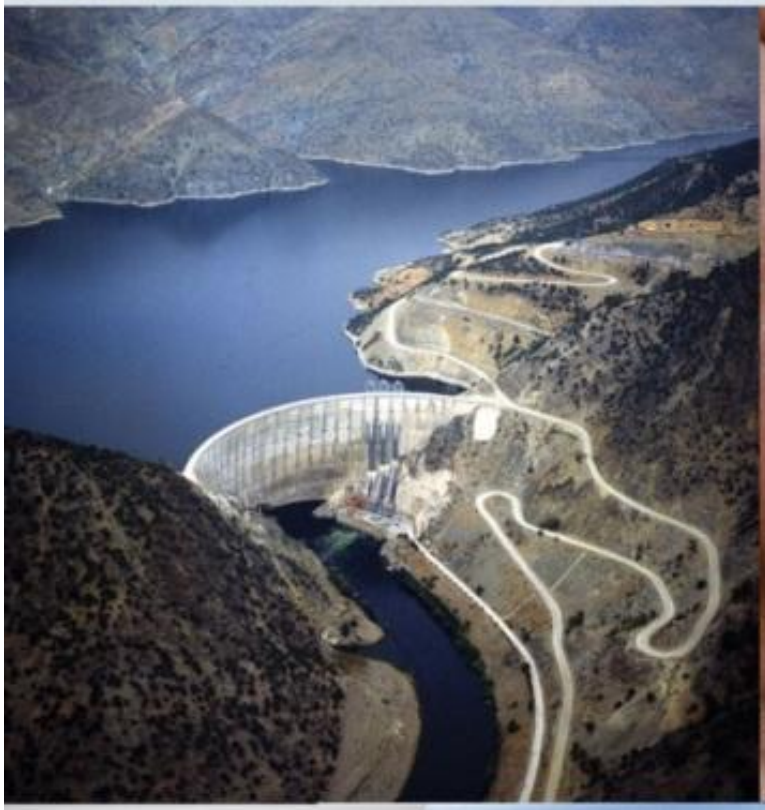


# ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

Events-News-Politics-Projects-Environment-ClimateChange-Neighbourhoods-Cooperation-Disputes-Scarcity and more





**Issue 145**

# ORSAM WATER BULLETIN

**09 September 2013 – 15 September 2013**

- **Syria: Assad strikes Euphrates dam, sparking fears of flood**
- **Bombing of Dam by Assad may cause a disaster**
- **Water and the Roots of Violent Conflict in Syria**
- **Coping with the lasting costs of the Syrian war**
- **Iran Determined to Save Dying Lake**
- **Iran says saving Urmia Lake a priority**
- **Iranian Energy Minister: Half of Urmia Lake shallows**
- **Water and Syrian issues discussed with Turkish Parliament, Nujaifi**
- **Palestinians hail Dutch firm's decision to pull out of east Jerusalem sewage project**
- **Support for boycott of Isreali-made water meter is growing**
- **Israel shares water management technology with Ghana**
- **Nile Water Dispute Stymies Egypt Reset with African Union**
- **Egypt Keen to Preserve Right in Nile River Water**
- **Rural Kenya harvests water from fog**
- **Kenya finds '70 year supply' of water in desert region**
- **Water will be in Tripoli by Friday: Water Resources Minister Hinshir**
- **Floods have halved Pakistan's economic growth**
- **Pakistan trying to launch Bhasha and Dasu dams at same time**
- **Arabian Water & Power Forum 2013 to shine light on renewable ways to meet energy demand**
- **Arabian Water and Power Forum seeks renewable energy sources**
- **Water scarcity and biodiversity under threat as temperatures warm**



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- **Dwindling Water Supplies Make Every Drop Count**
- **Controversial Mekong dam could devastate local population**
- **Lao Villagers Displaced by Dam Await Farmland Six Months After Relocation**
- **Water wars**
- **Global Water Scarcity Could Drive Conflict or Cooperation**
- **Current pledges put over 600 million people at risk of higher water scarcity**
- **Netherlands wants to help Bangladesh develop water management system**
- **Cuba, China Review Cooperation in Water Resources**
- **Hydroelectric power makes big comeback at U.S. dams**



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### ❖ Syria: Assad strikes Euphrates dam, sparking fears of flood

(ANSAmed) - BEIRUT, SEPTEMBER 9 - The air force of Syrian President Bashar al-Assad has shelled the hydroelectric Tabqa Dam on the Euphrates river, sparking fears of a massive flood among local inhabitants of the mostly rebel-held northern Raqqa region.

Activists and eyewitnesses have since last night been posting amateur videos documenting the air strikes.

"The barrel bombs aimed at the generators and fell near the sluices", inhabitants of the town of Tabqa told Local Coordination Committee activists. Built by Assad's father Hafez al-Assad between 1968 and 1973, the 60-meter-high "Dam of the Revolution", as it is known in Arabic, is Syria's main source of electric energy. Its construction led to the creation of Lake Assad, Syria's largest water reservoir, which is 80 kilometers long and contains 14 billion cubic meters of water.

It spans the Euphrates river, which runs from Turkey through Syria and Iraq to end in the Persian Gulf. Rebels now hold the region around the city of Raqqa, which is downstream from the dam, as well as the town of Tabqa. The Assad forces still hold the military airport and two bases, where the national army's 17th Division and 97th Brigade are quartered.(ANSAmed).

"Syria: Assad strikes Euphrates dam, sparking fears of flood", 09/09/2013, online at:
http://www.ansamed.info/ansamed/en/news/sections/generalnews/2013/09/09/Syria-Assad-strikes-Euphrates-dam-sparking-fears-flood_9272014.html

BACK TO TOP



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## ❖ Bombing of Dam by Assad may cause a disaster

*Syrian National Coalition and FSA warned Assad regime bombing foundations of the Euphrates Dam threatens millions of Syrian lives*

Syrian opposition warned on Tuesday that the Syrian regime bombing the Firat (Euphrates) Dam in the northern Raqqa city could lead to a catastrophe.

National Coalition Of Syrian Revolutionary and Opposition Forces and the Free Syrian Army (FSA) issued a joint statement saying that the Assad regime bombed the foundations of the Euphrates Dam, threatening millions of Syrian lives.

Highlighting that the Syrian regime paved the way for an unprecented humanitarian catastrophe by pouring cluster bombs all over the surroundings of the dam, the statement warned eastern Syria was among the regions at stake in the first place in case of a new catastrophe by the regime.

**Three million will be affected if the dam collapses**

The statement argued that if the Euphrates Dam collapsed, it would impact at least three million Syrians living in the wider region extending from the eastern parts of Syria to the Ramadi city in the west of Iraq's capital Baghdad, sparking off a humanitarian disaster.

Euphrates Dam, also known as the Tabqa Dam, is an earth-fill dam on the Euphrates River, located 40 kilometres upstream from the northern Syrian city of Raqqa.

The dam is 60 metres high and 4.5 kilometres long and is the largest dam in Syria. Its construction enabled the creation of Lake Assad, Syria's largest water reservoir.

**Possible collapse of the dam will also hit Iraq**

Speaking to Anadolu Agency, Iraqi Rava district council member Musnah Ismail claimed that Rava, Ane and Al-Qaem districts will be flooded in case of a collapse, putting at least 300 thousand lives at risk along the Syrian-Iraqi border.

Another Iraqi water resources official said they have taken necessary precautions against possible floodings of agricultural areas and houses as well as oil basins.



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Officials also alert that a collapse in the dam will jeopardize around 430 historical sites and artifacts including the Ane Castle dating back to the Abbasid reign and a number of caves from the Hellenistic period.

Fighter jets of Syrian army bombed some areas around Euphrates Dam, Lake Assad and areas surrounding the lake last weekend, creating damage in one of the electricity producing turbines, FSA Raqqa spokesman Ahmed Abu Bakir told Anadolu Agency.

Bakir said the dam provided power to numerous areas in Syria and the dam lake was one of the most strategic water resources of the country.

Areas close to the dam within the borders of Raqqa in northern Syria were reportedly under Free Syrian Army control sice mid-March.

"Bombing of Dam by Assad may cause a disaster", 10/09/2013, online at: http://www.worldbulletin.net/?aType=haber&ArticleID=117502

BACK TO TOP



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### ❖ Water and the Roots of Violent Conflict in Syria

I am often asked these days about whether I think that the decade-long drought in Syria has played any role in the violent conflict there. My answer is always the same: absolutely.

The reason is quite simple, and we have all experienced it. When our basic human needs are not met -- for water, food, clothing, shelter, or sleep -- we get grumpy. When we get grumpy, we fight. We'll snap at our children, bicker with our partners and argue with our neighbors. In regions like the Middle East, which has fought over water for several millennia, it does not take much to fan the flames of dispute into a bonfire of violent conflict.

Last February our research team released a new study of groundwater depletion in the Middle East. The area that we analyzed included Turkey, Syria, Iraq and Iran. The political boundaries of these countries overlie a different set of boundaries, namely those of the Fertile Crescent - the Tigris and Euphrates River basins that supplied the water to support the cradle, and rise, of human civilization. Using NASA satellites, we found that between 2003 and 2009, the region had lost 144 cubic kilometers of fresh water, an amount that is equivalent to the volume of the Dead Sea. We determined that roughly 60% of the lost water came from the depletion of the regions aquifers (mostly used for irrigation), making it the second hottest of the world's hotspots for groundwater depletion. Only northwestern India has experienced greater groundwater losses in the same time frame. Subsequent analyses have shown that those rates of water loss continue into the present. Sitting right in the crosshairs of that Middle Eastern hotspot is Syria, as shown in the satellite image below.

That's not to say that the severe water shortages directly resulted in violent conflict. However, Syria has in fact experienced the perfect storm of water-related misfortunes, that taken together, have arguably played a major role in triggering uprising and violence. Let me highlight a few of these here.

First, the long history of documented tensions over water and its control dates back almost 4500 years. When the default mode of settling disputes has historically been war, it is a very easy pattern fall back on. Regional political instability does nothing to help break this pattern.

Second, Turkey's Greater Anatolia Project, a vast system of reservoirs built just upstream of Syria and Iraq, allows Turkey to store voluminous water reserves within its borders, that would otherwise flow into these downstream nations. Reports indicate that river flows into Syria and Iraq may have been reduced by 40 to 80 percent as a result of the upstream reservoirs. There is little choice for anyone downstream, upon the loss of a significant source of fresh river water, but to tap into groundwater reserves.

Third, Syria is in the throes of an unrelenting drought that began in the early 2000s. The lack of available water forced nearly one million farmers to abandon their land, their heritage and their livelihoods, and to move to the cities, where they spent their long days unemployed and resentful. Fourth, the now severe lack of river flows due to both the Turkish reservoir storage and the drought caused even further reliance on groundwater. No one knows how many additional wells were dug, since most are unreported, unmonitored and unregulated. It could have been a million. But life, food and energy require water, and the population dug deep, and deeper, and deeper to access it. Just like having too many straws in a glass of water, the level of water began dropping more and more and more quickly.

