane, so if planted at scale, it could have a resounding impact on overall GHG emissions.

But there's a catch.

This crop has to go through trials before it will be available on the global market.

According to DNA India, researchers from the University of Agricultural Sciences (UAS) in Bangalore will put MAS-26 through farm trials within the next six months. If all goes well, this superpower rice could be served within the next two years!

"New Superpower Rice Could Save the Middle East", Tafline Laylin, 17/11/2011, online at: http://www.greenprophet.com/2011/11/superpower-rice-middle-east/

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❖ Officials stress water cooperation at conference

3-day TA exhibition and conference features participants from all over the world gathering to discuss their water technologies.

Deputy Foreign Minister Danny Ayalon asked Arab leaders to consider water as a catalyst for peace and stressed the importance of sharing renewable technologies, at the sixth annual international WATEC-Israel exhibition on Tuesday.

"Israel will benefit from a peace agreement, but you will also gain a genuine partner for development and the assured welfare of future generations in the region," he said to Arab leaders at the exhibition's opening session.

"Unfortunately, many times in the history of the region, water was a reason for conflict and bloodshed," he continued.

"Today, I want to change this equation together with you, to turn water into a bridge to peace."

The three-day Tel Aviv exhibition and coinciding conference features participants from all over the world, with more than 30 heads of state and ministers, as well as 150 business delegations, gathering to discuss their water technologies, renewable energy systems and environmental control, according to the Foreign Ministry.

"We at the Ministry of Foreign Affairs are constantly looking at ways to conduct relations beyond traditional diplomacy," Ayalon said. "To this end, we conduct a form of environmental diplomacy and try to apply it also within our own region, here in the Middle East, and beyond."

To achieve smoother relations, Israel must use its highly developed tools to assist other countries in developing their water infrastructures, according to the deputy foreign minister.

"Israel is among the leading states in the world in water technologies and is willing to share its knowledge and experience with other countries so that together we canprovide for the increasing needs of the world's ever-growing population," he said.

One country particularly present at this year's exhibition is China, which has sent an "unprecedented" number of delegates to WATEC – 24 groups, consisting of more than 200 people and representing more than 130 commercial companies, research institutes and government offices, are attending the event, according to a statement from the Industry, Trade and Labor Ministry.

The total number of Chinese visitors is higher than that of any other country's delegation and coincides with a significant increase in trade with the Asian nation, which amounted to $6.8 billion in 2010 – an increase of 49 percent over the previous year, the ministry reported.

"Israel sees in China as one of the most important trade partners to [our country], and the Industry, Labor and Trade Ministry is investing great efforts to increase the scope and the variety of trade with China and with other countries in Asia," Regional Development Minister Silvan Shalom said in a statement.

The statement added that the ministry was signing an agreement of cooperation on water issues with the Chinese city of Tianjin later in the day.

Meanwhile, National Infrastructures Minister Uzi Landau announced during WATEC's opening session that the government would be investing NIS 700 million over the next five years in developing sewage infrastructure for the periphery.

"These days, while a revolution goes on in the Middle East, Israel's water sector is also going through one, and at a period in which amounts of rain are dwindling, we provide water to our neighbors," Landau said.

"We want to see our neighbors solve their water problems, develop economies and democracy," he added. "We are certain that this development is a significant milestone that will help bring peace with our neighbors."

"Officials stress water cooperation at conference", 16/11/2011, online at: http://www.jpost.com/Sci-Tech/Article.aspx?id=245749

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❖ Israel signs water agreements with Taiwan, Kenya

Cooperation with both countries to increase after WATEC 2011 conference on water, renewable energy and environmental control.

Israel signed agreements with Taiwan and Kenya on the sidelines of the WATEC 2011 conference this week, which will see it increase water-technology cooperation with both countries.

The three-day international exhibition and conference on water, renewable energy and environmental control began Tuesday in Tel Aviv. This is the sixth year the exhibition has been been held.

Industry, Trade and Labor Ministry Director-General Sharon Kedmi and Taiwanese ViceMinister of Economy Jung-Chiou Hwang had signed two memoranda of understanding in the fields of water technologies and small and medium businesses on Wednesday.

The water agreement encompasses the fields of resource management, water purification, wastewater treatment, recycling and reuse, and irrigation.

Cooperation exist through exchange of experts and scholars, exchange of technologies and data, and conduct of joint seminars.

Industry, Trade and Labor Minister Shalom Simhon and Kenyan Prime Minister Raila Odinga agreed Tuesday that Israel would assist the East African country in the areas of water-management technology, drip irrigation and wastewater treatment.

Israel had conquered the desert, he said, adding that climate change presented a wake-up call for Kenya in everything related to the way it manages its water.

Odinga also called for the two countries to expand bilateral trade.

WATEC also provided an opportunity for the expansion Israel's ties with Moldova. National Infrastructures Minister Uzi Landau and Moldovan Deputy Environment Minister Rodion Bajureanu discussed water and energy.

Bajureanu said his country suffers from water-shortage issues, but Israel has already found solutions through desalination and sewage treatment.

"Israel signs water agreements with Taiwan, Kenya", Nadav Shemer, 17/11/2011, online at: http://www.jpost.com/Business/BusinessNews/Article.aspx?id=245880

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❖ Chinese, Israeli firms building water industrial park

Joint Israeli and Chinese team building a huge Sino-Israeli International Water Industrial Park in southern China, says team representative.
A joint Israeli and Chinese team is building a huge Sino-Israeli International Water Industrial Park in southern China, a representative from the team told *The Jerusalem Post* at the WATEC water technologies exhibition in Tel Aviv on Wednesday.

"Israeli companies have the most advanced technologies in the world and the purpose is to invite Israeli water companies into China and to explore the market in China," said Victor Zhao, Chinese-based director of Ness Ziona firm Shirat Enterprises.

The industrial park, which will be jointly managed by Shirat and Chinese company Dowell, will encompass about 400,000 square meters worth of research and exhibition facilities in the manufacturing city of Dangguan, located in China's Guangdong Province. The binational team has already recruited 10 small Israeli water technology firms of various backgrounds to conduct research and development at the future facility, according to Zhao.

While the Israeli companies will bring in their technology and expertise, the Chinese portion of the team will be providing the necessary "platform" to connect with theChinese government and customers, he continued. During a recent survey conducted by his company with more than 20 relevant Israeli organizations, Zhao said his firm found that they would all want to expand their technologies to the Chinese market if possible.

"China is facing very problematic issues with water shortages andpollution and Israel on the other side has great technologies but not a great market," Zhao said. "It's mutually beneficial."

China was the most highly represented country at this year's WATEC convention, featuring 24 groups with more than 200 people representing over 130 firms, research institutes and government offices, according to the Industry, Trade and Labor Ministry. The increased presence of Chinese participants coincides with an increase in trade with the Asian partner, which amounted to $6.8 billion in 2010, a jump of 49 percent from the previous year, the ministry said.

"Chinese, Israeli firms building water industrial park", Sharon Udasin, 17/11/2011, online at:
http://www.jpost.com/Sci-Tech/Article.aspx?id=245879

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❖ "Israeli annual water technology trade tops $2b"

Over 100 exhibitors from around the world are participating in the third Watec Conference on Water Technologies in Tel Aviv.

Over 100 exhibitors from around the world are participating in the third Watec Conference on Water Technologies, Renewable Energy, and Environmental Control , which opens today in Tel Aviv, and the conference organizers expect over 20,000 visitors. Foreign delegations include representatives from South Korean water companies and the first ever delegation from Russia.

Israel NewTech director Oded Distel estimates that Israeli water technology companies transactions at over $2 billion this year, and that the figure is growing steadily. He told "Globes", "Crises boost the need to lower the amortization of water caused by aging infrastructures in many cities around the world. There is great interest in keeping the water inside the pipes by repairing them, instead of letting it go to waste."

Distel added, "Broken pipes also let in hazards, which are liable to affect the water quality. There are many Israeli companies with offerings in these areas."

Watec participants are visiting Israeli sewage treatment plants, Mekorot National Water Company sites where various water technologies are being tested, as part of an effort to expand exports.

Israel Export and International Cooperation Institute director Avi Hefetz said, "Israel's water industry has been one of the greatest and most important sources of exports over the past decade. By 2014, this business will reach $2.7 billion. This estimate assumes that the global water distress will worsen, boosting demand for high-quality potable water. This creates a huge business potential for Israeli companies, which have an excellent reputation in the field."

According to the Export Institute, over 200 Israeli companies export water technologies. The main export destination is the US, followed by Germany, Italy, Spain, Australia, France, India, Mexico, China, and Turkey.

Watec chairman Baruch Oren said, "By 2030, humanity will consume 50% more water than today, and there is no natural source to supply it without the use of technologies. Israel realized this sooner than other countries, and by 2015, it will be an independent country in this field, no longer dependent on rain. Israel will rely on desalinated water, recycled water, and state-of-the-art water management systems."

"Israeli annual water technology trade tops $2b", 15/11/2011, online at: http://www.globes.co.il/serveen/globes/docview.asp?did=1000698030&fid=1725

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❖ Dead Sea drying up? That's so 120,000 years ago

Drilling below the sea floor shows a roller-coaster ride for the region's climate.
The Dead Sea may be drying up, but research by Israeli scientists and colleagues abroad shows that the water has risen and fallen by hundreds of meters over the past 200,000 years.

The goal is to study the region's climactic history and forecast possible changes in the future. The project should also provide rich information on the region's seismic history and conditions in the area that influenced human development.

The preliminary findings come from excavations at the seafloor. The data confirm previous studies that claimed that the sea isn't really dead and that bacteria have survived in the extreme salty conditions.

The International Continental Scientific Drilling Program has funded the excavations. The drilling started a year ago and lasted four months. The study involved institutions from the United States and Europe; it was led by Prof. Zvi Ben Avraham, head of the Minerva Dead Sea Research Center at Tel Aviv University, and Dr. Moti Stein of the Geological Survey at the National Infrastructure Ministry.

Testing in Berlin
At the center of the sea, the researches drilled 460 meters below the seafloor and extracted salt and other materials that had settled there as much as 200,000 years ago. Plastic tubes containing centuries of climactic history are now in Germany for testing.

In laboratories in Potsdam near Berlin, Israeli and German scientists are examining the stuff in the tubes.

"What we have found are several layers of salt that bear witness to a period of dryness and very little rainfall at the Dead Sea's drainage basin, and this caused the sea to recede and salt to gather at its center," says Stein.

The researchers have found stone fragments that show that the sea was low - the evidence suggests that the coast once receded significantly and the sea came close to drying up. One theory is that this period occurred about 120,000 years ago, with another period of extreme dryness taking place 13,000 years ago.

"We believe that this [first] period of dryness involved a climactic catastrophe, one that influenced human development in this region," says Stein.

During the last ice age, for example, the sea was 250 meters higher than today. When the sea rose during rainy periods, it spread throughout the Jordan Valley and approached Lake Kinneret in the north.

Analysis of drilling samples reveals the existence of microorganisms at about a hundred meters below the seafloor. Meanwhile, in a recent study, scientists from Germany and Ben-Gurion

University of the Negev dived into the sea and found bacteria populations in the sea's freshwater inlets.

The Dead Sea has receded in recent years at a meter a year. Unlike past eras, the main reason is that water that once flowed to the sea, mainly from the Jordan River, is diverted for use in Israel, Syria, Lebanon and Jordan.

The World Bank plans to release a study soon on the plausibility of a project to bring water from Eilat Bay to the Dead Sea via Jordan. This would help prevent the sea from drying up.

"Dead Sea drying up? That's so 120,000 years ago", Zafrir Rinat, 14/11/2011, online at: http://www.haaretz.com/print-edition/news/dead-sea-drying-up-that-s-so-120-000-years-ago-1.395416

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❖ Henin launches Dead Sea protection bill in Knesset

Environment experts call bill 'step in the right direction'; aims to preserve sea, maintain salty waters, curb plunging water levels.

MK Dov Henin (Hadash) submitted a bill to the Knesset on Monday morning that outlines a plan for the future protection and rehabilitation of the Dead Sea.

Rooted in four main principles, the bill aims to preserve the Dead Sea and its internationally treasured natural resources, maintain the salty waters for the benefit of the next generation, curb the plunging water levels of the northern basin and determine new terms of management for the region, which will provide for continued reasonable extraction of minerals while protecting the ecosystems and biodiversity, according to the text.

Supporters of the proposed law in addition to Henin include MKs Moshe Gafni (United Torah Judaism), Amnon Cohen (Shas), Nitzan Horowitz (Meretz), Eitan Cabel (Labor), David Rotem (Yisrael Beiteinu), Orly Levy Abecassis (Yisrael Beiteinu), Zvulun Orlev (Habayit Hayehudi), Zahava Gal-On (Meretz), Orit Zuaretz (Kadima), Ibrahim Sarsour (United Arab List - Ta'al) and Uri Maklev (United Torah Judaism).

"If we don't protect the Dead Sea from menacing damage inflicted upon it daily, we will be responsible for the disappearance of this natural wonder," Henin said in a statement.

Within a year from the day the law is enacted, the environmental protection minister, in consultation with his administration, would be responsible for preparing a plan for the restoration of water in the northern basin of the Dead Sea, according to the bill. This plan would need to include a minimum increase of 235 million cubic meters beyond the current allocation of water that flows from the southern Jordan River into the Dead Sea.

Meanwhile, the minister would be able to approve water evaporations for mineral extractions only after receiving proof from the operator that no other technologies exist for the respective mining, and that that operator would be responsible for the restoration of any water eliminated in the process.

Also according the bill, the minister would also be charged with appointing a "Council for Regional Cooperation in Protection and Rehabilitation of the Dead Sea," which would work with international bodies and neighboring states. Additionally, each year the minister would need to produce a report detailing the amounts of minerals mined and quantities of water pumped in and out, as well as levies imposed upon those whose work has damaged the Dead Sea.

In the southern basin, where water levels are dangerously rising, a salt harvest will ensure that the maximum water level in the peripheral embankment and beach of Pool 5 remains at a maximum of 389.50 meters below sea level, while inside the pool, the level rises no higher than 390.50 meters, the bill continued.

Environmental experts called Henin's effort a "step in the right direction" and hoped that the government would enact the legislation.

"Until recently, the environmental community has had to respond to the ongoing deterioration in the conditions of the Dead Sea in a defensive mode," Dr. Alon Tal, head of Israel's Green Movement and professor at Ben-Gurion University's Jacob Blaustein Institute of Desert Research, told The Jerusalem Post on Monday afternoon.

"We count the annual drop in water levels and loss in ecological integrity, hoping for greater sensitivity by the government and the industrial powers that be at the Dead Sea works," continued Tal, who is currently a visiting associate professor at Stanford University in California.

"Taking the initiative on behalf of the public that owns this unique resource – as well as the future generations that are being deprived of their birthright – is a step in the right direction. It is hard to believe that this government will allow such a common-sense, responsible approach and allow meaningful legislative progress, but just as public pressure forced it to do 'the right thing' with natural gas rights, it is time to demand accountability at the Dead Sea as well."

Gidon Bromberg, Israel's director of Friends of the Earth Middle East, agreed that while Henin's move is positive, these measures should have been taken much earlier.

"The campaign for votes to include the Dead Sea in the new seven wonders should have been accompanied by a commitment from the Israeli government for urgent corrective actions," Bromberg told the Post.