Finally, many of these same farmers felt that Syrian President Assad's focus on global trade meant that he was turning his back on the agrarian population. With no government commitment to provide the water necessary for agriculture, and no way to obtain it independently because of drought and falling groundwater levels, Assad gave the farmers even more reason to lash out.

Whether or not water scarcity leads to violent conflict depends on a complex recipe that includes several ingredients that must be combined in just a certain way such that the pot boils over. Political stability, government commitment to solutions, national wealth, political relations within the region, the length of the hardship and many other factors all come into play. Clearly, water-driven escalation occurred and tipping points were exceeded that in part have contributed to the situation as it stands today.

Societies have always risen and fallen based in large part on the availability of water. While the wealth of many nations of the 21st century allows for greater water security, many countries, like Syria, have none. First, migration to the cities, and then, mass exodus, suggest that Syria as a nation

may not recover, at least any time soon. It is unlikely that its groundwater resources, and likewise, its food security, ever will.

Just after the release of our Middle East groundwater study, and just prior to President Obama's visit in March, a few members of our research team made a 'water diplomacy' tour of Israel, Jordan and Palestine. Our goals were to raise awareness of our findings, to build and share them via multi-lateral collaborations, and to initiate capacity building efforts to train students and researchers in the use of the satellite-based methods that we have developed.

At that time, I wrote a post encouraging President Obama, and by extension, Secretary Kerry, to include water issues in their peace-building and diplomatic efforts in the region. If water issues can be as destabilizing as they are proving to be in Syria, then it stands to reason that their peaceful resolution -- and the associated water, food and economic security that will ensue -- will have the opposite effect.

"Water and the Roots of Violent Conflict in Syria", 07/09/2013, online at: http://www.huffingtonpost.com/jay-famiglietti/water-and-the-roots-of-vi_b_3884175.html

BACK TO TOP

### ❖ Coping with the lasting costs of the Syrian war

IT IS the biggest displacement crisis of all time, according to the UN. More than 2 million people have fled Syria, mainly to Lebanon, Jordan, Turkey, Iraq and Egypt – half of them in the past four months. The number is expected to double by the end of the year.

How do you provide so many people with the food, water and medicine they need? Do you build camps, or let people find shelter in towns? Movements of people on this scale have long-term impacts on a region's disease load, long-term psychological consequences for the refugees themselves, and can leave scars on regional resources. So the stakes are high.

"Our preference is for settling in the host community, rather than camps," says Dan McNorton of the UN refugee agency UNHCR. Half of the refugees in Turkey and Iraq, two-thirds in Jordan and all those in Lebanon are lodging with families, renting rooms or occupying vacant buildings. The rest are in camps, including the Zaatari megacamp in Jordan.

In reality, both approaches have problems. "There is no magic bullet," says Marc Hanson of the US-based advocacy group Refugees International, who has just returned from Turkey and Lebanon. "Right now we have to do whatever we can." Work is hampered by the fact that governments have provided less than half of the $3 billion needed for an assistance plan put out in July, and by the threat of military action in Syria, which could lead to an even greater exodus.

Disease is a major concern. Mass migrations often bring disease with them. Jordan planned to have eliminated tuberculosis this year – it has now abandoned the idea. Syria's neighbours have largely eliminated the parasitic disease schistosomiasis, but it might now be brought back from still-infected areas of Syria.

Crowded camps with limited sanitation can also foster infection. Hepatitis, lung and gut infections are all spreading among the weakened refugees, and virologists fear that the lethal MERS virus, which may be present at low levels in the region, could gain a foothold. Leishmaniasis, a potentially disfiguring skin parasite spread by sandflies, has plagued desert camps in Jordan.

On the other hand, children in camps can be readily reached for treatment: 98 per cent of the children in Zaatari have received booster shots for measles and polio. And the camps have some refugee specialists, such as counsellors.

But life in a large camp takes its toll. Richard Mollica, head of the programme in refugee trauma at Harvard Medical School in Cambridge, Massachusetts, says research shows a refugee's central problem is humiliation: it is the source of many subsequent ills – physical and psychological. Addressing the emotion explicitly can stem this cascade of ills, he says.

"Camps meet their physical needs, but the ongoing poverty and humiliation hurt them emotionally," Mollica says. This leads to high levels of sexual violence, poverty and despair in long-term refugee camps, he says, and breeds anger, and subsequent conflicts.

One solution may be to replace large camps with smaller ones. Half of Turkey's refugees are in 17 small camps along the border, and those seem to work well, says Hanson. Jordan is now reorganising Zaatari and building a new camp near Azraq, both as a series of small "villages" instead of centralised sprawls. The smaller, more numerous sanitation facilities required are more expensive, but the hope is that "village councils" will take charge of them, leading to less crime and vandalism – and more sense of empowerment for the refugees.

The alternative – housing refugees in the community – is not without problems. Caring for refugees outside camps depends on efforts to upgrade the host country's public systems to cope with the added burden. In Lebanon, where refugees will make up a quarter of the population by the end of the year, aid agencies say health clinics are saturated. Schools and even garbage collection need investment. Moreover, it is hard to keep track of scattered refugees to ensure they get the care they need: in February, Jordan took the novel step of using iris scans to register refugees in some towns.

Competition for housing and jobs is driving prices up and wages down, causing hostility among locals already suffering from lost trade with Syria's collapsed economy. But here, the parallel problem of feeding the refugees can actually help.

Refugees given money to buy food in the community, rather than being fed in camps, have put $120 million into host economies this year. In Turkey, families get $45 a month in "e-food vouchers" –

pre-paid debit cards they can use to buy the food they want, when they want it, in local shops. The semblance of normality helps refugees, while easing relations with locals.

The question of camps versus communities is far from academic. In Lebanon, the UN wants to set up small camps. Lebanon has refused, fearing they will become permanent. Yet communities are saturated, and squalid tent colonies are appearing.

The UN is offering a perk: a portable shelter designed by the Swedish furniture giant Ikea, which comes in a flat-pack for assembly. It is more comfortable than the tents and shipping containers of most camps – and can be disassembled and taken back to replace shattered homes.

So far Lebanon is saying no. But limits are being reached, and winter, and more refugees, are coming. The debate may no longer be between camps and communities, but whether countries can keep taking in their fleeing neighbours at all.

**Hunt for Water beneath the desert**

Healthcare and food are vital for the refugees now flooding out of Syria (see main story), but in an arid region the real problem is water – especially in Jordan, the world's fourth most water-poor country.

Refugee camps are thirsty. Aid agencies decided in July that trucking 3.4 million litres of water into the Zaatari camp each day was too expensive. They plan to install more water-saving toilets, but people may also have to live with less water.

This week, Jordan opened a new camp for 130,000 refugees west of the Azraq oasis. Water will come from a borehole drilled into a deep aquifer running under the site, avoiding a shallower one that supplies Jordan's cities and is at risk from over-pumping.

That aquifer stands as a warning: it was first tapped to supply an earlier influx of Palestinian refugees. Pumping was stopped in 1982 in a bid to save the Azraq wetland, but had to resume when demand could be met no other way. The wetland was destroyed.

Refugees in Jordan's cities, meanwhile, are competing with locals for water – and many taps already flow for only a few hours each week. "Public water supply systems are under severe stress," says the UN refugee agency UNHCR.

"Permanent solutions for water supply and sanitation both in camps and in host communities, require large, costly infrastructure projects," says UNHCR. The UN is trying to get a two-year plan approved by host governments and funded by donors. But it is a hard task: with no knowing what will happen in Syria, no one is sure how long refugees will stay.

"Coping with the lasting costs of the Syrian war", 11/09/2013, online at: http://www.newscientist.com/article/mg21929342.700-coping-with-the-lasting-costs-of-the-syrian-war.html#.Uja2DNK8nrJ

BACK TO TOP



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## ❖ Iran Determined to Save Dying Lake

TEHRAN (Tasnim) – Iranian energy minister underlined the government's determination to save the endangered Lake Oroumiyeh in northwest of the country, which has lost more than sixty percent of its surface in recent years.

"We will make every effort to prevent the drying up trend in Lake Oroumiyeh," Hamid Chitchian told Tasnim News Agency in Iran's northwestern city of Oroumiyeh on Saturday.

The energy official also emphasized that all decisions made by his ministry regarding water management are "non-political" and based on extensive studies, and as such there are no other considerations for the government in implementing water-related projects.

He further noted that no timetable has been set to feed Lake Oroumiyeh with water from the Aras River, which runs along Iran's borders with Armenia and the Republic of Azerbaijan some 70 kilometres to the north.

Earlier on Friday, Head of Iran's Department of Environment Masoumeh Ebtekar described Lake Oroumiyeh as one of the world's significant natural habitats, and called for national determination to resolve the crisis in that water basin.

"Resolving the crisis in Lake Oroumiyeh National and International Park, as one of the significant and great habitats of Iran and the world, is a matter of great importance, and settlement of this crisis requires national resolve," Ebtekar said.

As Lake Oroumiyeh is shrinking and deserts of salt expanding, Iranian officials are trying to find ways to avert an imminent disaster and to stop the salt lake from drying up.

One of the largest salt lakes in the world and classified as a Biosphere Reserve by UNESCO, Lake Oroumiyeh has lost more than 60 percent of its surface over the last two decades due to drought and the damming of rivers feeding it.

The disappearance of the lake could leave behind billions of tons of salt which in turn displace millions of people and endanger the ecosystem of all surrounding areas, whose economy relies on agriculture and tourism.

"Iran Determined to Save Dying Lake", 14/09/2013, online at:
http://www.tasnimnews.com/English/Home/Single/140308

BACK TO TOP



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## ❖ Iran says saving Urmia Lake a priority

*Lake Urmia is the third largest salt water lake on earth with a surface area of approximately 5,200 square kilometers.*

The newly appointed head of Iran's Environmental Protection Organization, Masoumeh Ebtekar said that, saving Lake Urmia is her first priority, Iranian Shargh newspaper reported.

She also announced that she will visit Urmia today for her first official visit.

Ebtekar went on to note that projects on saving Urmia Lake were started in 2002 (when she was head of the Environmental Protection Organization during the administration of former president Mohammad Khatami) but were suspended in 2005-when ex-president Mahmoud Ahmadinejad took office.

She expressed hope that the Iranian government organizations will cooperate to save Lake Urmia.

On August 19, the official website of the Iranian president reported that president Hassan Rouhani establish a working group to tackle the issue of saving the Urmia Lake.

According to the report, after the cabinet meeting, Rouhani spoke to journalists, where he made the remarks regarding the Lake Urmia issue. "As I've promised people before, I established an Urmia lake-saving work group, which will be headed by country's Energy Minister, Hamid Chitchian," Rouhani said.

The work group was commissioned to use the background of the already conducted studies and technical research works in the field and to present their proposals for saving the Urmia Lake to the government within a two-month period. Lake Urmia in Northwest Iran is experiencing its worst drought in many years, where over 70 percent of its water has dried up. The level has been declining since 1995.

Officials have said if the current restoration efforts are not effective, the lake will be turned into a swamp within four years. Previous reports said Lake Urmia needs 3.1 billion cubic meters of water per year to survive.

Lake Urmia is the third largest salt water lake on earth with a surface area of approximately 5,200 square kilometers.

"Iran says saving Urmia Lake a priority", 13/09/2013, online at:
http://www.worldbulletin.net/?aType=haber&ArticleID=117764

BACK TO TOP

### ❖ Iranian Energy Minister: Half of Urmia Lake shallows

There should be about 32 billion cubic meters of water in Urmia Lake, but half of the lake has shallowed, Iranian Energy Minister Hamid Chitchiyan said while visiting the lake, ISNA News Agency reported on Saturday.

Less water remained in the lake, the salinity has extremely increased and continuation of this situation will create serious problems, Chitchiyan said.

The working group which was created to save Urmia Lake has chosen around 12 priority projects the implementation of which has already begun, the minister stressed.

It should be noted that the area of Urmia Lake is about 6,000 square kilometers. The lake becomes a temporary shelter for migratory birds in the period of their migration. Urmia shallows due to continuous drought which has an impact on the region's flora and fauna.

In September 2011, the Iranian government allocated around $900 million to prevent the lake's shallowing. UN Development Program (UNDP) has allocated around $135 million for Iran to address the environmental problems of the shallowing Urmia Lake.

But the funds allocated by the government in 2011 were not used for the envisaged purposes and no funds were allocated for any project in 2012, Iranian Energy Minister said.

"Iranian Energy Minister: Half of Urmia Lake shallows", 14/09/2013, online at:
http://en.trend.az/news/society/2190129.html

BACK TO TOP

### ❖ Water and Syrian issues discussed with Turkish Parliament, Nujaifi

BAGHDAD/ Aswat al-Iraq: Iraqi Parliament Speaker Usama Nujaifi discussed with the Turkish Parliament Speaker Jameel Jaijak issues related to common waters and the Syrian question.

In and statement by Nujaifi's media office, copy received by Aswat al-Iraq, both side discussed bilateral relation, particularly on the parliamentarian level.

It added that the Turkish side suggested joint projects to solve water issues, but no details were given.

Nujaifi reiterated Iraqi desire to solve all regional issues in order to "have peace in the region", as well as "granting the Syrian people the chance to choose their representatives".

"Water and Syrian issues discussed with Turkish Parliament, Nujaifi", 12/09/2013, online at: http://en.aswataliraq.info/(S(sltcgm453j0g3p55lev2vy45))/Default.aspx?page=article_page&c=slideshow&id=154249

BACK TO TOP

## ❖ Palestinians hail Dutch firm's decision to pull out of east Jerusalem sewage project

*Royal HaskoningDHV was pressured by Dutch government to withdraw participation from sewage treatment facility initiative*

A Dutch engineering firm that was slated to participate in the construction of a sewage treatment facility in east Jerusalem announced on Friday that it was pulling out of the project.

In a move that drew praise from the Palestinians, the company, Royal HaskoningDHV, released a statement on Friday saying that it decided to terminate its involvement in the project "after due consultation with various stakeholders."

"Royal HaskoningDHV has today advised the client it has decided to terminate the contract for the Kidron waste water treatment plant project," the firm announced on its Web site. "The project is in the early stages of the preliminary design phase."

Royal HaskoningDHV carries out its work with the highest regard for integrity and in compliance with international laws and regulations," the company said. "In the course of the project, and after due consultation with various stakeholders, the company came to understand that future involvement in the project could be in violation of international law."

"This has led to the decision of Royal HaskoningDHV to terminate its involvement in the project."

The move was applauded by the Palestinian Authority. Hanan Ashrawi, an executive committee member of the Palestine Liberation Organization, hailed the Dutch firm's decision. According to Ashrawi, the Dutch government had pressured the company to withdraw from the project.

"Royal HaskoningDHV has emphasized that it conducts its work with the highest regard for integrity and in full compliance with international law and regulations," Ashrawi said in a statement. "The planned Israeli water treatment plant in East Jerusalem breaches international law, and it is primarily designed to service illegal settlements that cause severe human rights violations."

"This project deepens Israel's annexation of East Jerusalem, consolidates its occupation of the West Bank, and constitutes another obstacle to the establishment of an independent and sovereign Palestinian state on 1967 borders with east Jerusalem as its capital."

This past July, the European Union enraged the Israeli government after its controversial decision to institute new guidelines limiting interaction with Israeli entities beyond the pre-1967 lines.

"Palestinians hail Dutch firm's decision to pull out of east Jerusalem sewage project", 06/09/2013, online at: http://www.jpost.com/Diplomacy-and-Politics/Palestinians-praise-Dutch-firms-decision-to-pull-out-of-east-Jerusalem-sewage-project-325433

BACK TO TOP



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### ❖ Support for boycott of Isreali-made water meter is growing

*In last week's 'Sussex Express' Mr Duncanson stated that 'A small group of (Lewes) residents want to boycott the meter installations as part of a wider campaign against Israel'. In fact, the group of residents refusing the installation of Arad Technology meters is not now small and is growing, to such an extent that it was reported on BrightFM recently that because of customer opposition Southern Water has suspended installations in Lewes.*

The refusal of residents is not against Israel per se but against this Israeli company's intensive involvement in illegal activity in the illegal Israeli settlements on land stolen from Palestinians in the West Bank occupied by Israel.

Our refusal is also prompted by this company's cooperation with the Israeli government in diverting scarce water supplies from ordinary Palestinians to the Israeli settlers in the illegal settlements in Palestine and their complicity in human rights abuses.

It's also incorrect to say that Southern Water has no political position on this issue – Southern Water has taken a political position by deciding to award this meter contract to an Israeli company working in the illegal settlements and is in breach of its own corporate ethical social responsibility policy, by being complicit in human rights abuses.

Southern Water could have helped reduce unemployment and supported our manufacturing industry by awarding the meter contract to a British company but choose not to, so not 'well done Southern Water' on this occasion.

"Support for boycott of Isreali-made water meter is growing", 13/09/2013, online at: http://www.sussexexpress.co.uk/news/letters/support-for-boycott-of-isreali-made-water-meter-is-growing-1-5484317

BACK TO TOP



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### ❖ Israel shares water management technology with Ghana

Israel is prepared to share with Ghana its expertise and experiences in water management solutions, Ms Sharon Bar-Li, Israel Ambassador in Ghana, said. She appealed to the public sector to team up with their private counterparts and work in partnership with Israeli water companies to share best practices. The Ambassador who said this at the opening ceremony of the Israeli water technologies seminar, – sneak peek to WATEC 2013. She said since the two nations had been working closely on water and sanitation since the 1950s and 60s, Ghana must not miss the chance to tap Israeli expertise. Israel has the world largest reverse osmosis desalination, water safety and recycles water of about 75 percent for its water for agriculture through drip irrigation technology. Israel also has one of the world's most advanced systems of waste water treatment and decontamination. Alhaji Collins Dauda, the Minister offor Water Resources, Works and Housing, in a speech read for him, said government recognised the provision of accessible, reliable and equitable potable water as a basic human right. Alhaji Dauda, however, said provision of sufficient and sustainable water for domestic and industrial purpose is hit with many challenges. The challenges centre on rapid growth in settlements, growing sophisticated demands by water consumers, increasing environmental degradation, poor water resource management habits, falling sources of funding and investment. He said with Israel's decades of rich and unique experience in the management of water resources, prioritising and packaging knowledge and technology would help exploit vast opportunities in the water sector. This, Alhaji Dauda said would enable the nation to achieve self-sustainability in the exploitation and management of water resources. The Minister observed it was time to look for practical solutions to the challenges by ensuring efficient management and massive investment in relevant infrastructure through partnerships. In that way, water sufficiency and availability, economic growth, poverty reduction and social equity towards national self-sufficiency would be guaranteed, he said

"Israel shares water management technology with Ghana", 11/09/2013, online at:
http://www.ghanabusinessnews.com/2013/09/11/israel-shares-water-management-technology-with-ghana/

BACK TO TOP



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### ❖ Nile Water Dispute Stymies Egypt Reset with African Union

CAIRO — Egypt is still facing multiple hurdles in managing its diplomatic relations and national security interests with other African nations, particularly those of the Nile basin. This is despite the new Egyptian political administration showing capacity to bolster relations with countries of the African continent. But there remains a pent-up crisis engendered by the dispute over the management of the Nile water dossier.

Egyptian-African relations had witnessed some tensions resulting from the overthrow of President Mohammed Morsi, with the African Union suspending Egypt's membership pending the restoration of constitutional rule and democracy to the country. Furthermore, tripartite negotiations with Sudan and Ethiopia pertaining to the Ethiopian Renaissance Dam were put on hold, as were discussions relating to the problem caused by the Entebbe Agreement.

Egyptian diplomatic circles tried to deal with the crisis by dispatching on July 21 its first official delegation led by Ambassador Mona Omar, the former assistant minister of foreign affairs for African affairs, and 27 other envoys to African Union countries. This delegation represented an attempt to try and convince these countries to change their position favoring the suspension of Egypt's membership in the union. Furthermore, Foreign Minister Nabil Fahmi made his first trip abroad on Aug. 19 to Khartoum and Juba carrying a message expressing Cairo's desire to bolster relations.

Omar, Egypt's presidential envoy to a number of African nations, told *Al-Monitor* that the African Union had not yet taken any concrete measures to lift its decision to suspend Egypt's membership. She explained that the second visit by the African Union's Panel of the Wise did not bode well for Egypt, with the former only succeeding in issuing some general recommendations in rejection of violence and towards the attainment of internal peace.

The Panel of the Wise, led by Alpha Oumar Konaré, had concluded its second visit to Cairo on Wednesday, Sept. 4, during which it affirmed Egypt's ability to solve its problems, and that the matter of suspending the country's membership in the African Union was not aimed at excluding it

from the African arena. It did not, however, identify specific measures that would result in discussions aimed at reinstating Egypt's membership in the union.

"The Panel of the Wise was not tasked with taking decisions about reinstating Egypt's membership, and only made recommendations based on the results of its visit, upon which the African Union's General Assembly would vote," Omar said. She added that "it was not in Egypt's interest for a vote to be taken at the present time, and it was necessary for the new Egyptian leadership to implement part of the road map and agree on a new constitution, in order to prove Egypt's commitment to democratic norms."

The spokesman for the Ministry of Foreign Affairs, Ambassador Badr Abdel-Ati, told *Al-Monitor* that Egypt would continue its diplomatic efforts aimed at proving its seriousness in restoring Egyptian-African relations.