"The demise of the Dead Sea is happening under state license, be it Jordan River diversion in the north or Dead Sea Works' concession in the south, which begs the question that the Tourism Ministry campaign is green-washing. The legislative effort by MK Dov Henin is a step in the right direction that should have come from the Tourism or Environment Ministries, rather than the opposition."

"Henin launches Dead Sea protection bill in Knesset", Sharon Udasin, 05/11/2011, online at: http://www.jpost.com/Sci-Tech/Article.aspx?id=243909

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❖ Israeli army steps up attacks on Palestinian water

Speaking to the American Congress in May, Israeli Prime Minister Benjamin Netanyahu remarked that Israel would maintain a long-term presence in the West Bank's Jordan Valley. In the months that followed, the Israeli army stepped up its attacks on the water wells of the Palestinians who live there.

According to Jordan Valley Solidarity, the Israeli army demolished two water wells on Monday in Baqa'a, near the West Bank Palestinian village of Tammun. The water was used, primarily, to irrigate agricultural land. Hundred of families depend on the land for their livelihood.
The last two months have seen a steady stream of Israeli army attacks on Palestinian Bedouin water wells in the West Bank and the Jordan Valley.

On October 13, farmers received demolition orders on several water wells in Kufr al-Deek, a village in the town of Salfit near Nablus. On the 8th of September, 50 military jeeps, trucks and bulldozers sealed off Al Nasarayah as a closed military zone, and proceeded to illegally destroy 3 water wells and confiscate the attached water systems, the pumps of which cost $40,000 each to install. Five days later, the IOF returned to Al Nasarayah to demolish 2 more wells, stopping along the way to destroy another well east of Tamoun.The next day, IDF soldiers entered the village of Al-Fa'ara, near Nablus, to photograph and record the GPS coordinates of 6 more wells intended for demolition.

These water wells had permits from the Palestinian Authority, and were operating in the 5% of the Jordan Valley designated after the 1993 Oslo Accords Area A, under full Palestinian civil and military control.

Since the beginning of Israel's colonization of the Jordan Valley in 1967, local Bedouin have seen the steady drying-up of the once-flowing springs around which they built their villages. They are unable to dig sufficient wells of their own because of crippling Israeli regulations, and have become dependent on the Israelis for access to a basic human right.

According to Ma'an Development Center's 2010 report 'Draining Away- the Water and Sanitation Crisis in the Jordan Valley', 40% of Palestinians in the Jordan Valley consume less water than the minimum global standard set by the World Health Organization, which is set at 100 liters cubed per day. In a striking disparity, 56,000 Palestinians in the Jordan Valley consume an average of 37 Million Cubic Meters (MCM) of water per year, as compared to an average of 41 MCM for only 9,400 settlers.

Because of post-Oslo Accords regulations, Jordan Valley Bedouins living in Area C (95% of the Valley) cannot build, or improve, the smallest animal pen, much less a water well, without a permit, which is almost impossible to obtain. The Oslo Accords set up a Joint Water Committee (JWC), composed of Israelis and Palestinians, to grant construction permits.

However, 'Draining Away' reports that "around 150 Palestinian water and sanitation projects are still pending JWC approval for 'technical and security reasons', while only one new Palestinian well project for the [West Bank] Western aquifer has been approved since 1993. In contrast, Israel is able to construct pipelines to its illegal settlements without going through the mechanism of the JWC.

Thus Israel effectively has full control of water resources in the West Bank and Gaza Strip."

Even if a project is approved by the JWC, it must then be approved by the Israeli Civil Administration, where, according to Deeb Abdelghafar, Director of Water Resources for the Palestinian Water Authority, "there are more than 14 departments, and each department must approve on the project. So we can never get a project through".

The 2009 World Bank report 'Assessment of Restrictions on Palestinian Water Development: West Bank and Gaza' quotes an anonymous NGO donor: "the first thing we request is a letter from PWA approving the project. Then we go to the JWC. But then we have to go to the Civil Administration – and there delays of 2-3 years are normal. In fact, we have no positive outcomes for Area C."

Because of the impossibility of laying infrastructure, NGOs focus, says Abdelghafar, on "civil emergency intervention- by delivering small water tankers, by supplying them with water tanks, by constructing rainwater cisterns- it's emergency humanitarian relief." While important, this aid is temporary, able only to alleviate the symptoms, not cure the disease.

The Israelis, Abdhelgafar makes clear, "are trying to establish control over the Valley, by preventing or destroying permanent water infrastructure...they want to clear Area C of Palestinians".

"Israeli army steps up attacks on Palestinian water", 15/11/2011, online at:
http://www.alternativenews.org/english/index.php/topics/news/3898-israeli-army-steps-up-attacks-on-palestinian-water

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❖ The real cost of Israel's occupation of the Palestinians

Palestinians are losing out on some $6.9 billion a year, a study shows, as restrictions on water use, resources and imports exact their toll.

The Israeli occupation is exacting a high price on the Palestinian economy, according to a report by the Palestinian Ministry of National Economy and the Applied Research Institute - Jerusalem - which puts the damage at $6.9 billion a year - what it calls a conservative estimate. The figure is about 85% of the Palestinian GDP for 2010, $8.124 billion.

The calculation includes the suspension of economic activity in the Gaza Strip because of Israel's blockade, the prevention of income from the natural resources Israel is exploiting because of its direct control over most of the territory and the additional costs for the Palestinian expenses due to restrictions on movement, use of land and production imposed by Israel.

The introduction to the report states that the blocking of Palestinian economic development derives from the colonialist tendency of the Israeli occupation ever since 1967: exploitation of natural resources coupled with a desire to keep the Palestinian economy from competing with the Israeli one.

The report was published at the end of September, a few days after Palestinian President Mahmoud Abbas applied for full membership at the United Nations.

Its publication during the period of the High Holidays meant that it was hardly mentioned in the Israeli media.

By quantifying the losses caused by the Israeli occupation, the authors of the report wished to dispel the mistaken impression that has developed over the past two or three years that the Palestinian economy is flourishing naturally, whereas it is in fact supported by donations that make up the cost of the occupation.

The largest chunk of losses to the Palestinian economy is due to the policy of the blockade on Gaza, which is preventing all production and exports. The calculation was made on the basis of a comparison of the rate of growth in the GDP in the West Bank, which in the years prior to the blockade was similar to the growth rate in Gaza. Thus, the authors of the report estimate that in 2010 the gap between the potential GDP in Gaza (nearly $3 billion) and the actual GDP was more than $1.9 billion. The Palestinian economy, and especially the agriculture sector, is losing a similar sum because of Israel's discriminatory distribution of water between Palestinians and Israelis. Relying on a 2009 World Bank report, the authors of the current study find that not only did the Oslo accords freeze in place a situation of unequal distribution of water pumped in the West Bank (a ratio of 80:20), but also that Israel is pumping more from the western aquifer than was alloted it in the agreement.

At the same time Israel is selling water to the Palestinians to compensate for part of what they lack. Israeli control over water resources and access to land in Area C is preventing the Palestinians from developing irrigated agriculture, which today accounts for a mere 9 percent of the cultivated area.

The authors estimate that were it not for the Israeli restrictions it would have been very possible to expand the agricultural sector considerably, up to nearly one quarter of the 2010 GDP.

The Israeli policy of restricting access to water also causes various health problems. The authors of this study added up the costs of treating these heath problems - $20 million - and tacked it on to the total losses.

The Palestinian economy is also losing the potential profits from other natural resources, which Israel is exploiting today or preventing the Palestinians from developing: minerals from the Dead Sea, stone and gravel in quarries, natural gas off the Gaza shore. These erased profits are estimated at about $1.83 billion.

Natural and antiquities sites, as a tourism resource, are being paralyzed by Israel's control over Area C and the restrictions on movements it imposes within the entire West Bank. For example, the losses caused by Israel's control of the Dead Sea alone amount to $144 million annually.

The report also quantifies the damage caused by the uprooting of 2.5 million olive trees and other fruit trees since the start of he occupation in 1967 - an annual loss of $138 million.

The industrial sector is restricted not only in Gaza but also in the West Bank. This, in part, is due to the severe import restrictions Israel imposes on list of 56 items of raw materials and machines because it has defined them as "dual use" - for manufacturing and for fighting.

The list was drawn up in 2008 and includes, among other things, fertilizers, various raw materials, lathes, grinding machines, metal pipes, optical equipment and navigation tools. The report states that these items are still severely restricted despite improvement in the security situation and cooperation between Palestinian security forces and the Israeli army and Shin Bet security service.

These restrictions directly harm a variety of industries like the food, beverage, metal, textile, medications, clothing and cosmetics industries.

The report relies on findings from a study submitted to the National Economy Ministry in 2010 dealing with the possibilities for Palestinian trade. It states, for example, that after Israel prohibited the import of glycerin to the West Bank in 2007, a cosmetics company in Nablus was no longer able to export to Israel. Under Israeli standards, skin care products must contain glycerin.

Because of Israel's control over crossing points and Area C, the Palestinian treasury is not able to fully collect tax and customs duties on all the products sold in the West Bank.

The report estimates that the annual fiscal loss to the Palestinian coffers is about $400 million.

Moreover, the report calculates an indirect fiscal loss: a shrunken GDP relative to the potential means less income from taxes. "According to our calculations, the economy would be 84.9% larger without the occupation, thus it would generate $1.389 billion additional fiscal revenues. Adding this figure to the direct fiscal costs yields total fiscal costs from the occupation of $1.796 billion."

The authors stress this is a conservative estimate of the losses. It does not include various speculative calculations such as losses because of he prohibition on building in Area C, or economic losses caused by the separation fence and restrictions on marketing to East Jerusalem. "Given the total fiscal deficit in West Bank and Gaza of $1.358 billion in 2010," the report states, "the Palestinian economy would be able to run a healthy fiscal balance with a surplus of $438 million without the direct and indirect fiscal costs imposed by the occupation. It would not have to rely on donors' aid in order to keep the fiscal balance and would be able to substantially expand its fiscal expenditure to spur needed social and economic development."

“The real cost of Israel's occupation of the Palestinians”, Amira Hass, 16/11/2011, online at: http://www.haaretz.com/print-edition/features/the-real-cost-of-israel-s-occupation-of-the-palestinians-1.395839

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❖ AGU to take part at Arab Second Water Forum

Manama, Nov. 20 (BNA) -- The Arabian Gulf University (AGU) will take part at the Arab Second Water Forum due to be held on 20th to 23rd of this month titled "living with water shortages."

Dr. Walid Khalil Zubari, a professor of water resources and dean of the Graduate School at AGU will discuss in the two – day forum the
Water crisis in the Arab world and the role of the International Hydrological Programme of UNESCO and how to control water in the Arab nations.

The Forum will also discuss International conventions and laws governing the joint water in particular the issue of water in Palestine, Jordan and Israel on the acquisition of Arab water as well as the issue of shared water in Tigris and Euphrates among Turkey, Syria and Iraq and other issues related to water in the Arab region.

"AGU to take part at Arab Second Water Forum", 20/11/2011, online at: http://www.bna.bh/portal/en/news/481113

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❖ Small hydro-power plants the way to go

THE demand for hydro-power has been fast-growing in the last decade as developing nations move to harness their resources. Hydro-power has a powerful contribution towards regional cooperation and development.

Its renewable energy plays a unique role in mitigating climate change by displacing fossil energy and supporting storage capacity of dams. This in turn provides for flood control, as well as water security for countries under threat of floods and drought.

With the current load shedding in the country, many businesses are continuing to stall and the productivity is becoming low.

We should implement something that will involve less costs. It is high time we distanced ourselves from the expensive, unreliable thermal sources of power.

Electricity is a major requirement for the modern era and its demand is very high for industrial development and domestic use.

Uganda, as a developing country, continues to be one of the states where hydro-power will play a great role in the future. In economic development, hydro-power boosts industries and energy exports.

Hydro-potential is the backbone to future social and economic development. In total hydro-power potential is estimated to be over 2000 megawatts especially along the River Nile.

It should be noted, however, that Lake Victoria being the largest reservoir in Africa and at the same time the source of the White Nile, sooner or later, will be limited in terms of hydropower development. Reason being that the Nile is a trans-boundary river with many countries having a lot of interest in it.

Since we still have a lot of small hydropower potential on our small rivers within the country, we should change the strategy and start investing in small and mini-hydro power. One small hydropower system of 13 megawatts, is capable of reducing load shedding of at least two districts in a region, if connected to the national grid.

The investment cost for small hydro-power is not much compared to large hydro-power which may require a lot of money, especially from development partners and banks.

Small hydropower plants can be run by private investors who would control the distribution of power.

These private investors would agree with the Government on how to operate the system for a number of years before handing it back to the Government. This is what we call a design build operate and transfer system'.

So far, more than 50 mini hydropower sites with a potential of 250 megawatts have been identified through various studies in Uganda.

Currently, small hydro-power plants account for a small percentage of electricity generation capacity.

"Small hydro-power plants the way to go", 20/11/2011, online at: http://www.newvision.co.ug/news/30149-small-hydro-power-plants-the-way-to-go.html

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❖ Rivers for Life: The Case for Conservation Priorities in the Face of Water Infrastructure Development

WWF's "Rivers for Life: The Case for Conservation Priorities in the Face of Water Infrastructure Development" addresses the need for approaches and methodologies that help identify and prioritize freshwater areas of conservation value. It showcases some of WWF's freshwater prioritization assessments in the Amazon, Austria, China, India, the Mekong, and Mexico, each having been implemented in different contexts and under diverse conditions.

WWF's case studies show that identification and prioritization processes are powerful tools in the realm of river basin planning, water management, and water infrastructure development. WWF and partners are applying prioritization approaches around the world.

In "Rivers for Life: The Case for Conservation Priorities in the Face of Water Infrastructure Development," WWF provides freshwater management decision-makers and stakeholders, including infrastructure developers and local communities, a guide on the prioritization methodologies available, and expertise on how best to implement such tools.

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Background:

As the world's population reaches 7 billion, the demand for energy, food, and water has never been greater. An increasing number of freshwater ecosystems, which are the providers of vital services and resources to humankind – such as clean water, fisheries, flood protection – are being significantly impacted by human activities. By losing these assets, humankind risks to lose the very basis for livelihoods and biodiversity in many places on this planet.

Identifying priority areas for freshwater conservation is an important step in ensuring that areas most valuable from a conservation perspective within river basins remain protected from disruptive infrastructure development and unsustainable use, while sustainably supplying societal needs for water, energy, and food.

Methods for the identification and subsequent prioritization of areas of conservation value – both terrestrial and aquatic – are increasingly available. The WWF is developing and using such methods for prioritization of areas for freshwater conservation and to contribute in guiding sustainable development and human use in river basins, while also protecting important natural assets.

While numerous approaches or methodologies are available to obtain credible results, there are a set of core planning principles that are critical in any freshwater prioritization process. Key among these is adequately involving all stakeholders in the decision-making process in order to secure the buy-in of society, and hence legitimacy of the process. This will ultimately allow for the outcomes to be

integrated into legal, policy, and management frameworks, and turned into effective, sustainable practice.

WWF has conducted prioritization assessments inter alia in the Amazon, Austria, China, India, the Mekong, and Mexico, all of which were implemented in different contexts and under diverse conditions. Through these assessments, WWF has gathered a critical mass of expertise and experiences, leading to the identification of key characteristics to successful approaches and opening the way to sound water resources management in the face of infrastructure development that responds to the increased demand for energy and food.