He pointed out, "Egyptian presidential envoys have visited 35 countries in order to explain the current state of affairs in Egypt."

Despite Egypt's efforts to bolster its relations with other African countries, the issue of water allocations remained at a standstill during discussions pertaining to the Nile basin dossier, which continued to cause tensions between downstream states Egypt and Sudan and their counterpart upstream countries. These tensions increased as Ethiopia began building its Renaissance Dam over the Blue Nile, which constitutes a direct threat to Egypt's water interests in the river Nile.

For the third consecutive time, Ethiopia and Sudan asked for the postponement of the tripartite meeting scheduled to take place between water resource ministers of eastern Nile countries. This led to the rescheduling of discussions pertaining to the final report issued by International Panel of Experts at the end of its last meeting in June. The report discussed the ramifications of the Renaissance Dam on the water security of Egypt and Sudan.

Sharif al-Mohammadi, an Egyptian expert with the international panel, told *Al-Monitor* that more negative consequences would ensue as a result of postponing discussing the final report on the effects

of the Renaissance Dam, at a time when the Ethiopian government was moving ahead to finalize the initial phases in preparation for beginning dam construction.

"While no new meeting date was set for consultations between the Egyptian, Sudanese and Ethiopian ministers of water resources, there was a general agreement on the need to continue negotiations about the dam, and the need to intensify political efforts meant to reach a solution that satisfied all parties," Mohammadi said. He explained that the new government had adopted the same methods and negotiating stances that the old regime had used.

Ethiopia has already finished construction on 25% of the Renaissance Dam in the Benishangul region, about 40 kilometers [25 miles] from the Ethiopian-Sudanese border. The dam is designed to generate 5,500 megawatts of electricity at a cost estimated to reach $4.5 billion. Upon its completion in 2017, it will be the largest hydroelectric dam in Africa, and the world's 10th-largest electricity-producing dam.

The Minister of Water Resources and Irrigation, Mohamed Abdul Muttalib, said in an interview with *Al-Monitor* that the council of ministers was in the process of laying down a comprehensive strategy to deal with the Nile dossier. "It had also adopted a plan to implement the recommendations contained in the International Panel of Experts' report, which evaluated the effects resulting from the building of the dam, and which will be implemented once Khartoum overcomes the flood crisis that it currently has to contend with," he added.

Egypt is yet to resolve the dispute arising from the Framework Convention for the Nile Basin, known in the media as the Entebbe Agreement, which was ratified by Ethiopia and Uganda, while the newly formed government of South Sudan expressed desire to join the agreement.

Despite Juba announcing its desire to join the Entebbe Agreement, Egypt has sought South Sudan's assistance in mediating with other states over the dispute. "We asked President Salva Kiir Mayardit, during the Egyptian foreign minister's visit to Juba on Aug. 20, that South Sudan, in its capacity as current president of the Nile Basin Imitative, play a mediating role to revive negotiations pertaining

to the Entebbe Agreement," Ayman el-Gammal, Egyptian ambassador to South Sudan, told *Al-Monitor.*

"South Sudan's accession to the agreement, upon which Egypt has reservations, will be a hurdle towards finding a framework for compromise," Gammal added. He clarified that South Sudan's reply was that "its accession to the agreement would not become official for another three months, when parliament approves the move," adding that "the South Sudanese government had expressed a measure of contentment towards the recent developments that took place in Egypt."

Despite Cairo's diplomatic efforts to reboot ties with Africa, clear obstacles remain. Continued political internal instability hampers Egypt's efforts to secure its interests in the Nile Basin, and establish warm relations with the countries involved.

"Nile Water Dispute Stymies Egypt Reset with African Union", 10/09/2013,online at: http://www.al-monitor.com/pulse/originals/2013/09/egypt-african-union-nile-basin.html

BACK TO TOP

## ❖ Egypt Keen to Preserve Right in Nile River Water

Water Resources and Irrigation Minister Mohamed Abdel-Motaleb on Tuesday 10/9/2013 asserted keenness to preserve Egypt's right in the Nile River

Without the Nile River there is no Egyptian state, Abdel-Motaleb said, adding that "95% of our water resources come from the Nile River."

Speaking to reporters, the minister said that rapprochement with Nile Basin Countries is a strategic target for Cairo.

The Egyptian government keeps a close eye on the Renaissance Dam construction that is being built by Ethiopia, Abdel-Motaleb said.

He also noted that Cairo is working on holding a meeting with Ethiopian and Sudanese officials to discuss the side effects of the dam and possible means to erase such effects on Egypt.

Egypt has detailed studies on the resumption of work on the Jonglei Canal to save up to 540 billion cubic meters of water coming from Bahr el Ghazal River in the new state of South Sudan, the minister added

"Egypt Keen to Preserve Right in Nile River Water", 11/09/2013, online at:
http://allafrica.com/stories/201309111108.html

BACK TO TOP



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### ❖ Rural Kenya harvests water from fog

OLTEYANI, Kenya (Thomson Reuters Foundation) - The misty clouds floating over the Ngong' hills, a rocky ridge on the fringes of Nairobi city, have long provided the Maasai tribal community with dew that keeps the grass sprouting for their animals.

Lately, however, Lucy Lotuno and a few of her Maasai peers have learned that the fog also can provide fresh drinking water right on their doorsteps.

The grandmother of nine happily showed off a recently installed fog harvesting plant in Olteyani village, Kajiado County, an arid area to the southwest of Kenya's capital.

The plant, which serves a few households, works by capturing fog in nets and draining the collected droplets of clean water into barrels below. Depending on the density of the fog, the unit can provide enough water for 20 to 40 people daily.

"I am happy because I have clean water near my home instead of walking long distances to look for it," beamed the 45-year-old. "I am able to rest and do more domestic chores than before."

Like many other women in semi-arid parts of Kenya, the search for water is a daily grind that leaves them weary from walking miles to the nearest water point, often shared with livestock and wildlife.

According to Lotuno, fetching water from distant sources has been part of her life since she was growing up.

That is why she is so vigilant when it comes to protecting the plant, located just a few metres from her homestead. Curious visitors are confronted by the suspicious grandmother, who demands to know why they have stopped by.

Stretched between two posts planted in the ground, a layer of mesh netting traps tiny water droplets which collect into a supply gutter before draining into a barrel. The water is immediately ready for consumption, according to Bancy Mati, a professor at Jomo Kenyatta University of Agriculture and Technology.

**SUSTAINABLE WATER**

"Fog harvesting is a sustainable way of reducing the pressure on water resources but it remains widely untapped," she said.

She is the director of the university's Water Research and Resource Centre and one of the founders of the fog harvesting technology in Kenya, in collaboration with the Kenya Meteorological Department and PedWorld, a German non-governmental organisation that contributed trap nets.

Her university helped research the viability of fog harvesting at Olteyani, in conjunction with the rural community, she said.

Mati said fog harvesting technology is in use in Germany, Chile and Tanzania. A single fog collector can tap between 400 litres and 1,000 litres of water per day, depending on the size and design of the mesh and the atmospheric fog density, she added.

The Olteyani plant is the first one in Kenya, funded by the Kenya Meteorological Department (KMD). But the plant's backers hope to raise funds to establish more and larger plants over the next five years for rural Kenyans, Mati said. According to KMD, the Olteyani fog collector cost about $300.

Fog occurs when air is cooled to a point at which it can no longer retain the water vapour it contains, forming ground-level clouds.

It is common in low-lying plains dotted with isolated hills, and low mountains which trap and hold clouds or force moisture-laden winds into high altitudes, according to a recent Master Plan for the Conservation and Sustainable Management of Water Catchment Areas in Kenya, produced by the government and the UN Environment Programme (UNEP).

"Fog and mist occur mainly at night and early in the morning," explained Peter Ambeje, deputy director of the KMD. "It is heaviest in the months of May to September."

**REDUCING PRESSURE ON SUPPLIES**

Its abundance in places like Olteyani and other parts of the country might mean better living conditions for Kenyans like Lotuno. If fog harvesting gathers momentum as experts hope, it could reduce pressure on the country's decreasing water resources, experts say.

The United Nations categorises Kenya as a water-scarce country, while **studies** by agencies such as UNEP say the problem has worsened in recent decades due to climate change.

"Innovations that scientifically enable the generation of fresh water are what we are aiming for in the new conservation masterplan," said Kenya's environment secretary, Alice Kaundia. "The government is keen to support the fog harvesting technology" by allocating research funds to the country's meteorological department, she said.

Studies link Kenya's widening poverty gap to overexploitation of natural resources, including water.

"Most of the poverty taking root in Kenya is due to unsustainable use of natural resources," said Achim Steiner, executive director of the United Nations Environment Programme, during a press conference in Nairobi in late July. He called for policy makers to balance a push for development with the need to provide basic services in the country in order "to keep the country on a peaceful trail."

The United Nations Environment Programme has highlighted the increasing pressure on Kenya's wetlands, despite repeated warnings about the ecosystem's fragility.

The 2013 UNEP **Kenya Wetlands Atlas** maps an emerging pattern where ecosystems flanking cities and other urban areas are coming under stress due to new settlements, as populations move from rural areas in search of livelihoods.

According to the report, more than 75 percent of Kenya's population is concentrated in areas with high economic potential. Those areas represent just 20 percent of Kenya's land.

"These tend to be forest areas and sources of Kenya's major river basins, resulting in further pressure on natural resources," said the Atlas. "This causes loss of wetlands, increased demand for pasture, clearing of vegetation, decrease in agriculture productivity and increase in water extraction rates."

"Rural Kenya harvests water from fog", 09/09/2013, online at: http://www.trust.org/item/20130909154810-05z9s/?source=hptop&utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=87cdc041d7-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-87cdc041d7-250657169

BACK TO TOP



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### ❖ Kenya finds '70 year supply' of water in desert region

*Scientists using technology developed to search for oil have discovered a vast underground water reservoir in one of Kenya's driest regions that if properly managed could supply the country's needs for close to 70 years.*

The basin has a surface area larger than Suffolk and holds billions of litres of water that add up to close to ten times **Kenya's** current reserves.

Surrounding plains and hills recharge supplies at an annual rate that means the aquifer could potentially fulfil the country's water demands indefinitely.

Researchers from a French-American firm, Radar Technologies International, worked with the Kenyan government and Unesco to layer satellite, radar and geological maps on top of each other, and then used seismic techniques developed to find oil to identify the reservoir.

It lies in Kenya's extreme northwest, close to its borders with South Sudan, Ethiopia and Uganda. The area is sparsely populated and prone to conflict over existing scarce resources.

"It is important to say that these are early estimates, and these resources must be managed well in order that they benefit the people of Kenya," said Mohamed Djelid, Unesco's East Africa director. "But if all goes well, we can say that this really is a game changer." Close to half of Kenya's 41 million people have no access to clean water, and farmers in arid areas struggle to raise crops without adequate irrigation.

Tapping the new reserves, in the Lotikipi Basin in the Turkana region and other areas nearby, could create vast new zones of farmland in landscapes where today even the hardiest plants struggle to survive.

"The news about these water reserves comes at a time when reliable water supplies are highly needed," said Judi Wakhungu, cabinet secretary at the Kenyan environment, water and natural resources ministry.

"This newly found wealth of water opens a door to a more prosperous future for the people of Turkana and the nation as a whole.

"We must now work to further explore these resources responsibly and safeguard them for future generations." There have been similar announcements of massive new water finds beneath Africa's driest areas in the past.

In 2007, scientists said that they had identified an underground "megalake" in Sudan's war-torn Darfur region that was ten times the size of the Kenyan discovery, but its bounty has yet to be tapped.

"From what I've seen of the figures on the Turkana find, it looks very encouraging," said Brian McSorley, a water expert at Oxfam in Nairobi.

"But knowing there's water there, and then getting it to the surface, are two different things. There will need to be decent follow-up studies and then proper investment to ensure it benefits the poorest people there." The aquifers lie as deep as 1,000 feet, which poses significant technological and cost challenges compared to shallower reserves, Mr McSorley said.

Kenya's government will now carry out further drilling in areas surrounding the sites where the new water supplies were first drawn to the surface, to gather more data on their true extent.

The land that lies above is among the most hostile in Kenya. There are few roads or electricity supplies, and the Turkana, Samburu and Pokot tribes that live there are regularly at war with each other.

The border area between Kenya, South Sudan and Ethiopia, known as the Ilemi Triangle, has never been officially delineated.

Constructing, fuelling and maintaining boreholes, and building pipelines to bring the water supplies to remote communities, will also pose significant difficulties.

"Kenya finds '70 year supply' of water in desert region", 11/09/2013, online at: http://www.telegraph.co.uk/news/worldnews/africaandindianocean/kenya/10302421/Kenya-finds-70-year-supply-of-water-in-desert-region.html

BACK TO TOP



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### ❖ Water will be in Tripoli by Friday: Water Resources Minister Hinshir

Speaking at today's Prime Ministerial press conference, Water Resources Minister Hadi Hinshir said that water would be in Tripoli by either Thursday night or Friday.
Hinshir explained that the pumping of the Man-Made River water from the south of Libya had started last Saturday (7 September) with 200, 000 cubic metres of water, then 600,000 and last night, after the pipes were able to take the volume of water safely, another 400,000 cubic metres were pumped. The total pumped was 1 million cubic metres the Minister explained with water reaching Tarhuna and Misrata.

Meanwhile, the Water Resources Minister revealed that 30 companies had been tasked with distributing water to hospitals, schools and mosques over 18 different regions. The Minister also revealed that LD 1 million had been set aside for the rental of trucks to transport water.

Hinshir also revealed that there was an emergency supply of about 100,000 cubic metres available at the Ain Zara reservoir. More importantly, Minister Hinshir confirmed what many Tripolitanians had been asking for since the second water crisis, that there was a plan for a water reservoir at Sidi Sayeh to hold 24 million cubic metres which would guarantee water for Tripoli for 30 days.

The Minister also revealed that there was a plan for a desalinisation plant for 500,000 cubic metres so that, together with the local water wells, Tripoli could have three different sources of water.

Hinshir also revealed that plans for other cities to have similar desalinisation plants were now under discussion by the government.

"Water will be in Tripoli by Friday: Water Resources Minister Hinshir", 11/09/2013, online at: http://www.libyaherald.com/2013/09/11/water-will-be-in-tripoli-by-friday-water-resources-minister-hinshir/#axzz2ehxJ0fwA

BACK TO TOP

### ❖ Floods have halved Pakistan's economic growth

ISLAMABAD, Pakistan (Thomson Reuters Foundation) – Three years of repeated floods have inflicted serious damage on Pakistan's economy, halving its potential economic growth, an expert says.

"The impact of floods on Pakistan's economy is colossal as the economy grew on average at a rate of 2.9 percent per year during the last three years," said Ishrat Husain, an economist and director of the Institute of Business Administration in Karachi.

That is less than half the 6.5 percent that Pakistan could potentially have managed if it weren't facing the economic and human losses associated with the flooding, Husain said.

Flooding is hardly the only impediment to economic growth in the troubled South Asian country. Worsening power shortages, "a poor law and order situation and a host of other structural impediments" also are holding back investment and growth, Husain said.

But extreme weather presents an especially worrying economic challenge, he said, because the country can work to reduce its energy crisis and improve law in order, but has limited scope to avert natural calamities, other than trying to devise effective mechanisms to minimise its losses.

The Pakistan Economic Survey shows that Pakistan lost a total of 3,072 lives and $16 billion to the floods in 2010, 2011 and 2012.

As of early September, a rough estimate made by National Disaster Management Authority about the floods' impact shows agriculture sector losses at $2 billion due to damages to 1.05 million acres of standing crops.

He said consecutive years of flooding has also pushed up the country's inflation and unemployment rate as it has disrupted supply chains, damaged major crops like sugarcane, rice and cotton, and hampered industrial production.

The rising frequency of floods in Pakistan suggests there is a need to take disaster risk reduction measures to minimise the economic and human losses, Husain said.

**THREE KEY STEPS**

Pervaiz Amir, a former member of the Prime Minister's Task Force on Climate Change and an environmental expert, suggested three steps to minimise the losses caused by natural disasters. First, he said, Pakistan should build new reservoirs, barrages and dams to store excess water during floods.

"This would not only reduce economic losses but also help produce cheap electricity," if it is channeled through hydropower generators, he said.

Pakistan at the moment receives around 144 million acre feet of water from different sources but its storage capacity is only 12.6 million acre feet, he said.

Second, Pakistan should heavily invest in flood forecasting and early warning systems, Amir said.

"We cannot avert floods but (we can) reduce human and economic losses if we know about the calamity in advance," he said. He noted that floods also hit developed countries but human and economic losses are minimised due to effective early warning systems.

Amir also suggested that government should strengthen regulation for land use in riverine flood hazard areas. He said that people should be allowed to cultivate the land but not to build homes there.

A 2011 report on "Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation," produced by the Intergovernmental Panel on Climate Change, noted that countries with institutional and governance fragilities often lack the capacity to identify and reduce risks and to deal with emergencies and disasters effectively.

Major General Muhammad Saeed Aleem, chairman of the National Disaster Management Authority (NDMA), said his organisation has prepared a 10-year National Disaster Management Plan that has been approved by the prime minister "but still there is much to do to cope with floods and other natural calamities."

He said Pakistan has witnessed 20 major floods in its 66-year history but no investment has been made in flood prevention and reducing human and economic losses during floods.

**FUNDS A PROBLEM**

Aleem said the plan prepared by the NDMA covers upgrading flood forecasting and early warning systems and would involve buying new systems from developed countries. Money to pay for the systems is a problem, however, he said.

"We need $1.1 billion to implement the plan countrywide but we lack funding," he said.

The problem is particularly severe because successive governments have made only minimal investment in coping with problems like climate change and natural disasters, he said. District and provincial disaster management authorities were set up last year to help provide a quick response to calamities but they still lack trained staff and financial resources, he said.

"It is sole responsibility of federal and provincial governments to enhance the capacity and capability of disaster management authorities so that they can take proactive measures to minimise the losses," Aleem said.

Experts say economic losses due to floods could also be minimised to a significant extent if flood-resilient crops and building structures were introduced in flood-prone areas.

Shahid Masood, a crop sciences expert with the Pakistan Agricultural Research Council, said that Pakistan has so far done nothing to introduce flood-resilient crops, as other countries in the world are doing.

He said that the council recently discussed with representatives of International Rice Research Institute bringing flood-resistant rice genes to Pakistan, but the process was expected to be lengthy.

"If we start working on this project today, it may take eight to ten years to complete," he noted.

But Masood said that there was a dire need to begin long term projects to make more of Pakistan's crops flood resilient. But his institution lacks both expertise and funding to initiative viable projects, he said.

"Floods have halved Pakistan's economic growth – expert", 09/09/2013,online at: http://www.trust.org/item/20130909134725-rm708/?source=hptop&utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=a83058563c-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-a83058563c-250657169

BACK TO TOP



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### ❖ Pakistan trying to launch Bhasha and Dasu dams at same time

**ISLAMABAD: Despite official claims that Pakistan will go for construction of Bhasha and Dasu dams simultaneously, the World Bank (WB) is still reluctant to become part of any consortium in a big way for arranging $14 billion, it is learnt.**

Federal Minister for Planning and Development Ahsan Iqbal has conveyed to all donors in plain words, especially to the World Bank high-ups, that Bhasha Dam was priority number one of the government keeping in view the looming water crisis which is going to hit the country over the next 5 to 10 years.

The sources quoted him as saying that if the government had to choose one dam out of two — Bhasha or Dasu — then they would prefer Bhasha dam because it would serve the purpose of a water reservoir as well as power generation.

On other hand, the WB is ready to finance Dasu and is making deliberate efforts to convince the country's economic and planning managers to go ahead with Dasu instead of waiting for clearance of required procedures for Bhasha that might take three to four years.

Although, the WB had withdrawn its condition to seek NoC from India to finance Bhasha dam but there is nothing available in the existing envelope to finance this project on immediate basis.

But there is also need to analyze prospects of kick-starting work on both Bhasha and Dasu simultaneously because some technical feasibilities as well as experts expressed their concerns that if Dasu was constructed first then the water inflows for Bhasha dam might be affected negatively.

"People of Pakistan will forget the lingering electricity crisis if water reservoirs are build to overcome this dangerous crisis," the minister was quoted by the sources as saying during his meeting with the donors' representatives in the last couple of weeks.

When contacted, Federal Minister for Planning and Development Ahsan Iqbal said on Friday night he was making efforts to convince all the donors to help Pakistan overcome the looming water crisis.

"Pakistan should come up with water reservoirs for meeting both electricity generation as well as water storage requirements to ensure its food security," he added. He said that he had proposed to the PM a meeting on this subject by next week so that proper guidance could be sought from political leadership on the looming crisis which would be more severe than the existing energy crisis.

"We are also proposing to unbundle the Bhasha dam as construction of water reservoir will reduce its cost and there will be financing requirement of $5 to $6 billion then for electricity generation for which commercial investment could be lured at a later stage," he added.

However, the sources said that Islamabad was making efforts to arrange a grant of $200 million from US as it would give impetus to lure other investors to come and invest into this project.