The guide moreover provides recommendations to the main players involved – public authorities in charge of water management, private sector, and civil society – on key aspects to consider when engaging in a freshwater prioritization process.

"Rivers for Life: The Case for Conservation Priorities in the Face of Water Infrastructure Development", WWF, 17/11/2011, online at: http://wwf.panda.org/wwf_news/?202415/Rivers-for-Life

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❖ With Grey Water Recylcing, Hope Springs in the Desert

The Auja Environmental Center (AEC) was officially opened in October 2010, and although only in operation for one year it has already received recognition from the local and international community for its work. Located north of Jericho, the AEC is one of three 'ecoparks' established by Friends of the Earth Middle East (FOEME) across Palestine, Jordan and Israel.

Promoting environmental awareness, the Centre teaches visitors about the geology, flora, fauna, water resources and cultural heritage of Wadi Auja and the Jordan Valley as a whole. There is a permaculture garden, grey water recycling facility, and a children's playground on site, along with a number of educational installations and stations. School groups have visited the Center to learn about their local environment, and important environmental issues like water use, waste management, and climate change.

In addition, the local community has been able to learn about grey water recycling and the AEC has helped to establish more than 25 grey water recycling facilities in homes and schools surrounding Auja. In a region struggling for access to water, these projects have made a significant impact.

The AEC itself aims to be a model of sustainability, using recycled materials and sustainable building techniques in much of its construction. Over 2500 used tyres have been used to create the educational installations, and staff are also perfecting the art of mud building to use in further developments at the site. The Centre has provided unique educational and employment opportunities for the local community, and has become a hub for children to gather and play.

The AEC is just one part of FOEME's broader work, focussed on promoting cooperative efforts across the region to protect the environment. Much of FOEME's work is focussed on addressing water issues, and it has partnered with 28 communities across Palestine, Jordan and Israel in order to develop cooperative strategies for sustainable water management.

FOEME's work has been widely praised, and in October it was awarded the 2011 Mount Zion Award. The award recognizes the achievements of organizations that have made an outstanding contribution in enhancing dialogue between different cultures in the Holy Land. Following on from this award, the Association for Conflict Resolution recognized FOEME with its Outstanding Leadership Award 2011, which honors exceptional work promoting conflict resolution in development projects.

The AEC has brought hope and encouragement to the local community, transforming a barren plot into a flourishing hub of community life in only a short time. Currently, plans are underway at the AEC to develop a hostel and restaurant on site to encourage international visitors and promote ecotourism in the region. To this end, staff are also working to develop hiking trails that will allow

visitors to experience the Jordan Valley for themselves. This is only the beginning for the AEC, and it seems that there are no limits to what the future may hold.

"With Grey Water Recylcing, Hope Springs in the Desert", 14/11/2011, online at: http://english.pnn.ps/index.php?option=com_content&task=view&id=10859&Itemid=74

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❖ Ron Lauder: Future lies in water

Jewish American businessman, controlling shareholder of RWL Water, says Israel a global hub in water technology. 'Unfortunately it is also a world champion in bureaucracy,' he adds

"A decade ago I realized that the future of the 21st century lies not in oil but in water. Israel is the global hub of water technologies," Jewish American businessman Ronald Lauder, the controlling shareholder of RWL Water, said Wednesday.

"So I began looking into companies in the field that would be a good investment. Unfortunately, Israel is also a world champion when it comes to bureaucracy and I think there should be a government mechanism that deals with the water issue."

Lauder spoke at the Watech exhibition in Tel Aviv, where he also announced his acquisition of Italian waste water treatment company Eurotec WTT.

RWL Water is a private holding company founded by Lauder in 2010, which provides water treatment, wastewater and trash to energy solutions. The group also owns Israel's Nirosoft and US Aeromix Systems, and its recent acquisition cements its position in the wastewater treatment market.

Lauder, one of the owners of Channel 10, refused to comment on the channel's future, expected investments and discussions at the Knesset's Financial Affairs committee as regards the channel's debt.

"At this point I am not interested in commenting on Channel 10. There is a time and place for everything and I will comment on this issue in due time," he concluded.

However, Lauder did extend his visit to Israel presumably to deal with the Channel 10 issue.

On Wednesday, the company announced that it would expand its activity to project financing (BOT). RWL says that tenders for desalination facilities take an average of 2.5 to three years in Israel, whereas they possess the ability to establish smaller desalination facilities within six months.

One of these facilities was constructed by the group in Cyprus.

"Ninety-seven percent of the water in the world is non-potable; a further 2% is trapped in icebergs which leaves only 1% of potable water. People cannot survive without water and I believe this is the future," Lauder said

"Ron Lauder: Future lies in water", Lior Gutman, 18/11/2011, online at: http://www.ynetnews.com/articles/0,7340,L-4149871,00.html

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❖ Water – Bridge over Troubled Mideast or Bridge to Peace?

The Arab-Israeli need for water can be a bridge to peace and not a reason for bloodshed, says Deputy Foreign Minister Danny Ayalon.

The Arab-Israeli need for water can be a bridge to peace and not a reason for bloodshed, says Deputy Foreign Minister Danny Ayalon.

Speaking at the international WATEC 2011 conference on water being held in Jerusalem, Ayalon said, "Many times in the history of our region, water was a reason for conflict and bloodshed. Today, I want to change this equation, together with you to turn water into a bridge to peace."

The WATEC conference covers water technologies, in which Israel is a leader, renewable energy and environmental control. More than 30 heads of state and ministers as well as 150 business delegations are attending the conference.

Ayalon addressed the leaders of the Arab states, reminding them, "Israel will benefit from a peace agreement, but you will also gain a genuine partner for development and the assured welfare of future generations in the region."

"Israel is among the leading states in the world in water technologies and is willing to share its knowledge and experience with other countries so that together we canprovide for the increasing needs of the world's ever-growing population."

Syria, Jordan and Israel share a common lack of water. Lebanon has diverted much of the water from the Litani River, reducing the amount available to Israel as it flows southward and empties into the Jordan River and the Kinneret.

The Golan Heights' rich water resources are one of the reasons Syria has beenadamant to claim sovereignty over the strategic area.

"Water – Bridge over Troubled Mideast or Bridge to Peace?", 15/11/2011, online at: http://www.israelnationalnews.com/News/News.aspx/149769#.TsZqkD0Urdw

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❖ From Tahrir to the Banks of the River Nile

Religion, Law, and Politics of the Nile River Basin

The struggle for control of the Nile exemplifies all the features of great state rivalries: competition over resources, jousts for geopolitical supremacy, and contests over the primacy of religions. Pitted on one side, are Egypt and Sudan, which make exclusive use of the Nile; and on the other, the upper riparian states of Ethiopia, Kenya, Tanzania, Uganda, Burundi, Rwanda and the Democratic Republic of the Congo.

Acutely aware of its dependence on the Nile, from which ninety-seven percent of its surface water is derived, maintaining a near-monopoly over the Nile has been the principal preoccupation of Egyptian foreign policy.

Ever-vigilant, Egypt historically thwarted efforts to develop the Nile through the three arrows in its quiver. First, Egypt claimed that archaic colonial treaties justified the lopsided allocation of the Nile's waters. Second, Egyptian diplomats dissuaded international donors from providing multilateral or bilateral funding for projects along the Nile. And third, Egypt relied on the implicit—and sometimes explicit—threat of military force.

Winds of change, however, began to blow along the Nile well before the demonstrations in Tahrir Square. In 2010, after multiple rounds of negotiations, and over strenuous Egyptian and Sudanese objections, Tanzania, Kenya, Ethiopia, Rwanda and Uganda (later joined by Burundi), signed a framework agreement for the utilization of the Nile. The upper riparian countries extended an olive branch to Egypt and Sudan by arranging for the treaty to remain open for signature for a year, giving Egypt and Sudan ample time to sign before its entry into force. Another significant development occurred this past March when Ethiopia announced it would construct a mega dam along the Nile.

These developments constitute seismic shifts in Nile politics. If these changes culminate in the successful creation of a regimen for equitable use of the river, the dams and irrigation schemes to follow, will impact the lives of the approximately 300 million inhabitants of the Nile Basin. A basin-wide arrangement governing use of the river could also serve as a model for resolution of water disputes elsewhere.

Faith, Politics, and War

Understanding the history of Nile geopolitics is key to grasping the fitful nature of negotiations over its use and the distrust between feuding parties. The annals of Nile history are largely a chronicle of Ethio-Egyptian relations. Both countries are by far the most populous in the Basin; and both are the progeny of ancient civilizations. Egypt and Ethiopia are also the principal players in the contest for the Nile because they are parties to a striking asymmetry of contribution versus use: Egypt exploits 75% of the Nile's water, but does not contribute to its flow; whereas Ethiopia supplies 85% of the water, of which it makes no use.

Religion, politics and geography are intimately intertwined in this millennial dispute. Indeed, Ethiopia's Lake Tana, the source of the Blue Nile, is dotted with medieval monasteries, as if to underscore the link between faith and river.

Religion figures prominently in Ethio-Egyptian relations given Ethiopia's adoption of Christianity as a state religion in the third century and Cairo's role as a center of Islamic learning and bulwark of Islam. Ethiopia's early adoption of Christianity meant that Christianity grew indigenously—without European intermediaries—imbuing every facet of life with a unique brand of Christianity with strong Judaic links. .

Ethiopian Emperors considered themselves defenders of the faith, and as early as the Middle Ages came to the succor of their Coptic brethren, threatening to divert the Nile whenever they received reports of Muslim harassment of Egyptian Christians. Though Ethiopia controlled the headwaters of the Nile, it is unlikely its rulers ever had the ability to divert it, but the fact that Egyptian rulers fell for the ruse was what mattered. Ethiopia's purported ability to block the Nile led the Turkish Sultan to pay an annual tax to Ethiopia during the 17th century and Ethiopians' exemption from taxation throughout the Ottoman Empire.

Egypt, however, had an important bargaining chip too. Mandated by Ethiopian law and tradition, every head bishop of the Ethiopian Church was appointed by the Egyptian Patriarch in Alexandria, beginning in the fourth century until 1959, when the Ethiopian church became autocephalous. Whenever appointment of a new abun coincided with a nadir in Ethio-Egyptian relations, Egypt did not hesitate to delay his appointment.

The commingling of blackmail, religion and Nile politics, continued into the modern era; but the 19th century actually brought Egypt and Ethiopia into direct military confrontation. Swept up by the fervor of European colonial expansionism, Khedive Ismail of Egypt made it his goal to control all territory between Egypt and the Indian Ocean. Doing so would accomplish two objectives: total Islamification of the Horn and control of the Nile's headwaters.

Under the pretext of defending Egyptian controlled regions bordering Ethiopia, Ismail's troops fought and lost against Ethiopian forces at Gundet. A year later, in 1876, at the Battle of Gura, Emperor Yohannes IV defeated Ismail again.

Even while negotiating for peace, Egypt did not shirk from destabilizing Ethiopia in order to create another opportunity for control of the Blue Nile. In doing so, the Egyptians seemed to be following the counsel of the Khedive's Swiss advisor, Munzinger that, "Ethiopia with a disciplined army, and a friend of the European powers is a danger for Egypt. Egypt must either take over Ethiopia and Islamize it or retain it in anarchy and misery."

A favorite strategy was support for disgruntled Ethiopian aristocrats who could foment disorder along Ethiopia's frontiers. Thus, the Egyptians provided money, arms and a Turkish title to Dejazmach Walde Mikael of the Hamasien district in Eritrea after his desertion on the eve of the battle of Gura. The Egyptians even provided a monthly stipend to the Emperor's own cantankerous cousin, Dabab Araya. Bitter over not being conferred a title higher than fitaurari (equivalent to count), Dabab

accepted Egyptian money and set out to raid caravans traveling from the Red Sea to the Ethiopian hinterlands; at one point even raiding a caravan belonging to his own sister.

Egypt's expansionist aims in the Nile Basin also brought it to occupy the town of Harar—Islam's fourth holiest city—an additional pressure point in southeastern Ethiopia. With the collapse of Egypt's imperial aspirations following its occupation by the British, Egypt withdrew from its decade-long occupation of Harar, leaving behind an Emir who swore fealty to Turkey.

Wishing to engage in his own expansionism—and perhaps to forestall any future Egyptian presence, the future Emperor Menelik II requested that the Emir submit to the Ethiopian government, claiming that Harar had been an Ethiopian province for 400 years. In reply, the Emir provocatively sent Menelik a Muslim dress, turban and prayer carpet with a note saying he would submit to Menelik when he converted to Islam. Menelik's reply was succinct: "I will come to Harar and replace the mosque by a Christian church. Await me." Menelik took Harar in 1887, soon thereafter a church was built.

Religion and hydropolitics continued to be intertwined well into the 20th century, as exemplified by Egyptian designs for the Union of the Valley Nile. Building upon 19th century visions of Egyptian imperialism, Egypt conceived creation of a single political unit incorporating Kenya, Uganda, Somalia and Ethiopia. Though the project clearly involved political subordination to Cairo in order to preserve its access to the Nile, it clearly entailed Islamification as well.
Leaders were not alone in infusing Nile politics with religion; faith was at the forefront of popular Ethiopian and Egyptian imaginations of one another. As the historian Haggai Erlich puts it, Ethiopians typically perceived Egypt as an integral part of a Middle Eastern conspiracy working towards

politicization and unification of Ethiopian Muslims in order to destroy Ethiopia's Christian identity. Though some Muslims tolerated Ethiopia because it had given refuge to persecuted followers of the Prophet Mohamed in seventh century, radical Muslims viewed it as an illegitimate non-Islamic state, with Egyptian Muslims particularly worried that Ethiopia's control of the Nile would enable it to wreak havoc on Egypt in collusion with Egypt's Copts.

To be sure, there were interregnums during which suspicions subsided. The most notable being in the 1920s when memories of the Egyptian defeat at Gura subsided and a more nationalist and pluralistic Egypt emerged, de-legitimizing radical Islam and giving political space to the Coptic community. Nonetheless, religious differences continue to animate mutual suspicion in Egyptian-Ethiopian tussles over the Nile. A flurry of recent Ethiopian hydro electric projects were, for instance, reported in the Egyptian press as being the fruit of Ethiopian-Israeli collaboration (that is not the case, dams built in recent years are either self-funded or financed primarily by the Chinese or Italians).

The implication being that these projects are part of a sinister Judaeo-Christian plot to strangle Egypt through control of the Nile. Visits by Israeli delegations to majority Christian Uganda, Kenya and Tanzania have sparked similar concerns that Israeli involvement in irrigation and development in these countries are part of an Israeli scheme to harm Egypt. These views, however, are insular and

paternalistic; they rest on the mistaken assumption that East African states merely march to the tune of foreign interests, ignoring that they too have a stake in exploitation of the Nile.

Long suffused with religious overtones, moving towards resolution of the Nile dispute will require leaders to refrain from manipulating religious feeling, so that reasoned political negotiations prevail over inflammatory religious rhetoric.

New Agreements, New Institutions

Framing the Nile dispute as a competition between faiths and a contest for national survival may appeal to Egyptian and Ethiopian elites and their constituencies, but would be considered feistic and jingoistic in international circles. As a result, Nile Basin states resort to international law to defend their position on the Nile issue.