"Pakistan trying to launch Bhasha and Dasu dams at same time", 15/09/2013, online at: http://www.thenews.com.pk/Todays-News-13-25471-Pakistan-trying-to-launch-Bhasha-and-Dasu-dams-at-same-time

BACK TO TOP



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## ❖ Arabian Water & Power Forum 2013 to shine light on renewable ways to meet energy demand

*Held under the patronage of HH Sheikh Mohammed Bin Maktoum Bin Juma Al Maktoum Solar energy to help meet supply-demand mismatches in electrical production and water desalinization*

*Dubai, 11 September 2013: The effective use of abundant solar energy in the Middle East will play a key role in the solution-specific programme for the second Arabian Water and Power Forum, designed to create answers for key demand and supply mismatch challenges in power and water.*

The two day forum, taking place on the 23-24 September 2013 at the Address Hotel, Dubai Marina under the patronage of HH Sheikh Mohammed Bin Maktoum Bin Juma Al Maktoum and in partnership with DEWA and DSCE, will see key challenges analysed with the specific aim of formulating solutions and identifying investments needed to boost supply.
Long considered unfeasibly expensive for an oil-rich Middle East where plentiful hydrocarbons meet energy needs, solar energy is - literally - having its moment in the sun. The United Arab Emirates has made huge commitments to solar energy, as has Saudi Arabia. Changing market conditions, with the cost of solar energy falling coupled a desire to save hydrocarbon resources for export, are leading the charge.
"The second Arabian Water and Power Forum is highly issue-driven, and solar energy as part of the sustainable energy mix will be one of the key topics on the table. Technological advances, heavy sunshine and socio-political initiative have catapulted solar energy into a position where it is set to play an influential role in meeting the Middle East's energy demand. In the longer term, we may even see countries here export electricity to Europe," said Gurpreet Hayre, Producer of AWPF, The CWC Group.
The UAE has been leading the way in solar energy adoption, with Masdar's 100 MW solar power plant, Shams I, going online in Abu Dhabi in March 2013. It is currently the world's largest solar thermal power plant. Masdar has also delivered the Sheikh Zayed Solar Power Plant in Mauritiana, Africa, and is involved in solar and thermal projects in Spain. It is also contemplating another 100MW photovaltic power plant.

These solar projects are also being linked to the expensive process of water desalination to address increasing demand for potable water - one of the Middle East's most precious resources.
The Arabian Water & Power Forum has a session dedicated to the challenges posed by solar energy, and strategies to create value. The discussion, led by Robin Mills, Head of Consulting, Manaar Energy Consulting; Vahid Fotuhi, President, Emirates Solar Industry Association; Omran Al-Kuwari, CEO, GreenGulf Inc; and Laurent Longuet, Managing Director Middle East, SunPower; will look at how solar energy targets can be met. The session will also explore policy formation, investment criteria and emerging technologies to create a roadmap for solar expansion in the GCC. The Shams 1

Power Plant will be discussed as a case study in CSP (Concentrated Solar Power) technology. "The use of solar energy is tied up with issues such as reliability, cleaning of the solar panels, storage solutions for when the sun isn't shining and low-loss long distance transmission. All these issues will be part of the Arabian Water & Power Forum's solar energy agenda," Hayre added. As the Middle East goes solar, Saudi Arabia has announced the intention of adding 41 GW of solar power by 2032 to meet over 20 percent of its total electricity needs. Kuwait has pledged 5GW of solar production to meet 10 percent of its electricity needs. The UAE, Jordan and Qatar have also announced solar targets in the gigawatt scale.

"The scale and scope of solar makes it an important element at the Forum. Even in the short term, say till 2014, solar in the region might need finance up to 1.5 billion USD. There are massive investment and business opportunities in the sector, and huge implications for the future of energy," said Frederic Ponton, Director of Government Relations Middle East, CWC Group. The Arabian Water & Power Forum will also focus on other future energy sources, including hybrid energy, cost-effective fuel diversification and the incorporation of nuclear power into the energy mix for sustainable growth while simultaneously evolving necessary nuclear regulation. Discussions will be supplemented by a technology showcase where tech firms and innovators display their latest advances in creating demand efficiencies while boosting production. "The Arabian Water & Power Forum 2013 is perhaps the only region event to create a solutions-based format, where specific challenges are focused on. It is the ideal platform for investors stakeholders to meet senior ministerial figures, industry leaders and regulators, and get involved in upcoming projects in excitingly viable new energy options like solar," concluded Ponton.

"Arabian Water & Power Forum 2013 to shine light on renewable ways to meet energy demand", 11/09/2013, online at: http://www.zawya.com/story/Arabian_Water__Power_Forum_2013_to_shine_light_on_renewable_ways_to_meet_energy_demand-ZAWYA20130911191325/

BACK TO TOP



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### ❖ Arabian Water and Power Forum seeks renewable energy sources

DUBAI: The effective use of abundant solar energy in the Middle East will play a key role in the solution-specific programme for the second Arabian Water and Power Forum, designed to create answers for key demand and supply mismatch challenges in power and water.

The two day forum, taking place on the 23-24 September 2013 at the Address Hotel, Dubai Marina under the patronage of Sheikh Mohammed Bin Maktoum Bin Juma Al Maktoum and in partnership with DEWA and DSCE, will see key challenges analysed with the specific aim of formulating solutions and identifying investments needed to boost supply.

Long considered unfeasibly expensive for a region where plentiful hydrocarbons meet energy needs, solar energy is – literally – having its moment in the sun. The United Arab Emirates has made huge commitments to solar energy, as has Saudi Arabia. Changing market conditions, with the cost of solar energy falling coupled with a desire to save hydrocarbon resources for export, are leading the charge.

"The second Arabian Water and Power Forum is highly issue-driven, and solar energy as part of the sustainable energy mix will be one of the key topics on the table. Technological advances, heavy sunshine and socio-political initiative have catapulted solar energy into a position where it is set to play an influential role in meeting the Middle East's energy demand. In the longer term, we may even see countries here export electricity to Europe," said Gurpreet Hayre, Producer of AWPF, The CWC Group. The UAE has been leading the way in solar energy adoption, with Masdar's 100 MW solar power plant, Shams I, going online in Abu Dhabi in March 2013. It is currently the world's largest solar thermal power plant. Masdar has also delivered the Sheikh Zayed Solar Power Plant in Mauritian, Africa, and is involved in solar and thermal projects in Spain. It is also contemplating another 100MW photovoltaic power plant.

These solar projects are also being linked to the expensive process of water desalination to address increasing demand for potable water – one of the Middle East's most precious resources.

The Arabian Water and Power Forum has a session dedicated to the challenges posed by solar energy, and strategies to create value. The discussion, led by Robin Mills, Head of Consulting, Manaar Energy Consulting; Vahid Fotuhi, President, Emirates Solar Industry Association; Omran Al-Kuwari, CEO, GreenGulf Inc; and Laurent Longuet, Managing Director Middle East, SunPower; will look at how solar energy targets can be met. The session will also explore policy formation, investment criteria and emerging technologies to create a roadmap for solar expansion in the GCC. The Shams 1 Power Plant will be discussed as a case study in CSP (Concentrated Solar Power) technology.

"The use of solar energy is tied up with issues such as reliability, cleaning of the solar panels, storage solutions for when the sun isn't shining and low-loss long distance transmission. All these issues will be part of the Arabian Water and Power Forum's solar energy agenda," Hayre added.

As the Middle East goes solar, Saudi Arabia has announced the intention of adding 41 GW of solar power by 2032 to meet over 20 percent of its total electricity needs. Kuwait has pledged 5GW of solar production to meet 10 percent of its electricity needs. The UAE, Jordan and Qatar have also announced solar targets in the gigawatt scale.

"The scale and scope of solar energy makes it an important element at the Forum. Even in the short term, say till 2014, solar energy in the region might need finance up to 1.5 billion USD. There are massive investment and business opportunities in the sector, and huge implications for the future of energy," said Frederic Ponton, director of government relations Middle East, CWC Group.

The Arabian Water and Power Forum will also focus on other future energy sources, including hybrid energy, cost-effective fuel diversification and the incorporation of nuclear power into the energy mix for sustainable growth while simultaneously evolving necessary nuclear regulation.

Discussions will be supplemented by a technology showcase where tech firms and innovators display their latest advances in creating demand efficiencies while boosting production.

"The Arabian Water and Power Forum 2013 is perhaps the only region event to create a solutions-

based format, where specific challenges are focused on. It is the ideal platform for investors stakeholders to meet senior ministerial figures, industry leaders and regulators, and get involved in upcoming projects in excitingly viable new energy options like solar energy," concluded Ponton.

"Arabian Water and Power Forum seeks renewable energy sources", 14/09/2013, online at: http://gulftoday.ae/portal/8d02c8aa-8a9f-4e23-b35a-b6479e98e650.aspx

BACK TO TOP



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### ❖ Water scarcity and biodiversity under threat as temperatures warm

*As the planet warms, water scarcity will increase and ecosystems will lose biodiversity. But some areas will suffer before others, raising ethical questions when it comes to setting mitigation targets. That's according to a team from Germany, Kenya, Poland and the UK, who used 19 climate models to look at the effects of eight different warming levels by 2100, a total of 152 scenarios.*

"Regions will be affected asynchronously in terms of the 'timing', magnitude, type and confidence of impacts," Dieter Gerten of the Potsdam Institute for Climate Impact Research, Germany, told **environmentalresearchweb**. "For example, at a mean global warming of 2°C above preindustrial levels, many river basins in the Near and Middle East are likely to face significantly aggravated water scarcity, on top of existing water scarcity. At the same time, severe ecosystem changes are likely to occur in regions such as the tundra and some semi-arid regions, where present biodiversity is rather low."
As warming continues, the area and number of people facing new or aggravated water scarcity will increase gradually, says Gerten. But the area affected by ecosystem changes will strongly increase and reach further into biodiversity- and endemism-rich regions such as the humid tropics, especially if the temperature rise tops 3.5°C, the amount likely to result from current pledges on reductions in greenhouse gas emissions.

A mean warming of 2°C by 2100 would expose an additional 8% of the world's population at 2000 levels – 486 million people – to new or worsening water scarcity, mainly in the Near and Middle East, the team found, with a 3.5 ° temperature rise bringing water problems to 11% of the population, chiefly in the Middle East, North Africa, Southern Europe and the Southwest US. And five degrees of warming would affect 13% of the population. That's on top of the 1.3 billion people already living in water-scarce regions. Declining precipitation is seen as the key culprit, but raised temperatures would also increase evapotranspiration, cutting water availability.

On the wildlife front, a temperature rise of 2° would see substantial habitat changes in biogeographic regions that contain 1% of present endemism-weighted vascular plant species, mainly in the tundra and some semi-arid areas, with the figure for 3.5° at 10% and for 5° a whopping 74%.

"At global warming levels beyond 3°C, the area affected by significant ecosystem transformation would significantly increase and encroach into biodiversity-rich regions," said Gerten. "Beyond a mean global warming of 4°C, we show with high confidence that biodiversity hotspots such as parts of the Amazon will be affected."

The study focuses on "what regions would suffer first, i.e. at low warming levels, and what would be the incremental impacts between a mean global warming of 2°C (climate mitigation target), 3.5°C (the likely outcome of nation's current emissions reduction pledges), and 5°C – a business as usual case without mitigation".