Egypt and Sudan point to two agreements to justify the lopsided apportionment of water in the Basin. The first, the 1929 Agreement between Egypt and Anglo-Egyptian Sudan, allotted twelve times more water to Egypt than Sudan, and left none for the upper riparians. Moreover, the agreement ostensibly provided Cairo veto power over projects built on the Nile by other countries. Britain, as occupier and protector of Egyptian interests, signed the agreement on behalf of its then East African territories—present-day Kenya, Uganda and Tanzania. When the Sudanese clamored for an increased share of the Nile, a new Agreement was signed, giving Egypt 75% and Sudan 25% of the water.

Egypt and Sudan maintain that these relics of the colonial past remain valid and binding on all Nile riparian states. And, most important of all, that their quotas are immutable. This position, however, contravenes fundamental principles of international law.

In the case of Rwanda, Burundi, Ethiopia and the DRC, the case is crystal clear: these countries never signed the 1929 or 1959 Agreements so they cannot be bound by them. Ethiopia, independent throughout the colonial era, has had its three most recent governments—imperial, military and current—denounce the treaties. A notable exception is the 1902 Anglo-Italian-Ethiopian Agreement, where Ethiopia's Emperor Menelik II pledged not to build any works upon the Nile which would arrest its downstream flow. But that agreement no longer carries weight, as it was signed with British colonial authorities administering Sudan, not Egypt.

The 1929 and 1959 agreements are also inapplicable to former British colonies, on whose behalf the British signed the agreements. Under international law, it is generally accepted that upon independence, new states do not inherit treaties other than those dealing with boundaries.

With the end of the colonial era, newly independent states tried to remedy the lopsided allocation of the Nile waters. Negotiations and the establishment of multiple organizations tasked with examining the Nile issue collapsed one after the other. In 1999, the Nile Basin Initiative (NBI), the fourth such regional grouping to be formed since 1968, was established.

The most significant work to date by NBI member states has been the drafting of a Cooperative Framework Agreement (CFA) to govern use of the Nile. Open for signature in 2010, the CFA's entry

into force was postponed earlier this year in order to give Cairo time to reevaluate the Mubarak government's strong opposition to the agreement.

The 2010 CFA features welcome and uncontroversial elements, including provisions for the preservation of ecosystems and the conduct of environmental impact assessment studies on the Nile.

The CFA, however, also contains provisions which may become future bones of contention. For example, the CFA embraces the principle of "equitable utilization," meaning that a state's use of the river must be fair and reasonable with respect to other parties. In so doing, the CFA claims the middle ground, moving beyond the storied positions held by upper and lower riparian states in transboundary water disputes. Upper riparian states historically insist that distribution of transboundary waters must be premised upon sovereign control of resources within their boundaries, whereas lower riparian states routinely emphasize consideration of prior use. By endorsing equitable utilization, the CFA aligns itself with an emerging consensus in international law which has been incorporated into other agreements such as the Mekong Basin Agreement.

Equitable, however, does not mean equal. In other words, equitable utilization denotes equality of right, but not equality of share.

How does one determine equitable utilization? The CFA sets forth a non-exhaustive list of factors, including: population dependent on water resources in each state, socio-economic needs, the effects of use in one state on another, the availability of alternate water sources, and a state's water contribution to the river.

The CFA adds that the "weight given to each factor is to be determined by its importance in comparison with that of other relevant factors." This is paltry guidance indeed. Though states need not be given an algorithmic formula, better guidance in determining how much weight ought to accord to one factor vis-à-vis another might preempt future disagreements. Moreover, even when taken individually, the enumerated factors are ambiguous. For example, what kind of use of the river by one state, which affects another, falls under the rubric of the agreement?

Despite these weaknesses, the equitable utilization provisions of the CFA may be as good as they ever will be. Treaties seldom hammer out every detail, and if negotiators ever sought to do so, international agreements would never materialize. Details can be sorted out by parties to an agreement at a later stage, as should be the case here, because the 2010 Framework Agreement is a roadmap to be supplemented by additional bilateral or multilateral agreements.

More problematic, however, is the CFA's inclusion of an article requiring states to refrain from measures causing significant harm to other states. The problem here, is obvious: what amounts to "harm," and how significant must it be to constitute "significant harm."

Again, the CFA does not give much guidance despite the fact that "significant harm" has been an important element in transboundary water disputes. Iraq and Syria, for example, have accused Turkey

of causing significant harm, despite the existence of bilateral agreements between them regulating use of the Euphrates. In the Gabcikovo-Nagymaros case, Hungary argued in front of the International Court of Justice (ICJ) that Slovakia's use of the river caused it significant harm. In a sign of just how contentious water disputes can be, the dispute remains unresolved despite the ICJ's 1997 ruling.

Another significant shortcoming of the CFA is its failure to explain how "significant harm" coexists with "equitable utilization." Put differently, if a state's use is reasonable (according to the CFA's factors for establishing equitable utilization), but causes significant harm, is such use prohibited? International law seems to favor equitable use over significant harm. The UN Convention on the Non-Navigation Uses of International Watercourses similarly incorporates equitable use and significant harm without any indication as to which is preeminent; scholarly interpretation of the Convention's language—from which the dueling concepts are drawn—assigns primacy to equitable utilization. Likewise, the ICJ emphasized the need for equitable utilization of the Danube in the Gabcikovo case, but made no explicit reference to significant harm, despite Hungary's heavy reliance on the principle in its pleadings.

Though international opinion has coalesced in favor of equitable utilization, the issue is not entirely resolved— some jurists maintain that the interplay between equitable utilization and significant harm may have to be resolved on a case-by-case basis in water disputes. Adding to this latent uncertainty are Ethiopia's recent statements regarding construction of a mega dam along the Nile. Ethiopia has emphasized that the dam will not reduce the flow of water to Egypt—implying it will not cause any harm—because it will be used for hydroelectric power, not irrigation. These public pronouncements do not preclude future irrigation projects, but coupled with the "significant harm" provisions of the 2010 Agreement, may provide Egypt and Sudan with additional ammunition with which to protest future Nile projects involving irrigation. This could set the ground for future disagreements.
The CFA's failure to clarify whether "significant harm" is subordinate to "equitable utilization," begs the question, why upper riparian states agreed to such an amorphous agreement; particularly since they were not strong-armed by Egypt or Sudan, neither of which signed the Agreement. Inclusion of the significant harm principle in the CFA might have made sense if such compromise was necessary to bring Egypt and Sudan on-board, but Khartoum has rejected the agreement, and despite Cairo's pledge to reevaluate the agreement, there is no sign that its signature is forthcoming.

The reason behind the CFA's shortcoming seems to be that East African states simply lifted the language from the UN Convention which contains near carbon-copy provisions on significant harm and equitable use. The Convention's nebulousness on the interplay between significant harm and equitable utilization is a result of the competing interests at the UN between states favoring "significant harm" and those wanting to accord more weight to "equitable use." The result was a comprise that yielded a Convention which, according to an observer, resembled a "basket of Halloween candy," with something in it for everyone.

East African governments' willingness to have the CFA track the Convention is intriguing. Rwanda and Ethiopia registered objections to the Convention, and together with Egypt and Tanzania, abstained when it came up for a vote in the UN General Assembly in 1997. Burundi rejected the Convention outright, as did Turkey, an upper riparian desirous to safeguard its use of the Euphrates.

The CFA's lack of a hierarchical distinction between equitable utilization and significant harm is a missed opportunity for upper riparian states to further swing the pendulum of international law in favor of the former over the latter. The parties to the CFA could have eliminated the article pertaining to significant harm and subsumed it under the equitable utilization provision, which already includes—among the factors to be used in determining whether a state's use is equitable—an assessment of the effects of a state's use of the river on other states. Clarity on the interplay between these two principles would facilitate future Nile agreements on water allocation (the CFA as a framework agreement simply sets out principles) and convey an important message to water disputants elsewhere that equitable utilization is preeminent in international water disputes.

From Tahrir to the Banks of the River Nile

The 2010 Agreement's flaws do not detract from its importance as the first Basin-wide agreement to garner the support of a majority of Nile riparian states. Predictably, Egypt and Sudan initially rejected it. Egypt's change of government, however, seems to have prompted a switch from a confrontational posture to one of engagement.

Egypt traditionally replied to demands by riparian states to alter the status quo of the Nile with threats of military force. When Sudan complained about the allocation of the Nile waters in the nineties, Hosni Mubarak ominously said, "It is finished, I will not stay quiet, I do not want to hurt the Sudanese if they are helpless, but I say and the world hears me, that if they continue with this stance, then I have resources of my own." When Ethiopia announced plans to build a dam on the Nile in the nineties, Mubarak openly threatened to bomb Ethiopia. These threats are taken seriously by upper riparian states given Egypt's overwhelming military force—most significant in its military arsenal, are its many F16s, of which it is the fourth largest operator in the world.

Earlier this May, however, an Egyptian delegation consisting of parliamentarians, presidential hopefuls and prominent members of civic society visited Addis Ababa for consultations over the Nile issue. Members of the delegation arrived to much fanfare in Addis Ababa on-board an Ethiopian Airlines jet (rather than an Egypt Air flight), and said all the right things and made all the right gestures, after meetings with the Ethiopian President and Prime Minister, as well as the Patriarch of the Ethiopian Orthodox Church.

Moustafa El-Gendy, a former opposition MP and delegation head, cannily pointed out that Egypt and Ethiopia shared a common historical bond as righteous defenders of religions: Ethiopia provided refuge to persecuted followers of the Prophet Mohammed fleeing the Arabian Peninsula, whereas Egypt had served as a safe haven for the Virgin Mary. More to the point, the Egyptians asked that Ethiopia postpone entry into force of the 2010 CFA to provide a future elected Egyptian government the opportunity to reevaluate it.

A few weeks later, in a trip to Ethiopia, Egyptian PM Sharaf echoed the message of the unofficial delegation which had preceded him, both in style and substance. Most importantly, Sharaf

acknowledged that riparian states have the right to utilize resources within their boundaries to further development.

These statements are a far cry from the threats and vitriol of yesteryear.
Deciding whether we have truly reached a historic turning point in the Nile dispute, however, requires evaluating the sincerity of Egypt's conciliatory statements and goodwill gestures. Egypt's public pronouncements will have to be measured against concrete actions, without which, hopes for cooperative Basin-wide arrangements will prove to be a chimera.

An obvious first step to be taken by Cairo is to sign the 2010 Agreement. The Agreement mirrors current international water law (including its imperfections) and is likely the most favorable agreement Cairo can get since it includes features favorable to lower riparian states. These include the "significant harm" principle, as well as an evaluation of available alternative water sources to a state in assessing whether its use of the Nile is equitable.

The genuineness of Cairo's proclamations must also be determined by whether the Egyptian government will stop using its leverage with governments and international organizations to block bilateral and multilateral sources of funding for the construction of mega dams on the Nile. Egyptian diplomats have exerted their influence in the past, most notably by playing a major role in the institution of the World Bank's Operating Directive 6.22, which prohibited the Bank from funding projects along transboundary rivers unless the projects garnered the support of every state along a river.

Perhaps the most important benchmark against which to assess the sincerity of Egypt's volte-face will be its relations with its neighbors. When the impracticality of an Egyptian-led Union of the Valley Nile spanning East Africa became apparent, the Egyptian government opted for the more attainable goal of influencing events in riparian states to preempt challenges to its monopoly over the Nile.

Though Sudanese and Egyptian policies over the Nile have often been aligned, this was not the case immediately following Sudanese independence when Khartoum pushed for an upward readjustment of its mute quota. Pro-Nasserite Sudanese politicians and Egyptian involvement are thought to have helped precipitate the 1956 Sudanese coup which brought to power a pro-Arab, pro-Egyptian government which agreed to the 1959 Nile Agreement. The Agreement, in turn, paved the way for Egypt to build the Aswan dam.

Egypt has also shown a keen interest in South Sudan. Cables released by WikiLeaks reveal that Egyptian officials tried to convince U.S. diplomats to push for a four to six year postponement of South Sudan's independence referendum. Cairo also wanted Washington to intercede with Khartoum in order to persuade the Sudanese to exert more efforts towards preserving Sudanese unity. These solicitations are motivated by a concern that an independent South Sudan will be hostile to Egyptian interests, sign on to the Framework Agreement, and join upper riparian states in repudiation of the 1929 and 1959 agreements.

Egypt's involvement in the fiery cauldron which is Somalia has been significant too. Historically, Egypt supported Somali irredentist aspirations to destabilize Kenya and Ethiopia, because a Greater Somalia entailed incorporation of ethnically Somali regions in Kenya and Ethiopia. Following the collapse of state authority in Somalia, Egypt turned instead to supporting extreme Islamist elements in the country, which among other things also seek to bring together the region's Somalis and spread Islam.

In modern-day Eritrea, Egypt's involvement harks back to the 1940s. Following the end of World War II, during discussions on the dispensation of the Italian colony of Eritrea at the 1946 Paris Peace Conference, Egypt argued that Eritrea should be adjoined to Egypt on the basis of Egyptian suzerainty in slivers of modern-day Eritrea during the 19th century. Egypt also argued that "[t]he African coast of the Red Sea was markedly Arab in character." After the UN decided to federate Eritrea with Ethiopia, Egypt lent support to the Eritrean liberation movement, despite President Nasser's close relationship with Emperor Haile Selassie— a lesson to leaders past and present that personal relationships seldom overcome competing state interests. In recent years, Eritrea has been considered a pariah state against which the United Nations has applied sanctions because of Eritrean support for militant Islamic groups in Somalia. Egypt, however, continues to support Eritrea, largely to make use of it as a proxy through which to weaken and distract Ethiopia from the Nile dispute.

Whether Egypt will desist from its attempts to destabilize Nile riparian states will be contingent upon the domestic political developments of the coming months.
Though one must counsel patience until Egypt's political upheavals sort themselves out, upper riparian states cannot afford to wait indefinitely. Discussions over the Nile must enter a critical phase upon the election of a new Egyptian government and it is important that politicians, journalists and civic society temper the religious undertones of the debate. Just as significant, all parties will have to negotiate with the understanding that international watercourses are shared resources in a modern and just global order. Upper riparian states, however, need not only wait for Cairo to come onboard. In the interim, an intensification of intra-state cooperation, planning for additional legal agreements and projects along the Nile, will show that momentum towards equitable utilization is irreversible; and in so doing, encourage Egypt and Sudan to become a part of the evolving cooperative framework for the Nile.

"From Tahrir to the Banks of the River Nile", Fasil Amdetsion, 14/11/2011, online at:
http://nazret.com/blog/index.php/2011/11/14/from-tahrir-to-the-banks-of-the-river-nile?blog=15

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❖ Africa's Nile, Limpopo at risk from climate change

Climate change is likely to lead to increased average rainfall in the world's major river basins but weather patterns will be fickle and the timing of wet seasons may change, threatening farming and foodstocks, experts said Monday.

Furthermore, some river systems in Africa -- southern Africa's Limpopo, north Africa's Nile and West Africa's Volta -- are set to receive less rain than they do at the moment, hitting food production and fuelling international tensions.

The outlook for rain-fed agriculture was particularly bleak in the Limpopo basin, which covers parts of Botswana, South Africa, Mozambique and Zimbabwe and is home to 14 million people.

"In some parts of the Limpopo even widespread adoption of innovations like drip irrigation may not be enough to overcome the negative effects of climate change on water availability," said Simon Cook of the International Center for Tropical Agriculture.

The concerns for the Upper Blue Nile, which runs through Ethiopia to Sudan and then Egypt, centered mainly on the increased evaporation that will result from a predicted 2-5 degree Celsius increase in global temperatures.

The evaporation could "reduce the water balance of the Upper Blue Nile Basin," scientists from the Challenge Program on Water and Food (CPWF), a global agricultural research body, said, potentially putting Cairo and Addis Ababa at loggerheads again over the river that is Egypt's economic lifeblood. The research into 10 of the world's major river basins, including large areas of South America and Asia, was released ahead of a major climate change conference in Durban that starts later this month. Overall, it found that while evaporation rates would go up, most of that loss would be offset by increases in annual rainfall as the "energized climate system turbo-charges the amount of water in the atmosphere."

However, it added that climate change could lead to "flip-flops" in weather patterns that have hitherto been stable, as well as minor changes in the timing of rainy and dry seasons that have been set in stone for centuries.

"Such changes will create a management nightmare and require a much greater focus on adaptive approaches and long-term climate projections than historically have been necessary," CPWF director Alain Vidal said.

"Flood mitigation and management strategies will be crucial in areas with increasingly erratic climate and flash floods, such as the Limpopo and the Volta."

"Africa's Nile, Limpopo at risk from climate change", Ed Cropley, 14/11/2011, online at:
http://www.reuters.com/article/2011/11/14/us-weather-rivers-idUSTRE7AD0LR20111114

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❖ Sharing water resources with Afghanistan

Being a lower riparian state, Pakistan's water dispute started just after its independence. Since then, its concerns in this regard are growing because India is not only controlling the water flow of rivers but is also working on 17 power projects on River Chenab and 16 projects on River Jhelum.

India also plans to assist Afghanistan in constructing multi-purpose water projects on the tributaries of the Kabul River.
Afghanistan is planning for construction of dams and facilities on its rivers for flood control, electricity generation and irrigation expansion.

Once implemented, such projects would impact the amount of water and timing of peak runoff for Iran, Pakistan, Uzbekistan and Turkmenistan.

Afghanistan's initiative for construction multi-purpose water projects on the tributaries of Kabul River with a total water storage capacity of 4.7 million acre feet (MAF), 25 per cent more than that of Mangla Dam, would adversely impact Pakistan.

It is estimated to suffer 16 to 17 per cent drop in water supply from Afghanistan after construction of 13 dams on the Kabul River.

About 17 million acre-feet water enters Pakistan through the Kabul River every year. Currently, Afghanistan irrigates 12,000 acres with water from the Kabul River. If Afghan government goes ahead with its hydroelectric project on the river and the Kama irrigation project, it would be able to irrigate another 14,000 acres, using another 0.5 MAF of water.

The basin covers 53,000 km2 within Afghanistan and 14,000 km2 within Pakistan before the confluence with the Indus River.

The basin has numerous small rivers and seasonal streams. The river basin supports over 300,000 ha of intensively irrigated areas and high valued agricultural crops, including over 50,000 ha within Pakistan.

In Pakistan the first head works on Kabul River is the Warsak Dam. From this point, various canals are developed to irrigate Peshawar Valley. These canals have significantly contributed towards the prosperity of Charsadda district. Bara River flowing in from the Khyber Agency in the southwest is the first tributary to the Kabul River in Pakistan. Another and a major contributor to the Kabul River is the Swat River. It rises in the northern Swat near the city of Kalam and after traveling southward for about 70 miles gets joined by the Panjkora River near the town of Kalan Gai in Malakand District.

The Panjkora River itself, just like Swat River, rises near Shiren gai in Dir and travels south to meet its counterpart. Together these two rivers continue to travel southward as Swat River and after passing through the Mahmond Agency fall into the Kabul River near Charsadda.

The Afghans argue that water demand for Kabul City and within the river basin is expected to increase in the future, and Pakistan has significantly increased its water use of the Indus River for power, municipal and agriculture over the last 30 years.

According to a report on "Trans-boundary Water Policy of Afghanistan," the country uses only a small portion (about 30 per cent) of the water that originates in the country. The primary source of water is snow melt in the Hindu Kush Mountains with runoff peaking in early summer. Afghanistan lacks sufficient dams, reservoirs and flow control structures to adequately manage and control this runoff. As a result, the country is susceptible to both severe flooding and droughts, and has little control of water flow into neighbouring countries.

For this, four hydropower projects will be constructed in Punjshir sub-basin. These include (a) the $332 million Totumdara project to generate 200 MW of electricity and create water storage capacity of 3,32,510 acres feet; (b)the $1.174 billion Barak project to generate 100 MW of electricity and store 4,29,830 acres feet of water; (c)$1.078 billion Punjshir (100 MW) project with a capacity to store 10,54,300 acres feet of water; and (d) the $607 million Baghdara (210 MW) project with a capacity 3,24,400 acres feet of water.

In the Logur Upper Kabul sub-basin on the Kabul River four more dams are to be built which include the $72 million Haijana project (72 MW) with water storage capacity of 1,78,420 acres feet; $207 million Kajab (15 MW) project with water storage capacity of 3,24,400 acres feet; the $356 million Tangi Wadag (56 MW) project (2,83,850 acres feet); and $51m Gat (86 MW) project (4,05,500 acres feet).

Another four more dams will be built in the Lower Kabul sub-basin, including the $442 million Sarobi project (210 MW) with the capacity to store 3,24,400 acres feet of water; the $1.434 billion Laghman project (1251 MW) with water storage capacity of 233568 acres feet; and the $1.094 billion Konar (A) (94.8 MW) and Kama projects (11.5 MW).

Pakistan is one of the most water-stressed countries, a situation likely to worsen into outright water scarcity owing to high population growth. There is no additional water that can be injected into the system. Pakistan's is dependent on a single river system and lacks the robustness that many countries enjoy by virtue of having a multiplicity of river basins and diversity of water resources.

Even, under the Indus Water Treaty, Pakistan is supposed to receive 55,000 cusecs of water, but authorities complain that its share was drastically reduced, causing damage to crops. Now it only received around 13,000 cusecs during the winter and a maximum of 29,000 cusecs during the summer. This averages around 22,000-25,000 cusecs – less than half of its share. For a country whose water availability per capita has plummeted by 78.4 per cent over the past six decades, its policymakers need to plan actively to avoid threats to food security and severe power shortage.

Unfortunately, there is no water sharing agreement between Afghanistan and Pakistan. Except for an agreement on the Helmand River, no treaties exist between Afghanistan and its neighbours on water sharing.

In the past, Pakistan did try to bring Afghanistan to the negotiating table to work out some mechanism to ensure a win-win situation for both sides. The World Bank agreed to facilitate a bilateral water treaty but refused to become the guarantor as it is the guarantor of the Indus Waters Treaty. The Afghan administration, however, excused itself by saying it was working on its own national water policy and it was not possible to initiate talks until that policy is ready.

The prime minister of Pakistan has already established Pakistan Transborder Water Organisation (PTWO) to tackle issues arising from construction of dams and water sector projects by upper riparian countries. Now, to highlight the issue and concerns pertaining to Kabul river projects, experts are trying to estimate the expected loss to the irrigation system in case the Afghan government builds dams on the Kabul River.

The two states can establish a joint, multi-disciplinary, scientific fact-finding working group to build a mutually agreed hydrological knowledge base on the Kabul River basin; or set up a bilateral Afghanistan-Pakistan water resources commission to negotiate hydro-power and agricultural development plans. Both the countries can negotiate a bilateral treaty on the use and management of the Kabul River's water resources for their mutual benefit.

"Sharing water resources with Afghanistan", Nusrat Khurshedi, 14/11/2011, online at: http://www.dawn.com/2011/11/14/sharing-water-resources-with-afghanistan.html

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❖ Tibetan waters crucial for India's future

Future wars are likely to be fought over water due to its scarcity.

Tension builds up when an upper riparian country tries to control trans-boundary waterways. Population surge and industrialisation compel a country to control waterways, especially when such activities begin to affect the livelihood, ecology and growth of lower riparian countries.

Tension has been growing in South Asia due to China's unilateral decision to construct dams and river diversion projects in Tibet.

Since 1989, China has been planning to develop south-north water diversion projects partly driven by internal economic compulsions and partly by the desire to acquire a dominant external position.

The Tibetan plateau is the world's largest water reservoir. Asia's 10 major river systems including the Indus, Sutlej, Brahmaputra, Irrawaddy, Salween and Mekong originate here. Of the world's 6.92 billion people, it is the lifeline for nearly two billion (29%) in South Asia — from Afghanistan to the Ganga-Meghna-Brahmaputra basin and in Southeast Asia.

China has already built a barrage on the Sutlej. It started construction work to divert the Tsangpo (Brahmaputra) in Tibet in November 2010.

There are also reports that China's state-owned electric power companies have already contracted with the Tibetan Autonomous Region government for the development of hydropower in different rivers of Tibet. China is also working towards developing road connectivity with Nepal and other South Asian countries.

Some of these Chinese activities might affect Nepal because some of Nepal's major rivers originate in Tibet before finally merging into the Ganga. Of them, the most important is Karnali (507 km), Nepal's longest river. Parts of Nepal's other major tributary systems also originate in Tibet. Similarly, the major tributaries of the Kosi, like the Sun Koshi/Bhote Koshi, the Tama Koshi and Arun originate in Tibet. Nepal would be affected seriously if dams and diversion projects were built in upper riparian Tibet on rivers like the Karnali in the west, Gandaki in the central and Kosi in the eastern part of the country.

Any diversion of waters from Nepalese rivers originating in Tibet would directly affect the Ganga's flow.

Perhaps, China well understands what George Ginsburg wrote: that it could dominate the Himalayan piedmont by virtue of holding Tibet and by doing so it could even threaten the Indian subcontinent and thereby further threaten all of Southeast Asia and by extension all of Asia. This is one of the reasons why China has so far not signed any bilateral treaty in regard to the utilisation of water resources with any of its neighbours and has also not signed the 1997 UN Convention on the Law of the Non-Navigational Uses of International Waterways.

Of late, China has drawn strong opposition from 263 international NGOs for its effort to construct dams on the Mekong River. These NGOs feel that China has been using the water resources in Tibet as a political tool. As such, they want a moratorium on the lower Mekong dams for at least 10 years.

Tibetan land is delicate and it cannot absorb the damming, river water diversion projects, mining and transportation, industrial and other such activities, which would lead to receding glaciers in Tibet and in the Himalayas. Unfortunately, some of these activities might invite an eco-disaster resulting in the meltdown of Himalayan glaciers, further resulting in the drying of rivers.

The best strategy for the lower riparian countries should be to engage China in a dialogue process and persuading it not to construct dams and diversion projects on Tibetan rivers at the cost of environmental degradation and the livelihood of nearly two billion people living in India and Afghanistan, the Ganga-

Brahmaputra-Meghana basin and the Mekong basin countries including Laos, Cambodia, Thailand and Vietnam.

"Tibetan waters crucial for India's future",15/11/2011, online at: http://www.dnaindia.com/analysis/comment_tibetan-waters-crucial-for-indias-future_1612620

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❖ Grand Theft Hydro

China can play havoc with many of Asia's river systems, sparking conflict. But it hasn't done so on the scale its detractors, like Brahma Chellaney in "Water," imagine.

Mao Zedong, during a 1955 visit to the eastern Sichuan, went to the Min river to see if he could take a dip. He concluded the waters were too turbulent and a dip too risky. The embarrassed local Communist Party leader promptly ordered a dam be built across the river to tame its waves. That dam, Zipingpu, and its reservoir are suspected to have contributed to the Sichuan earthquake that killed 68,000 in 2008.

Mao often mimicked the ways former emperors enhanced their status in Chinese society. One of the most important signs that a Chinese leader retained the "mandate of heaven" was his ability to build dams, control rivers and otherwise harness water. This is one reason China is today home to half the world's dams and its firms are the largest builders of hydroelectric projects.

Brahma Chellaney understands how this history is shaping the present. He argues that an imperial Chinese belief that great leaders should build grandiose projects combined with a communist obsession with large-scale engineering and the geographical accident of China's controlling the headwaters of most major Asian river systems conspire to produce an "Asia racked by great power rivalries and murky hydropolitics." Though his new book "Water" on the politics of this scarce resource takes a peek at hydro disputes in Palestine and in the Aral Sea, it is fundamentally about China's role in the water politics of Asia.

Mr. Chellaney, a professor at the Centre for Policy Research in New Delhi, makes the case that China not only has a stranglehold on 10 of Asia's most important river sources, but that it isn't concerned about its responsibilities as an upper riparian country. China's ace is Tibet, whose mountainous reaches are the source of the Mekong, Indus and Brahmaputra rivers, among others.

China becomes a water bully when this accident of history is combined with its current insatiable need for water and hydroelectric power at home. In the same way that Beijing pushes breakneck industrialization at the cost of the environment, it has been building dams to harness the water supply in such a way that it is now enmeshed in disputes with all its hydrological neighbors—even North Korea.

Mr. Chellaney goes into great detail about the Great South-North Water Transfer Project, a Chinese plan to divert the headwaters of the Brahmaputra to the country's parched northern plain. Obviously this plan would have an enormous fallout on downstream countries like India and

Bangladesh. What logically follows, of course, is that countries like India would treat China's hydro-imperialism as a security concern.

Ultimately, though, such bleak scenarios for Asian relations remain speculative. The great water transfer project, to block the Brahmaputra, is just a blueprint. In his book "When A Billion Chinese Jump" (2010), Jonathan Watts pointed out that the plan's intellectual father, hydrologist Guo Kai, has been sidelined by Beijing. Partly because of protests from India, Beijing gone out of its way to show it is building only run-of-the- dams that do not divert water.

So while there is plenty of tinder lying around when it comes to water disputes in Asia, it is remarkable how little has caught fire. Equally notable, when rival countries have forged water agreements they have held up well over time—the India-Pakistan Indus Waters Treaty from 1960 being the best example.

It's true, as Mr. Chellaney argues, that this is partly because India made unusually generous concessions when the treaty was negotiated. But even Central Asian countries have had a good record of negotiating and implementing water agreements since the collapse of the Soviet Union. Beijing may wish to take a leaf from the multilateral book as its cross-border water policies develop.

It's also important to keep in mind that domestic policies contribute far more to water stress and scarcity than cross-border diversions. While the book devotes many pages to these policies, it underplays their effect. As the World Bank has noted, New Delhi has a higher per capita availability of water than Paris yet the latter has none of the chronic water shortages that afflict the Indian capital.

The reason is poor management. This applies as much to one-party China as it does to democratic India, both of whom heavily subsidize water. Much stress would be alleviated if governments, for example, let the market price this resource.

This is not to say China's international water policies are all sweetness and light. It has committed grand larceny when it comes to the Mekong by damning the river's tributaries and diverting the waters, even while ignoring complaints from Vietnam and other nations. Mr. Chellaney argues convincingly that there is a past record of Beijing making benign noises, but then turning around to implement highly self-interested policies and provide a third party with a fait accompli. One problem is that its decision-making process is opaque. Why China does what it does remains a mystery on so many fronts that it is easy to assume the worst—or argue the best is still possible.

This book's great strength is the sheer quantity of data it brings together, including on obscure disputed river systems like the Irtysh that originates in Xinjiang and flows into Siberia. It is less convincing in its broader conclusions about the likelihood of water conflict or the malevolence of China, the latter especially overblown at times. Does the fact that billboards in China advertise Tibetan mineral water really "symbolize" China's "new covetous focus on Tibet's waters," as Mr. Chellaney suggests? The book suffers from a lack of reporting based on interviews and on-the-ground observations.