He believes the results could be informative for the ongoing academic and political debates on climate mitigation targets. "The unequal spatial pattern of exposure to climate change impacts sheds interesting light on the responsibility of high-emission countries and could have a bearing on both mitigation and adaption burden sharing," he said.

Now the team is involved in the Inter-Sectoral Impact Model Intercomparison Project (ISI-MIP), which enhances the present analysis by considering more than just one impact model. "We have, for example, an interest in extending that analysis to the full set of newly available CMIP5 climate change simulations," said Gerten, "and also in coupling the model to resource use models for exploring how fast humanity is approaching several 'planetary boundaries'."

"Water scarcity and biodiversity under threat as temperatures warm", 13/09/2013, online at: http://environmentalresearchweb.org/cws/article/news/54636

BACK TO TOP



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## ❖ Dwindling Water Supplies Make Every Drop Count

UXBRIDGE, Canada, Sep 09 (IPS) - Drought and chronic water shortages played a significant role in sparking Syria's civil war and in unrest throughout much of the Middle East, water experts now believe.

Around the world, water demand already exceeds supply in regions with more than 40 percent of the world's population. That may climb to 60 percent in the coming decade, a new study has found.[pullquote]3[/pullquote]
"Water-scarce regions can't grow enough food to feed their own people," said co-author Manzoor Qadir of United Nations University's Canadian-based Institute for Water, Environment and Health (UNU-INWEH).

About 70 percent of the world's freshwater - and up to 95 percent in some countries - is used for irrigation. There is intense competition for freshwater between municipal, industrial, and agricultural uses. Increasingly, agriculture has been losing out, particularly in water-stressed regions, Qadir told IPS.

Between 2006 and 2011, up to 60 percent of Syria's land experienced its worst ever drought and a series of crop failures. In 2009, the U.N. reported that over 800,000 Syrians lost their livelihoods and fled to cities as result of the drought.
The entire Mediterranean region is undergoing a prolonged drought that has been linked to climate change, according to a recent U.S. study. If climate-altering carbon emissions continue at current rates, droughts in the region will worsen and lengthen.
As water supplies fall, many regions are using urban wastewater, a very valuable resource if it is treated properly, says the study "Global, regional, and country level need for data on wastewater generation, treatment, and use", published Sep. 5 in the journal Agricultural Water Management.
This is the first study to look at how wastewater is used in 181 countries. One of the key findings is that only 55 countries have good data. Synthesising what data there are, researchers found that high-income countries treat 70 percent of their wastewater while middle-income countries treat 28 to 38

percent. Just eight percent of wastewater generated in low-income countries undergoes any kind of treatment.

"From the earliest of times, most wastewater has truly been wasted. However, it is a vast resource if we reclaim it properly, which includes the separation of municipal from industrial wastewater," said UNU-INWEH Director Zafar Adeel.

The volume of wastewater potentially available worldwide each year is equivalent to 14 months of outflow from the Mississippi River into the Gulf of Mexico, Adeel told IPS.

In poor, water-scarce countries, wastewater is widely used to irrigate foodlands - some estimate as much as 300 million hectares producing 10 percent of the world's food, the study says.

However, there is little data to confirm this. It is often a country's 'dirty little secret' that much of the food consumed in urban areas is grown using untreated wastewater.

Wastewater is valuable because it has very high level of nutrients, including potash, nitrogen and phosphorus, eliminating the need and cost of fertilisers. However, untreated wastewater can transmit diseases such as cholera. Chile experienced cholera outbreaks and banned the use of untreated wastewater in 1992.

"Disease outbreaks from using wastewater do happen but it is rarely cited as the cause," said Qadir.

One reason is that few studies have been done. A few years ago Qadir and colleagues discovered higher rates of waterborne diseases like gastroenteritis in children in the Mediterranean who were eating food grown using untreated wastewater.

In the 1990s, fruit and vegetable exports from Jordan were banned for similar reasons. Jordan has since implemented an aggressive campaign to rehabilitate and improve wastewater treatment plants and introduced enforceable standards.

"Israel uses nearly every drop of its wastewater with specific uses determined by the quality", Qadir said.

Many homes in California have separate grey and black water collection systems. Grey water from showers and dishwashing is reused to water lawns and gardens, the report said.

People are generally reluctant to eat food grown using wastewater but it is perfectly safe if treated properly, Qadir stressed.

"Unfortunately, water treatment is not seen as a priority in many countries."

"Dwindling Water Supplies Make Every Drop Count", 11/09/2013, online at: http://www.iede.co.uk/news/2013_2952/dwindling-water-supplies-make-every-drop-count

BACK TO TOP



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## ❖ Controversial Mekong dam could devastate local population

*Concerns again raised that the controversial Xayaburi dam on the Mekong River will threaten the livelihoods of tens of millions*

Environmentalists are again raising concerns about the controversial Xayaburi dam on the Mekong River, saying efforts to make the project in Laos more "fish friendly" are not serious, and employ untested technology.

The builders of the dam, which Laos hopes will make it a key regional hydropower producer, have introduced modern fish passage techniques in an attempt to deal with the concerns of scientists that it will lead to the devastation of fisheries and food security.

The controversial project is hotly opposed by Thailand and Cambodia downstream, as well as various NGOs.

Tens of millions of people depend on the 4,300km long Mekong for fishing and agriculture.

The project is being built by Thai firm CH Karnchang, with the guidance of consultants Poyry, a Finnish engineering giant.

During a visit to the dam site, Poyry Energy's Asia director Knut Sierotzki, who is in charge of supervising the dam design said: "The fish-pass facilities are very clearly designed to allow key species to migrate through the dam. That is why we have not one but three systems for fish migration. We have a fish ladder, and fish lift (for the fish that either cannot or will not swim up the ladder) and a navigation lock."

Fisheries experts say that a problem with all large dams is that they trap nutrient-rich sediment and block migratory fish species. In many of the most dammed rivers of the world, fish species have died out, and food security has declined.

But Laos Vice Minister of Energy Viraponh Viravong said the Xayaburi dam will be different: "The Xayburi dam is one of three or four dams that have rather insignificant impacts on the Mekong. We are very confident that the impacts if any, will not be significant. We are very confident of that."

However the Worldwide Fund for Nature (WWF) does not share that optimistic assessment. According to its own research, the dam presents a risk to the endangered Giant Catfish and 227 other fish species. The famed catfish can reach more than 3 metres in length and weigh more than 300kg.

Dr Jian Hua-Meng, WWF's hydropower consultant, said: "This dam is so benign they claim, that it is virtually not there. This is basically nonsense."

Poyry's Pierotzki said that in addition to fish passage technology, which has been developed and tested in countries such as Norway and Switzerland, the dam would hopefully employ "fish-friendly" turbines, developed for use on dams in the US.

The dam would also undertake "sediment flushing".

Fisheries specialist Dr Eric Baran of the World Fish Centre, based in Cambodia, said that "there has never been a successful fish pass built for a dam the size of Xayaburi, anywhere in the tropics."

Jian, an engineer, said: "Building a fish pass based on experiences of northern Europe and Switzerland and transferring them to the Mekong is just not serious business."

With dam construction already in full swing, Swiss consultants AF Consult and Terraplant have been sub-contracted to carry out a study of fish species using nets and underwater cameras along the Xayaburi stretch of the Mekong.

Dam construction is about 10 per cent completed, but it will be another year before the fish study allows engineers to come up with a final design for the fish pass.

Critics say the studies are being rushed. A 2011 study by Northwest Fisheries Science Centre in Seattle concluded it would take decades of research "to ensure that specialised fish passage facilities actually meet the needs of these diverse fisheries of the Mekong".

During the recent site visit, a Poyry's senior project manager told a guest that "whether the fish get across (the dam), you'll only see when it is built".

"This is not a responsible corporate player," Jian said. "This technology is unproven and experimental. It is a very high risk.

"The developer wants all the stakeholders to follow him blindly with a leap of faith into an uncertain future with a very risky game of roulette on the Mekong with the livelihoods of 60 million people at stake."

"Controversial Mekong dam could devastate local population", 14/09/2013, online at:
**http://www.scmp.com/news/asia/article/1308925/controversial-mekong-dam-could-devastate-local-population**

BACK TO TOP



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### ❖ Lao Villagers Displaced by Dam Await Farmland Six Months After Relocation

More than 100 families of villagers displaced by a proposed dam in Laos have yet to receive the farmland they were promised as compensation by authorities, according to the villagers who say they now lack enough food to meet basic daily needs after government aid has run out.

The 129 families relocated to two new villages in Sekong province's Kaleum district due to preparation for the Sekong 4 dam said that a six-month government assistance program providing them foodstuffs, mostly rice, ended on Aug. 31.

"Life for the residents of Had Vee and Tra villages is difficult in regard to food because there is not enough," one of the villagers told RFA's Lao Service said, speaking on condition of anonymity.

"They have appealed for help from the province and district—especially for rice."

The villager said that the relocated families had been forced to clear a small amount of local land for farming while awaiting plots promised by the government as part of compensation for leaving their villages in February, but added that it was "far from adequate" for planting crops to meet daily needs.

The 129 families are among nearly 4,500 residents displaced from 18 villages in Kaleum district by the Sekong 4 and had been relocated with the promise of farming plots and six months of government food assistance.

Another villager told RFA that the families never received any of the land they were promised and that even when they were provided with food through the government assistance program, it was inconsistent at best.

The villager said that residents were given rice depending on the size of the family receiving it, but that amounts varied in how often they were provided.

Government officials told RFA that they were aware of the current food problems the villagers were facing and are "trying to find solutions," with priority given to finding the villagers farmland.

**Controversial dam**

The Sekong 4, with a capacity of 300 to 600 megawatts, is one of three hydropower dams on Mekong River tributaries to be built as part of an eight-year-old U.S. $1.5 billion deal with Russian investor Regional Oil.

Land for the dam has been cleared, though construction is yet to begin on the project.

The three dam projects, which also include the Sekong 5 and Nam Kong 1, are set to be completed by 2014 and will displace a total of more than 7,000 villagers from their homes in Sekong and Attapeu provinces.

The dams have a total combined capacity of 822 megawatts, and most of the power generated will be exported to Thailand with the rest reserved for local use.

Global green group International Rivers has said the effects of the two Sekong dams will be felt as far as the mainstream Mekong in Cambodia, Laos, Thailand, and Vietnam.

It also predicts the Sekong 4, the largest of the three, will cause a sharp decline in fisheries that will significantly affect local livelihoods.

Resource-starved Laos is aiming to become the "battery" of Southeast Asia by selling hydroelectric power to its neighbors.

But it has come under fire for plowing ahead on the Xayaburi dam, the first dam across the main stem of the Mekong River, without first getting regional consensus from downstream neighbors concerned about the project's transboundary impact.

Laos has a total of over 70 dams under construction or in the planning or consideration stages, many of them on waters flowing into the Mekong, a key regional artery.