Nevertheless, the importance of this issue cannot be in doubt. It can be a source of friction among some of the biggest emerging countries in the world. And the world can't ignore the consequence if the politics of water were to go seriously wrong.

“Grand Theft Hydro”,Pramit Pal Chaudhuri, 14/11/2011, online at:
http://online.wsj.com/article/SB10001424052970204323904577037771314259052.html?mod=googlenews_wsj

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❖ CDP Water Disclosure Global Report 2011

In 2011 some of the worst droughts in decades have hit regions in China, East Africa, the Middle East and the United States. Destructive flooding currently inundates Thailand and earlier this year the prolonged drought in Queensland, Australia was alleviated by 1-in-100 year floods.

In this changing global environment, it is essential for global businesses to address the importance of water as a critical resource if the global economy is to become resilient to the water-related impacts from which it is already suffering.

Selected companies from the FTSE Global Equity Index Series (Global 500) and this year for the first time, from the Australian Securities Exchange (Australia 100) and the Johannesburg Stock Exchange (South Africa 100) were invited to respond to the second annual CDP Water Disclosure information request because they operate in sectors which are water-intensive or exposed to water-related risks.

This year the response rate amongst the Global 500 increased to 60 percent from 50 percent in 2010, representing 190 out of 315 companies which were sent the questionnaire. Response rates from the Australia 100 (41 percent, 22 out of 54) and South Africa 100 (46 percent, 26 out of 56) were strong for their first year.

"CDP Water Disclosure Global Report 2011", 16/11/2011, online at:
http://www.greenbiz.com/research/report/2011/11/15/cdp-water-disclosure-global-report-2011

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❖ Saving The Ganga – OpEd

Time has come to become serious about the future of the river. There is a growing perception that the Ganga might completely dry in next fifty years if no effective action is taken to purify the river, keep the flow of its water intact and control the global warming. There cannot be a greater catastrophe bigger than this on the earth if the Ganga vanishes from the scene.

Already certain disturbing symptoms have come into the picture. Recent media reports have revealed that the Ganga has started moving away from the ghats in Varanasi, the holy city in India. On 31st May 2011, India's premier national daily, the Asian Age, published from New Delhi came out with the news "Ganga leaves the ghats, panic in Varanasi". Subsequently, many of India's print and electronic media presented facts and figures about the sad story of Ganga river distancing itself with the ghats.

As per the reports, the Ganga moved nearly seven to ten feet away from the ghats, which never happened in the past. At the most noteworthy Dasaswamegh ghat near the Kashi Vishwanath temple in Varanasi, the river shifted almost nine feet away from the ghat steps. Similarly, at the Rajghat it moved seven feet away; while at Assi it moved four to five feet away from the ghat steps. The water level in the river had receded by about six feet. As a result, certain devotees had to go to the other side of the river by boat for a dip. Ganga aarati also lost its glamour for this reason.

Because of the above untoward incidents, the devotees in many parts of Varanasi have been worried. Virtually, they live in a state of panic now. They feel that the Ganga, which is revered as mata (mother Goddess), has become angry due to the pollution along the ghats and so she tried to move away.

Ganga in this ancient city of Varanasi has special importance. It is uttarbahini meaning it flows from south to north direction. As the mythology goes, Goddess Ganga had made a promise with Lord Shiva that she would not abandon the ghats in Varanasi. But as the Ganga has done so, many people take it as a symbol of bad omen. So in their bid to cheer-up the mother Ganga and bring her back to the ghats, many devotees got themselves engaged in such activities as kirtans and bhajans, apart from observing fasts and poojas.

Many people feel that the Ganga is changing its course because of unprecedented level of pollution. But there are people who feel that the Ganga is diverting its course because of the growing sediments in the river. Certain people hold the view that the shortage of water in the river is caused by the

construction of dams and barrages upstream and diversion of water from the river for different purposes. About 9 per cent of the river water is diverted to canals at Bhimgouda barrage alone!

Future of the Ganga river looks still bleak if Chinese plans of building dams and water diversion on all the major rivers flowing from Tibet towards the South Asia are materialized after 2014. If at all this occurs, what will happen to the fate of the Ganga? Of course, the river does not originate in Tibet. It originates from Gangotri in Indian Himalayas. But Nepal's major river like the Karnali or major tributaries of the Gandaki and the Koshi originate in Tibet. Since these rivers are important source of Ganga water, any attempt to be made by the Chinese to construct dams on them or divert their water would largely affect the flow of Ganga river.

What the Chinese would do or not do in regard to building dams and developing diversion projects on the rivers flowing from Tibet region towards Nepal and India is of course a matter of growing concern as it might affect the water level of the Ganga. But more than this our own behavior towards the Ganga, whom we regard as mother, is no less disturbing.

Unfortunately, the Ganga river has been made extremely polluted. The wastes from industries, town and cities along the banks of the Ganga river is dumped into it. Lack of effluent treatment and efficient sewage networks in towns and cities is a problem. As a result, its bio-diversity is threatened. Its environmental sustainability is in danger. The lower riches are the filthiest one. In view of this development, a fifteen-year project Ganga Action Plan was introduced by Indian Prime Minister Rajiv Gandhi in 1985 in Varanasi in order to clean up the pollution of the Ganga river mainly through sewage management by 2000.

The government claims to have spent a whooping amount of IRs. 36,000 crores to clean the Ganga. But even after launching the Ganga Action Plan for a quarter of century, there has been no improvement in the pollution level in the Ganga. It does not seem to have made any impact in Varanasi, either. Sewage discharge has made the condition of the river worse. All such government bodies as the Pollution Control Board, Environment Department, Health Department are there to control the magnitude of pollution in the river, but they have miserably failed to do anything concrete.

Hence, as a face saving device the Government of India made a fresh commitment in 2010 to purify the river and free it from the pollutants. The Government of India accepted World Bank loan assistance worth $ 1 billion for the National Ganga River Basin Authority (NGRBA) established in 2009.

NGRBA's basic objective is to clean and conserve the Ganga by 2020 by launching multi-sector 'Mission Clean Ganga' programme. The present mission has taken holistic approach and considered the entire Gangetic basin in investment; while the earlier projects were more town-centric in the sense that they focused on treating merely the waste water of the towns and industries. Towards this end, an effort will be made to check the flow of untreated and industrial waste water in the Ganga river in all the five states of India through which it flows, which include Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal. These states are home to nearly 35% of India's total population.

The World Bank project will support many of the institutions at the central and state levels to execute the programmes initiated by NGRBA. Besides, Ganga Knowledge Centre will be established to share information related to the conservation of Ganga.

However, there is a feeling that India is itself competent to take up Ganga clean up programme and it does not require World Bank assistance for such noble work. World Bank cannot do what is not done by the government and people of India. So accepting US $ 1 billion from the World Bank for Ganga clean-up programme makes no sense when the Indian government itself is donating billions of dollars in its neighborhood and in different sub-continents in the form of aid and assistance.

However, bowing to the growing pressure from the people to enact law to protect the Ganga and review all the hydel projects on the river, the government has asked the Alaknanda Hydro Power Company to stop the construction of a dam on Alaknanda river, which is an important tributary of the Ganga. The project has capacity to produce 330 MW of hydropower.

At a time, the state assembly election is due in early next year in Uttarakhand, the construction of dams on the river tributaries of Ganga has become a major political issue. Hence, the Ministry of Environment is reviewing not only the Alaknanda but all other hydel projects on the Bhagirathi Ganga river in Uttarakhand.

It is due to the emotional touch with the Ganga that the 36-year old Swami Nigamanand of Matri Sadan Ashram of Haridwar died after fasting for nearly four months from 19th February to 13th June, 2011 at the Himalayan Institute of Medical Sciences in Dehradun in Uttarakhand state of India. The Swami was protesting against 45 stone crushing units in Haridwar district in Uttarakhand state which have been indulging in mining of gravels and sand from the Ganga riverbed and its surroundings.

Swami Nigamanand had been actively campaigning for the protection of the river for last one decade. On an earlier occasion, he had gone on fast for 72 days. The Magsaysay Award winner, Rajendra

Singh termed the death of Gangaputra (son of the Ganga) as a sacrifice for the cause of environment. He added, "I feel very sad. He has sacrificed his life for the cause of the Ganga. I hope the youth would come forward as Swami Nigamanand was a young man who died for the cause."

It is hoped that the cause for which Swami Nigamanand died will not go invain. It has created awareness for the sustainability of environment in and around the Ganga river. In future, it would generate still more pressure to keep Ganga river clean.

The plan to clean-up the effluents flowing into the Ganga is a welcome step. Nevertheless, the success of the project largely depends on the attitude of the people who live all along the river in different states. Their cooperation is pre-requisite in making the clean-up activities successful. They need to stop dumping tons of stuff into the river – be it in the form of sacrament, garbage and other pollutants. These traditional practices will have to be stopped. All necessary sanitary physical infrastructural facilities would have to be created to address most of these problems. It will not be impossible to make the Ganga river as clean as it was in the past and to regain its pristine glory, if there is a will to do so.

"Saving The Ganga – OpEd", Hari Bansh Jha, 17/11/2011, online at: http://www.eurasiareview.com/17112011-saving-the-ganga-oped/

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❖ Islam's contribution to Agriculture

Agriculture is the production of food, feed and fibre by the systematic harvesting of plants and animals. Agriculture was developed at least 10,000 years ago, and has undergone significant developments since the time of the earliest cultivation. Evidence points to the Fertile Crescent of the Middle East as the site of the earliest planned sowing and harvesting of plants that had previously been gathered in the wild. The history of agriculture is a central element of human history, as agricultural progress has been a crucial factor in worldwide socio-economic change. Agriculture played a key role in the development of human civilization-it is widely believed that the domestication of plants and animals allowed humans to settle and give up their previous hunter-gatherer lifestyle during the Neolithic Revolution. Until the Industrial Revolution, the vast majority of the human population labored in agriculture. The development of agricultural techniques has steadily increased agricultural productivity, and the widespread diffusion of these techniques has led to new technologies.

Agriculture now encompasses many subjects, its core areas remain:

Cultivation (the raising of plants)

Animal husbandry (Animal Science)

Aquaculture (fishing)

Horticulture (science of cultivation of plants)

Each of these subjects includes various disciplines, for example, cultivation includes both organic farming and intensive farming. Animal husbandry includes ranching and herding. The development and evolution of agriculture has resulted in products such as fodder (starch, sugar, alcohols and resins), fibers (cotton, wool, hemp, silk and flax), fuels (methane from biomass, ethanol, biodiesel), cut flowers, ornamental and nursery plants.

Many historians consider the global economy established by Muslim traders across the world, enabled the diffusion of many crops and farming techniques among different parts of the Islamic world, as well as the adaptation of crops and techniques from beyond the Islamic world. Crops from Africa, China and numerous crops from India were distributed throughout Islamic lands. Some writers have referred to the diffusion of numerous crops during this period as the Globalisation of crops.

When the Abbasids took over the reins of the Khilafah in 750 they moved the capital city from Damascus to the Sassanid city of Baghdad a small town in central Mesopotamia. European towns, cities and settlements built walls to prevent raids from outlaws and armies but were typically vulnerable at four points; the corners. If enough pressure was applied at any of these points the wall would collapse and troops could flood through the breach. The Abbasids solved this problem by building Baghdad as the first Circular City.

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The Abbasid caliph, Al Mansur (754-75) built the new capital, surrounded by round walls. Within fifty years the population outgrew the city walls as people thronged to the capital to become part of the Abbasids' Civil service or to engage in trade. Baghdad became a vast emporium of trade linking Asia and the Mediterranean. By the reign of Mansur's grandson, Harun ar Rashid (786-806), just 10 years later Baghdad was second in size only to Constantinople.

After the defences of the city were complete attention turned to how the Abbasids would feed not just Baghdad but the whole empire considering its enormous population. The development of Agriculture under the Abbasids was a phenomenon; the scarcity of water had converted the barren Arab lands into a vast desert, which had never yielded any substantial agricultural produce. The scattered population always imported supply of food grains to supplement the dates and the little corn grown in their own lands. Agriculture in Arabia had been very primitive and was confined to those tracts where water was available in the form of springs. Medina, with its springs and wells was the only green spot in the vast desert. The Abbasids dealt with this by first controlling the flows of the Tigris and the Euphrates rivers. The Irrigation system in the land was greatly improved by digging a number of new canals, the largest flowed between the Tigris and Euphrates. This canal was called Nahr Isa (Isa canal) and was open to ships for transportation between Syria & Iraq. This led to navigation routes opening to India and Persian Gulf. The Abbasids reconstructed the existing canals, lakes, and reservoirs, which were first built under Hajjaj Bin Yusuf in 702. After this the swamps around Baghdad were drained, freeing the city of malaria. Muslim engineers perfected the waterwheel and constructed elaborate underground water channels called qanats. Requiring a high degree of engineering skill, qanats were built some fifty feet underground with a very slight inclination over long distances to tap underground water and were provided with manholes so that they could be cleaned and repaired.

The result of this was the Abbasids set in motion an agricultural revolution, this stimulated development in other parts of the economy. Most of the Abbasid wealth was generated from taxation on land alongside trade. Commercial activity flourished under the Abbasids, which stimulated many developments in other fields the demands on trade generated the development of crafts. From Baghdad's large urban population, craftsmen developed such as metalworkers, leatherworkers, bookbinders, papermakers, jewellers, weavers, druggists, bakers, and many more. As they grew in importance to the economy these craftsmen eventually organised themselves into mutual-benefit societies, which to later led to the Western guilds.

The development in agriculture led to the development of horticulture. Within 100 years Bagdad and its surroundings presented the appearance of a veritable garden, the region between Baghdad and Kufa came to be covered with prosperous towns, flourishing villages and fine villas. The staple crops of Iraq were barley, rice, wheat, dates, cotton, sesame and flax. The production of fruit was pursued as a science and several new fruits were introduced in varying climates.

The Mediterranean Sea during the Abbasids had virtually been converted into an Islamic lake. The Mediterranean, which on three sides was surrounded by Islamic lands as well as its important islands like Sicily, Crete, Cyprus and the Baleric islands, all were governed by Walis. The Abbasids venture to the West led to Tunis, Alexandria, Cadiz and Barcelona becoming famous ports, which handled flourishing trades.

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Islamic Contribution

The Muslims introduced what was to become an agricultural revolution based on four key areas:

• The development of a sophisticated system of irrigation using machines such as norias, water mills, water raising machines, dams and reservoirs. With such technology Muslims managed to greatly expand the exploitable land area.

• The adoption of a scientific approach to farming enabled them to improve farming techniques derived from the collection and collation of relevant information throughout the whole of the known world. Farming manuals were produced in every corner of the Muslim world detailing where, when and how to plant and grow various crops. Advanced scientific techniques allowed scientists such as like Ibn al-Baitar to introduce new crops and breeds and strains of livestock into areas where they were previously unknown. Numerous encyclopaedias on botany were also produced, with highly accurate precision and details. The earliest cookbooks on Arab cuisine were also written, such as the Kitab al-Tabikh (The Book of Dishes) of Ibn Sayyiir al-Warraq (10th century) and the Kitab al-Tabikh of Muhammad bin Hasan al-Baghdadi (1226).

• The Islamic rules on land ownership and labour rights, alongside the recognition of private ownership and the introduction of sharecropping created big incentives to engage in agriculture. Whilst at the same time Europe struggled under a feudal system in which peasants were almost slaves with little hope of improving their lot by hard work.

• Under the Khilafah new crops were introduced which transformed private farming into a new global industry, which exported everywhere, including Europe, where farming was mostly restricted to wheat strains obtained much earlier via central Asia. Islamic Spain exported much to Europe this included many agricultural and fruit-growing processes, together with many new plants, fruit and vegetables. These new crops included sugar cane, rice, citrus fruit, apricots, cotton, artichokes, aubergines, and saffron. Muslims also brought to Europe country lemons, oranges, cotton, almonds, figs and sub-tropical crops such as bananas and sugar cane.

"Islam's contribution to Agriculture", DR. Khalid Ul Rehman, 14/11/2011, online at:
http://www.kashmirdispatch.com/others/14116924-kashmir-islams-contribution-to-agriculture.htm

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❖ Yemeni Communities Working Together To Save Water

Yemen may be water poor but the country has a rich heritage of managing scare water resources effectively through community co-operation

The arid and water scarce environment of Yemen makes life very difficult for the average Yemeni.Malnutrition and poverty are real problems which are only exacerbated by a widespread addiction to thenarcotic, qat, which requires a lot of water to grow. Sana'a, the capital city of the country has even been tipped to be the first waterless capital in the world. However, not all hope is lost. A new series of videos released at The Water Channel highlight the fact that although many Yemeni communities struggle due to water scarcity, these communities are also resilient and have centuries of experiences conserving water.

The former Yemeni minister for water and the environment, Abdulrahman F. Al-Eryani explains that Yemen has a long history of water scarcity and so have they been forced to work on its sustainable management for many years. "Without sustainable management, Yemenis would not have survived the climate and geography of Yemen," he adds. However, a growth in the population has meant a rise in the number of drilled wells, which has put real pressure on the groundwater supplies

A recent study by the Water and Environmental centre in Yemen found that the use of groundwater for agriculture shot up from 37,000 ha in 1970 to 400,000 ha in 2005. Another more encouraging find was that many farmers are already working together to regulate groundwater use. Across Yemen, there are various water users associations and co-operatives which monitor the use of water and restrict well drilling to help groundwater resources recharge.

In places such as Kharabat, the Al-Sinah valley in Taiz, as well as the Qarada valley, local people are working together to manage their limited water supplies more effectively and also avoid water conflict (which often breaks out into violence) in Yemen. In some instances, the informal networks have been so successful at conserving water effectively that there is a strong case to build them into the formal policy processes.

As Al-Eryani states, "A combination of new, adaptive laws and regulations that build on ancient traditions, that have proven to be successful for thousands of years, is the solution for Yemen."
To see the short videos looking at these communities and others go to the The Water Channel.
MeteMeta have worked with Levert Communications & Culture, Water and Environment, Yemen to produce the video series which are available in English and Arabic.

"Yemeni Communities Working Together To Save Water", Arwa Aburawa, 17/11/2011, online at:
http://www.greenprophet.com/2011/11/yemeni-communities-working-together-to-save-water/

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❖ Yemen: Water Scarcity Becoming a Threat

As many other country in the region, Yemen has to face a dual problem: a growing population and the dwindling of its water resources.
Although many experts seem to be portraying Yemen's water problem as a modern issue linked to an ever increasing population and migratory waves, the country has indeed always had to cope with its arid climate and its short and rather inadequate raining season.
The only difference is that Yemenis of old, knew how to deal with the scarcity of water, using the combination of clever engineering and managing skills.
The country's agriculture terraces ant its water harvesting structures allowed the country to be self-sufficient for hundreds of years, not only feeding its people but also maintaining a certain economic growth.
Everything changed with the Central Government and its inability to come up with a coherent and adapted policy, leaving its citizens free to use and abuse the country's water resources, wasting away Yemen most treasured commodity.

Situation

For several decades now Saleh's government has been unable to implement or even fathom a proper policy plan regarding water as it allowed land owners to dig unregistered wells, depleting the nation with utmost carelessness.
Furthermore the extensive production of Qat, which is a leafy green plant and mild narcotic widely chewed by Yemenis nationwide, is using as much as 4 times the amount of water that a farmer would use to grow an equivalent amount of tomatoes or apples for example.
This lack of planning led to the aggravation of the water crisis as well as an increasing dependency on foreign imports.
With about 2.5 billion cubic meters and a population of about 18 million (depending on the sources), it leaves Yemen with a ratio per inhabitant of 140 cubic meter per annum which well below the MENA average of 1,250 cubic meters.

Since the water resources are unevenly distributed one region to the next, many Yemenis have to rely on private water companies to meet their needs, putting a strain on their finances and forcing the poorest part of the population to drink non potable water.
Most of all areas ground water resources are exploited well beyond the levels of recharge, endangering the precious country's natural balance and risking turning Yemen into a pile of dried up rocks and sterile lands.
There are thought to be about 45,000 private wells in the country and about 200 drilling rigs. Areas of the country under greatest pressure are the central highlands, western escarpment and coastal plains, where most of the population is concentrated. In the Sana'a basin, where 10% of the population lives, it was estimated in the mid-1990s that water extraction (224 million CM) exceeded the level of recharge (42 million CM) by over 400%. Groundwater is expected to be pumped dry in the Sana'a basin within the next decade. In Amran, water levels have dropped 60 meters during the last twenty years and 30 meters in the last five years. Meanwhile by 2005, consumer demand in the

country is expected to rise to 3. 42 billion cubic meters, posing a shortfall of 920 million CM.
Options at Hands

Experts and government officials agree that unless something is done to remedy the situation in Yemen and most particularly in its capital, Sana'a could soon be known as the first town to run out of water.
Quite evidently, Yemen cannot continue to live off its water capital, hoping for the best as it squanders to the wind the precious liquid.

Adding to the challenge, the predominance of dispersed rural waters makes the implementation of a centralized control rather problematic. Moreover the facts that the majority of water-depleted areas are concentrated within the country's highlands make possible plan of desalination complicated as the pipeline would have to run through the mountains and require therefore the use of mighty powerful turbines to let the flow reach the cities, hence turning the project into a black money hole.

In Sana'a, the urban utility, the National Water and Sanitation Authority (NWSA), is unable to keep pace with new housing and industrial development. Taiz faces similar problems. There the city authorities negotiated for ten years with the nearby rural area of Habir before an agreement was reached, with support from the IDA-financed Taiz Pilot Water Supply Project, whereby Taiz will be allowed to extract water from a previously untapped deep aquifer in exchange for investments in village water supply, schools and women's centers, and the joint monitoring of water extraction to ensure a sustainable flow.

According to several experts amongst whom Christopher Ward, the Principal Operations Officer for the Middle East and North Africa in the Rural Development, Water and Environment Department of the World Bank, estimated that the government should focus its attention on an awareness campaign, as well as establishing a global water regulation system which would involve national and local authorities.
The government should also encourage farmers to adopt more water-efficient farming technologies in addition to a change in crops, abandoning Qat altogether, to more "useful" products such as cereals and fruits.

"Yemen: Water Scarcity Becoming a Threat", 19/11/2011, online at:
http://yemenpost.net/Detail123456789.aspx?ID=3&SubID=4356&MainCat=5

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❖ Jeddah dams to be ready for any floods, say officials

JEDDAH – Officials here have given assurances that all the dams under construction will be ready if the city experiences heavy rainfall.

Under the scorching sun on Saturday afternoon, thousands of workers, engineers and machinery could be seen working to complete the urgent flood projects, which is expected to be completed in one week.

Work was intensified following a warning from the Presidency of Meteorology and Environment that there was a chance of rain Monday. The forecast was later revised to no rain for five days.

Okaz/Saudi Gazette visited the east Jeddah dam projects and listened to assurances that all the projects and drainage canals were ready to face any floods and divert the water to the sea.

The company implementing the projects said that it has almost completed the clay dam at Al-Samer district by covering it with four layers of boulders and concrete. It has also constructed the Umm Al-Khair dam.

Muhammad Radhi, field supervisor of projects, said that Al-Samer dam can drain 20 cubic meters of water per second while Umm Al-Khair dam can drain 40 cubic meters of water per second.

Despite the short period given to complete the projects, all companies succeeded in completing 95 percent of their projects under the watchful eye of Prince Khaled Al-Faisal, Emir of Makkah.

Sultan Al-Dawsri, director-general of studies and public relations at the Makkah Emirate, said all the rain and flood drainage projects will be completed by the middle of November.

Eng. Ahmad Al-Sleem, director of the rainwater and flood drainage projects, said the aim was to solve last year's problems and prevent any future losses. He said the Makkah Emirate, Jeddah Mayoralty, Civil Defense Directorate, Jeddah Traffic Department and other bodies have taken the necessary measures to protect citizens and residents.

"Jeddah dams to be ready for any floods, say officials", Mohammed Hadhadh, 18/11/2011, online at: http://www.saudigazette.com.sa/index.cfm?method=home.regcon&contentID=20111114112108

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❖ Exceptionally dry weather could lead to drought in 2012, say water companies

Half of all UK households face the threat of drought restrictions in the new year if rainfall does not return to normal this winter.

Following some of the driest weather on record over the last year, watersuppliers urged customers to start making savings to help cope with low levels in reservoirs, rivers and underground aquifers. The latest appeals by Thames Water and South East Water follow theannouncement by Anglian Water this week that it has applied for a drought permit to take emergency supplies out of rivers. With temperatures in parts of England still exceptionally mild, there is now growing concern about what will happen if – as some forecasters expect – there is a second dry winter in a row.

South East Water said it could not rule out a drought order, and Thames Water indicated that the company needed at least average rainfall this winter to avoid tougher restrictions such as bans on using hosepipes or car washes, and watering sports pitches.

"We had a dry winter and a pretty dry summer: if we have an average winter everything will be fine; if we have a second dry winter things will start to get difficult ... and as any gardener will tell you the ground is still hard," said Richard Aylard, Thames Water's external affairs and sustainability director. Among the other companies that have been most affected by the exceptionally dry conditions, Severn Trent and Southern Water told the Guardian they are hopeful winter rainfall will help restore supplies enough that further restrictions are not needed next year. Veolia Water Central was more concerned, saying: "We will need very wet weather for the rest of the winter for groundwater levels to recover by next spring. Continuing low rainfall means we could see drought conditions next summer."

Together the six water companies that cover much of central and south-eastern England serve more than 11m of the country's 22m households on the mains water supply.

"For some [companies], a dry winter would not cause resource problems next year; for others, a lack of rain over the next few weeks could lead to a more challenging situation," said Sarah Mukherjee, director of environment for the industry body Water UK. "Many companies will have a better idea in the New Year, as a reasonable amount of rain between then and now could make a significant difference."
The latest drought scenarios follow some of the driest weather since the Met Office records began in 1910, with rainfall in much of central England below 60% of the average for the last year, and much lower than that in some pockets. The mild, dry weather has continued into November in much of the UK, though regions in the north and west have become much wetter and colder.

The Met Office has told government emergency planning groups that there is only a low risk of an exceptionally dry year, however theEuropean Centre for Medium Range Forecasting expects above average pressure over the next few months, which would usually lead to lower rainfall.

In a new approach, Thames Water, the country's biggest water supplier, said it was planning what is thought to be the first poster campaign showing customers the local river their water comes from in a bid to persuade more of them to help protect it while levels are low. Posters showing a pretty-looking stretch of the Kennet will be put up around Marlborough and Swindon in December as part of the push.

The Environment Agency said: "It's not unheard of to have a drought permit issued at this time of year. However, we tend to receive more drought permit applications in spring and summer. The last time one was issued in autumn was 2003. The Environment Agency, water companies and other water users such as farmers and industry have developed plans to cope with prolonged dry spells." As well as the recent dry weather, water companies and environment regulators are expecting the UK to have more frequent dry winters as a result of climate change. Combined with increasing regulation to force companies to reduce the amount of water they take from rivers to protectwildlife, and growing water use from a rising population, several water companies are planning major infrastructure projects to avoid future water shortages, including the return of major transfers between regions, and new reservoirs. Thames Water has also built a desalination plant to turn briney water from the Thames Estuary into tap water in emergency situations, a technology more commonly associated with parched Middle East countries.

"Exceptionally dry weather could lead to drought in 2012, say water companies", 17 November 2011, online at: http://www.guardian.co.uk/environment/2011/nov/17/dry-winter-drought-weather-forecast?newsfeed=true

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❖ Severn Trent Services To Showcase Latest Water Reuse, Desalination Pre-treatment And Other Treatment Technologies At Saudi Water And Power Forum

Severn Trent Services, a leading global supplier of water and wastewater treatment solutions, will be attending the Saudi Water and Power Forum 2011 in Jeddah, Saudi Arabia, from 4-6 December. The company will be featuring its innovative solutions for water reuse and desalination applications at stand H14.

According to Marwan Nesicolaci, Severn Trent Services' vice president for international business development and sales, "The Middle East, including Saudi Arabia, represents the world's largest market for water reuse and desalination technologies. Severn Trent has recently won a number of contracts for a range of our treatment solutions to support reuse and desalination applications in the region. The Saudi Water and Power Forum is the foremost platform for business in the water and power sectors in the Kingdom of Saudi Arabia and an excellent conference for us to showcase our innovative developments in water and wastewater treatment."

Visitors to the Severn Trent Services stand H14 can obtain information about the company's proven technologies designed to provide operational innovation, cost efficiency and regulatory compliance.

A world leader in tertiary treatment systems

Severn Trent Services is one of the world leaders in tertiary treatment technologies. The TETRA® DeepBed™ filtration system is a down flow sand filter for the filtration of effluent from municipal wastewater treatment plants. The technology offers process flexibility and high efficiency backwash for the removal of suspended solids and other insoluble contaminants. For nitrate-nitrogen and suspended solids removal, the process is easily upgraded to the TETRA® Denite® system, a fixed-film biological denitrification process. TETRA Denite and TETRA DeepBed filters represent more than 10 percent of the world's capacity for wastewater reuse systems.

Membrane filtration systems

Severn Trent Services offers UAT™ reverse osmosis (RO) membrane filtration systems to meet any tap, brackish or seawater application need. Using high quality components, the skid-mounted UAT systems are engineered to effectively produce treated water free of particulate matter or contaminants. Available accessories for UAT systems include backwash systems for media filtration, chemical dosing systems, clean-in-place systems and media filtration systems.

Underdrain filters for drinking water applications

Severn Trent Services offers the TETRA® LP Block™, a dual-parallel lateral underdrain filter floor for RGF and GAC filters, for use in water filtration or pre-treatment at desalination applications. The

LP Block is extremely popular with plant owners for its low headloss, lightweight construction and easy installation. The system provides excellent distribution of both backwash air and water to offer more efficient bed cleaning and lower operating costs.

Electrochlorination technology

Severn Trent Services is a leading supplier of electrochlorination technology, offering a range of brine or seawater systems that provide a reliable, cost-effective and safe alternative disinfection treatment method for municipal and industrial applications.

ClorTec® systems generate a 0.8 percent sodium hypochlorite disinfection solution that is stable and easy to feed. ClorTec systems eliminate the need to transport hazardous chemicals and store them on site. The systems also reduce risks by eliminating the production of disinfection byproducts, helping to provide water that is free of pathogens.

SEACLOR® seawater electrochlorination systems are the standard and preferred electrochlorination unit for biofouling control in power plants, cooling towers, liquefied natural gas (LNG) terminals and desalination facilities, as well as coastal installations using seawater for cooling or other process needs all over the world.

Chlorine dioxide generation

Severn Trent Services offers Capital Controls® and Aquadiox® chlorine dioxide generators, which produce an effective disinfectant chemical in drinking water treatment and desalination pre-treatment applications. Chlorine dioxide is a versatile disinfection treatment chemical that aids in the prevention of trihalomethane and bromide formation; kills the disease-causing pathogens Giardia and Cryptosporidium; and prevents potable water taste and odor problems by removing phenolic compounds.

Gas feed systems and accessories

Severn Trent Services offers a wide range of Capital Controls® gas feed systems and accessories capable of feeding various gaseous solutions including chlorine, sulfur dioxide, ammonia and carbon dioxide. Capital Controls gas feed systems have feed capacities ranging up to 200 kg/h or 10,000 PPD and can be cylinder, ton, wall and floor mounted depending on the application.

About Severn Trent Services

Severn Trent Services, with global headquarters in Fort Washington, Pa., USA, is a leading supplier of water and wastewater solutions. The company's broad range of products and services is concentrated around disinfection, instrumentation and filtration technologies and contract operating services. Our analytical services group is the United Kingdom's leading environmental testing organization. Our operating services business provides contract management, operations support and systems improvements for utility, industrial and commercial water and wastewater customers in the

United States, United Kingdom, Ireland and Italy. Severn Trent Services is a member of the Severn Trent Plc (London: SVT.L) group of companies. Severn Trent is a FTSE 100 company.

"Severn Trent Services To Showcase Latest Water Reuse, Desalination Pre-treatment And Other Treatment Technologies At Saudi Water And Power Forum", 15/11/2011, online at: http://www.wateronline.com/article.mvc/Severn-Trent-Services-To-Showcase-Latest-0001

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❖ From the Wilson Center: Glacial Lake Outburst Floods: "The Threat from Above" Lessons from Peru to Nepal

"We have never experienced so many potentially dangerous lakes in such a short period of time," said Alton Byers of The Mountain Institute during a roundtable discussion on glacial melt, glacial lakes, and downstream consequences at the Wilson Center on October 26. "There have always been glacial lake outburst floods," said Byers. What has changed is how quickly these lakes now grow. "Suddenly, you wake up in the morning, and now there are hundreds and hundreds of these lakes above you – the threat from above," he said.

Nepal's Fastest Growing Glacial Lake

The Imja Glacier in Nepal has been receding since the 1960s which has made Imja Lake the fastest growing lake in the country, if not the entire Hindu Kush Himalayas, said Byers in a short film produced by The Mountain Institute (TMI) about the group's recent expedition to the region (watch below). The lake is now "more than a square kilometer in size, has more than 35 million cubic meters of water, and continues to grow at an alarming 35 meters per year," he said.

The lake's terminal moraine – the buildup of glacial debris that acts as a retaining wall holding the lake waters back – is all that keeps Imja from flooding the valley below, home to a number of Sherpa communities and the starting point for many climbers scaling Mount Everest.

When these moraines break, the result is a glacial lake outburst flood (or GLOF). And "these aren't floods in the normal sense," said Campbell. "These are floods that carry boulders the size of houses," because of all the debris that gets lodged in glaciers.

Critical Need for Research

It is tempting to say that what is happening at Imja Lake is representative of the thousands of glacial lakes believed to exist throughout the Himalayas, but the fact is that "at this point in time, we don't really know that much about these lakes," or how to control them, said Byers.

Glacial melting "is an extraordinarily complicated story," said *ClimateWire*'s Lisa Friedman, who joined the Imja expedition for part of the trip. There is no "clear understanding yet of how fast glaciers are melting, of where they're melting, of whether greenhouse gases or black carbon soot is primarily responsible."

There is considerable disagreement over how many glacial lakes are even in the Himalayas, TMI Executive Director Andrew Taber added, simply because of how prohibitively remote their locations often are. Byers explained that it can take as many as 10 days, plus semi-technical climbing, to reach

these places, and even then some glaciers still aren't accessible. The Siachen Glacier, for instance, has the distinction of being the world's highest battleground (India and Pakistan have had troops stationed on the glacier since 1984).

And yet understanding what is happening not just at Imja, but throughout the Himalayas, has continental implications. Himalayan glaciers feed nine of Asia's largest rivers: the Yellow, Yangtze, Mekong, Salween, Indus, Ganges, Brahmaputra, Syr Darya, and Amu Darya. Those rivers, in turn, feed some of Asia's largest population centers. The sheer number of people who depend on these rivers mean that even minor changes in glaciers' sizes can have exponentially huge impacts downstream.

Adapting Lessons Learned from Peru

The Mountain Institute's expedition was aimed at bringing lessons learned about managing glacial change from Peru to Nepal. Peru is home to 70 percent of the world's tropical glaciers, but those glaciers are melting so quickly that some have predicted within 15 years, they could disappear entirely.

Peru has been working to mitigate the threat of glacial melt since 1941, when a GLOF killed thousands and devastated the capital of Ancash, said César Portocarrero of the Peruvian National Water Authority (also a member of the expedition to Imja). At first, risk management meant simply diverting water from glacial lakes to lower the risk of GLOFs. Over time, though, and with community input, that strategy has expanded to include more comprehensive resource management, so that water being diverted from lakes can be captured and put to use downstream.

Just as Peru's mitigation work is a reflection of local needs, finding a long-term solution for Imja Lake will depend on local involvement. "When you think about science, and when you think about change, there's something to be said for more demand driven approaches," Taber said. "Working with local people…is more likely to lead to solutions and answers that will actually be picked up."

And yet, Byers said, local people have often been marginalized in research on glacial melt in the Himalayas. "There's been 30 years of research on this and other lakes and yet no researcher has ever involved them in their research, and they had no idea what the results were," he said. The TMI expedition made a point of incorporating local residents throughout the process.

Acting in Spite of Uncertainty

Portocarrero said that convincing people of the need for risk management can be difficult. "Around the world, it seems that people don't want to work in risk management because we don't have tangible results," said Portocarrero. And when risk is mired in uncertainty – as it is in the Himalayas – getting people to invest in risk management becomes even harder.

Portocarrero warned it might take a decade or more for people downstream to realize Imja and other glacial lakes pose a big enough danger and galvanize into action. "But the big question is," he added, "are we going to

wait 10 years to see the real danger?"

Sherri Goodman, who led the CNA Military Advisory Board during its 2007 report on national security and climate change, said action can't wait for perfect information.

"Climate change is a threat multiplier for instability in fragile regions of the world," said Goodman. Considering those stakes, uncertainty "can't stop you from making smart decisions based on today's information for adaptation."

"From the Wilson Center: Glacial Lake Outburst Floods: "The Threat from Above" Lessons from Peru to Nepal", Kate Diamond, 18/11/2011, online at: http://www.newsecuritybeat.org/2011/11/from-wilson-center-glacial-lake.html

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❖ Customers urged to save water as parts of the country face a winter DROUGHT

Farmers having to irrigate at night to reduce amount of water evaporating as the weather is so warm

Northamptonshire, Cambridgeshire and South Lincolnshire have had their driest year on record

Anglian Water applied to Environment Agency for a permit to drain extra water from the River Nene to feed reservoirs

With autumn frosts well under way, it is hardly hosepipe ban season. Yet, just six weeks before Christmas, the public is being urged to ration its water use.

The year's topsy-turvy weather has seen several counties remain in drought for months after the lowest rainfall on record.
Now water companies are urging householders to cut back on water use, amid concern that if reservoirs do not fill up, reserves could reach a critical level next summer.

The east of England had only half its usual rainfall in September and October, following the driest Spring for 80 years.
In March and April just one inch of rain fell – a fifth of what is normal for the season and about the typical level for North Africa.

Northamptonshire, Cambridgeshire and South Lincolnshire have had their driest year on record.
Other drought-stricken areas are parts of Bedfordshire and Norfolk.
Anglian Water, which serves six million homes and businesses, yesterday applied to the Environment Agency for a permit to drain extra water from the River Nene to feed reservoirs in Pitsford and Rutland Water which are half-full.

It has applied to drain an extra 17million litres a day between December and April.
Spokesman Ciaran Nelson said: 'You usually think of having to save water when it is hot.
'But this is the time of year when we need to save water the most as the reservoirs should be filling up ready for next spring.'
He said householders should take measures such as lagging pipes so they don't freeze, as well as basics such as not keeping water running while brushing their teeth.
Farmers are also irrigating at night to reduce the amount of water evaporating.

Another spokesman for the firm explained: 'Last year's winter was the most severe since records began over 100 years ago. If that wasn't enough, we saw an average 20 per cent less winter rainfall in our supply region, followed by the driest spring in over 80 years.
'Despite these exceptional challenges we kept water supplies secure, and by the start of spring we had replenished our reservoirs.
'However, through spring, rainfall remained exceptionally low, particularly in the west of the region.
'If the dry conditions were to continue throughout this winter, storage levels at Pitsford would not recover and would remain very low.
'That's why we're taking prudent action now, applying for a drought permit to try to keep water supplies secure and customers' taps flowing.'

The last time such a permit was applied for during the autumn or winter months was in 2003, the Environment Agency said

David Hawley, a manager for the Agency, said: 'Balancing the needs of people, businesses and the environment for water has been a difficult job this year.

'Farmers have been working hard to make the best use of the water they have and we've been busy planning supplies and monitoring what's going on.

'But if we have a dry winter, this could make next year far more difficult for everyone than this year has been.

'That's why we're asking everyone to look at their water use and see how it can be reduced now so that there's enough to go around next year too.'

Environment Secretary Caroline Spelman said: 'Farmers, water companies and other abstractors have worked really hard over the summer to help keep our rivers flowing and head off any threat of hosepipe bans.

'Northamptonshire and South Lincolnshire are amongst a number of areas taking steps now to safeguard the water supply next summer and, despite our reputation as a rainy country, planning for unreliable rainfall is something we all need to do.'

"Customers urged to save water as parts of the country face a winter DROUGHT", Tamara Cohen, 16/11/2001, online at: http://www.dailymail.co.uk/news/article-2061866/UK-winter-DROUGHT-Anglian-Water-urge-customers-save-water.html

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❖ Esri Assists Thailand Flood Response

Esri and Esri Thailand, are assisting government agencies and emergency management professionals involved in the Thailand flooding disaster response. As part of the support, Esri has activated its disaster response team. The disaster team will provide software, services, and industry expertise. Esri also supports the response organisations with application development, data and technical support.

Esri Thailand is also helping government officials more accurately locate calls and reports, as well as optimise the routing of emergency services and the delivery of goods. This work and improved data collection will help with the response and recovery efforts, which will take years to complete.

Esri solutions and services enable officials to capture, integrate, analyse, and share information from multiple sources. This supports rapid, effective decision making at many levels. First responders, emergency managers, and others can conduct rescue operations; protect critical infrastructure; evacuate areas; identify medical needs; classify severely damaged buildings; deliver vital food, water, and supplies; and prioritise recovery.

"Esri Assists Thailand Flood Response", 16/11/2011, online at: http://www.waterlink-international.com/news/id2173-Esri_Assists_Thailand_Flood_Response.html?utm_source=Newsletter&utm_medium=email&utm_campaign=20111116+-+WL

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❖ The power of water

Lial is a third grade student at Al Dhabyania Private School in Abu Dhabi with a great passion for books and nature. One day her mother took her to see the "Water: H2O = Life" exhibition in Qasr Al Hosn's Cultural Quarter Hall and bright Lial surprised the exhibition guides with her knowledge about all things water.

As a result, they invited the young girl to return with her classmates and present the exhibition herself to them. She couldn't be happier!

"I love to read books about animals and birds. I also love to read books about plants. I like watching useful scientific television programmes," revealed Lial.

In fact, she has her own library at home that even her father Ehab Es'haq uses from time to time. "When I take her to the mall all she wants to buy is as many books as possible," he said.

"And in addition to reading, I love the art of handicraft-making, and to create nice things for me and my sister," added Lial.

No wonder that the young girl does well in school too, having some of the highest grades in class because of her passion for reading and general knowledge.

"I call her the little writer and poet, because she writes novels and reads them to her classmates and asks me to sign them for her," said Mona Fadl, her Arabic teacher.

"Not only that, but she only speaks classical Arabic in class, which influenced her classmates and now they all communicate using classical Arabic while classes are in session."

Lial's first experience as an exhibition guide may well influence her next writing adventure, especially since she was as excited to discover this interactive eco-inspired water exhibition for herself, as she was upon returning as an expert.

Organised by the Abu Dhabi Authority for Culture and Heritage (ADACH), in collaboration with the American Museum of Natural History (AMNH), from last September till January 5, next year, "Water: H2O = Life" is a visually fascinating display about the power of water and its vital role in nature and our daily lives, shedding light on the challenges we face for the sustainable management of this indispensable, but limited resource.

"Every language has a word for water; no living thing exists without water. It soothes the spirit and sustains the body; its beauty inspires art and music. Employed by cultures around the world in rituals and ceremonies, water bathes us from birth to death. Water is essential to life as we know it. And as it cycles from the air to the land to the sea and back again, water shapes our planet — and nearly every aspect of our lives" — this is how AMNH, which originally created the exhibition with different partners in different countries, described the idea behind this rather fascinating environmental show.

With more than 90 subjects, models, sculptures, and through the use of interactive and three-dimensional environments, the exhibition reveals the multicultural aspects of water, its role in art and civilisation, and its unique ability to enrich our human experience and cultural heritage.

Life in Water, one of the eight sections of the exhibition, a shimmering fog screen, and water drops falling into a lighted pool to emphasise the beauty and universality, as well as the scarcity and fragility of water, is how visitors are welcomed indoors, being the actual entrance of the exhibition.

Walking through this dark room where the lighted waterfall seems to tumble down all around while the name of water appears in many languages to remind of the universality of water, people are finally made to hold their breath in awe of this mighty element, one of the very few to exist in liquid, solid or gas form, otherwise taken for granted in everyday life.

Among exhibits are an old water pipe fragment used some 1,500 years ago to irrigate agricultural land in Oaxaca, Mexico, a meteorite from Australia containing 15 per cent water, a 5,000 years old Sumerian water jug, remind that some of the world's oldest civilisations owe their existence to the life-giving waters of the Tigris and Euphrates rivers, a dramatic 68-inch globe that displays maps and satellite images of Earth and a towering walkthrough reconstruction of a water-carved slot canyon.

"There is an urgent need for modern educational activities that raise awareness about culture and local heritage to future generations," said Dr Sami El Masri, deputy director-general for arts, culture and heritage and director of Strategic Planning and Development at ADACH, adding that more educational school and university tours will be organised at the exhibition.

"These educational activities carried out by ADACH emphasise our commitment to making young generations more aware of the challenges of today and tomorrow, while learning from the wisdom and know-how of their ancestors so they can face these challenges and come up with solutions that will better their future," said.

After being exhibited in North and South America, Asia and Australian, "Water: H2O = Life" could not have found a more meaningful destination than UAE, giving that the country has the highest amount of water consumption per person per day - 550 liters!

"The power of water", Silvia Radan, 19/11/2011, online at:
http://www.khaleejtimes.com/Displayarticle08.asp?section=expressions&xfile=data/expressions/2011/November/expressions_November16.xml

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