"Lao Villagers Displaced by Dam Await Farmland Six Months After Relocation", 11/09/2013, online at: http://www.rfa.org/english/news/laos/farmland-09112013153744.html

BACK TO TOP

## ❖ Water wars

It is a matter of great concern that around 780 million people around the world do not have access to potable water. According to a report recently issued by the Organization for Economic Cooperation and Development (OECD), 47 percent people globally will face acute water shortage in the years to come.

As per various other reports, future wars will be fought over water instead of oil, gold, silver or other natural resources.

A United Nations report say: "By the year 2025, as many as 30 countries will face acute water shortage, 18 out of them will be from the Middle East and North Africa, which includes Egypt, Israel, Somalia, Libya and Yemen."

As a matter of fact, only 3 percent of Earth's water is fresh water while 97 percent of the water on our planet is saline. We can cite the example of India and Pakistan, as there are disputes between the two countries over water resources. So far, both countries are somehow managing the distribution of water resources but it is feared that they might go to war as the demand for water in both the countries is on the rise.

Similarly, Turkey and Syria, Israel and Palestine are sharing their existing water resources. But experts foresee conflicts arising on this issue. Due to the rapid increase in the population and growing demand of water, climatic changes, pollution, demographic conditions and increase in industrial demands, the situation will change and give way to conflicts in the future

"Water wars", 09/09/2013, online at: http://www.arabnews.com/news/464077

BACK TO TOP



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### ❖ Global Water Scarcity Could Drive Conflict or Cooperation

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

"Global Water Scarcity Could Drive Conflict or Cooperation", 09/09/2013,online at:
http://www.towardfreedom.com/home/global-news/3361-global-water-scarcity-could-drive-conflict-or-cooperation

BACK TO TOP



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### ❖ Current pledges put over 600 million people at risk of higher water scarcity

Our current pledges to reduce greenhouse gas emissions, which are projected to set the global mean temperature increase at around 3.5°C above pre-industrial levels, will expose 668 million people worldwide to new or aggravated water scarcity.

This is according to a new study published today, 13 September, in IOP Publishing's journal *Environmental Research Letters*, which has calculated that a further 11 per cent of the world's population, taken from the year 2000, will live in water-scarce river basins or, for those already living in water-scarce regions, find that the effects will be aggravated.

The results show that people in the Middle East, North Africa, Southern Europe and the Southwest of the USA will experience the most significant changes.

The results show that if the global mean temperature increases by 2°C – the internationally agreed target – then eight per cent of the world population (486 million people) will be exposed to new or aggravated water scarcity, specifically in the Near and Middle East.

Lead author of the research Dr Dieter Gerten, from the Potsdam Institute for Climate Impact Research, said: "Our global assessments suggest that many regions will have less water available per person.

"Even if the increase is restricted to 2°C above pre-industrial levels, many regions will have to adapt their water management and demand to a lower supply, especially since the population is expected to grow significantly in many of these regions."

"The unequal spatial pattern of exposure to climate change impacts sheds interesting light on the responsibility of high-emission countries and could have a bearing on both mitigation and adaption burden sharing."

According to Dr Gerten, the main driver of new or aggravated water scarcity is declining precipitation; however, increased temperatures will also lead to an increase in evapotranspiration of water and, thus, decrease the resources.

The anticipated increase in population will have even stronger effects on the ratio of water demand and water availability in some regions.

To assess the impacts of different mean global warming levels, the international group of researchers combined existing simulations from 19 climate change models with eight different global warming trajectories. The latter ranged from 1.5°C to 5°C increases above pre-industrial levels, resulting in a total of 152 climate change scenarios that were examined.

In addition to water shortages, the researchers assessed the impact that future climatic changes may have on global terrestrial ecosystems. They sought to discover what areas will be affected by strong ecosystem changes, and whether these areas are rich in biodiversity and/or contain unique species.
"At a global warming of 2°C, notable ecosystem restructuring is likely for regions such as the tundra and some semi-arid regions. At global warming levels beyond 3°C, the area affected by significant ecosystem transformation would significantly increase and encroach into biodiversity-rich regions," continued Dr Gerten.

"Beyond a mean global warming of 4°C, we show with high confidence that biodiversity hotspots such as parts of the Amazon will be affected."

"Current pledges put over 600 million people at risk of higher water scarcity", 12/09/2013, online at: http://phys.org/news/2013-09-current-pledges-million-people-higher.html

BACK TO TOP



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### ❖ Netherlands wants to help Bangladesh develop water management system

The visiting Dutch trade mission on food and agriculture has expressed the Netherlands' interest to work for the development of water management system in Bangladesh.

They said the country wants to provide technical assistance, help in implementing international water law and work in capacity building to control flood situation.

While attending a discussion meeting Thursday in Dhaka, the mission came up with the expression of interest, said a press release of Dhaka Chamber of Commerce and Industry (DCCI).

President DCCI invited Dutch investment in Bangladesh in the sectors pharmaceuticals, ceramics, light-engineering, plastics, renewable energy and agriculture.

The mission is visiting Bangladesh mainly to identify business opportunities in the food and agriculture sector.

DCCI, Dutch Embassy in Dhaka and Nynrode Business University jointly organised the discussion.

Md Sabur Khan said the Bangladesh government is providing a number of incentives and packages to the foreign investors, which can also be utilised by the Dutch investors.

Besides, the mission said the Netherlands will give technical assistance to Bangladesh' agriculture, food processing and food security.

Chairman of Business Initiative Leading Development (BUILD) Asif Ibrahim gave a detailed presentation on the activities of BUILD while DCCI Senior Vice President Nessar Maksud Khan presented paper on the investment potential in Bangladesh.

From the mission, Executive Director of World Faith Frank Frekericks and CFO of YGAP Sean Hanley also presented paper on CSR and social business.

DCCI Vice President Absar Karim Chowdhury, Directors Khairul Majid Mahmud, Abdus Salam, Md Shoaib Choudhury, Executive Member of Board of Investment Khairul Anam and Economic and Commercial Adviser at the Dutch Embassy Mnnujan Khanam also attended the meeting.

"Netherlands wants to help Bangladesh develop water management system", 13/09/2013, online at: http://www.dhakatribune.com/business/2013/sep/13/netherlands-wants-help-bangladesh-develop-water-management-system

BACK TO TOP

### ❖ Cuba, China Review Cooperation in Water Resources

Beijing, Sep 13 (Prensa Latina) Cuba and China reviewed their collaboration here in the field of water resources, with an eye toward developing such programs in Cuba.

A memorandum of understanding sealed the talks between the president of Cuba's National Institute of Hydraulic Resources, Ines Maria Chapman, and her Chinese peer, Minister Chen Lei, to further strengthen ties between both parties.

Minister Chapman told Prensa Latina that Cuba is taking advantage of China's experience in terms of its water policies, in order to apply them at a time when Cuba is working specifically on that issue after approving a national water policy in December 2012.

She stated that her country is currently working on the preparation of water law, updating of various existing regulations, and a number of objectives that are being carried out in that sector within Cuba.

This contact allows focusing us between the two sides to develop Cuba's water resources with China's help, she said.

"Cuba, China Review Cooperation in Water Resources", 13/09/2013, online at: http://www.plenglish.com/index.php?option=com_content&task=view&id=1856261&Itemid=1

BACK TO TOP

### ❖ Hydroelectric power makes big comeback at U.S. dams

DES MOINES, Iowa — On a typical summer weekend, hundreds of boats glide across the shimmering surface of Iowa's Lake Red Rock, the state's largest body of water.

The placid 15,000-acre lake was created in the 1960s after the government built a dam to prevent frequent flooding on the Des Moines River. Now the cool waters behind the dam are attracting interest beyond warm-weather recreation. A power company wants to build a hydroelectric plant here — a project that reflects renewed interest in hydropower nationwide, which could bring changes to scores of American dams.

Hydroelectric development stagnated in the 1980s and 1990s as environmental groups lobbied against it and a long regulatory process required years of environmental study. But for the first time in decades, power companies are proposing new projects to take advantage of government financial incentives, policies that promote renewable energy over fossil fuels and efforts to streamline the permit process.

"We're seeing a significant change in attitude," said Linda Church Ciocci, executive director of the National Hydropower Association, a trade group.

The Federal Energy Regulatory Commission, which oversees hydroelectric projects in the U.S., issued 125 preliminary hydropower permits last year, up from 95 in 2011. Preliminary permits allow a company to explore a project for up to three years. The agency issued 25 licenses for hydropower projects last year, the most since 2005.

In all, more than 60,000 megawatts of preliminary permits and projects awaiting final approval are pending before the commission in 45 states.

"I've never seen those kinds of numbers before," Church Ciocci said.

The interest in hydropower is so intense that some utilities are competing to build plants at the same dams, leaving the government to determine which ones get to proceed.

Hydroelectricity provides about 7 percent of the nation's power using about 2,500 dams. But those dams are just a fraction of the 80,000 in the United States. Most were built for flood control, to aid in river navigation or to create recreational areas. So they do not have power plants.

Boosting power

The Department of Energy concluded this past year that the U.S. could boost its hydropower capability by 15 percent by fitting nearly 600 existing dams with generators.

Most of the potential is concentrated in 100 dams largely owned by the federal government and operated by the Army Corps of Engineers. Many are navigation locks on the Ohio, Mississippi, Alabama and Arkansas rivers or their major tributaries.

The state with the most hydropower potential is Illinois, followed by Kentucky, Arkansas, Alabama, Louisiana, and Pennsylvania. Rounding out the top 10 are Texas, Missouri, Indiana, and Iowa, the study concluded.

Workers could begin construction on the Red Rock Dam as early as the spring. The project involves drilling two holes in the 110-foot high, mile-long dam and running water through two turbines.

Missouri River Energy Services, a Sioux Falls, S.D.-based not-for-profit utility that provides power to 61 cities, has the license to build the power plant at an estimated cost of $260 million.

When complete, the 34-megawatt facility will be able to support as many as 18,000 homes for a year, said company spokesman Bill Radio. It could crank out up to 55 megawatts at times when the river is running full.

Missouri River Energy is considering three other hydroelectric projects at existing dams — one on the Des Moines River north of Des Moines and two others on the Mississippi River at Dubuque and Davenport.

Reliability

Electricity suppliers prefer hydropower because it is much easier to ramp up or down based on customer demand than natural gas-powered plants, and it is much more reliable on a daily basis than wind or solar power.

The proposed developments also benefit from worries about the environmental risks of coal power and safety fears surrounding nuclear energy.

“I do think we’re going to see more of this,” Radio said, citing the difficulty of building coal or nuclear facilities. “You take two really big pieces of future generation out of the mix right now, and what that leaves is natural gas, hydro and other renewables.”

While hydroelectric plants cost more to build than those that run on natural gas or wind power, they require little maintenance for decades and the fuel is free.

Hydroelectricity got a boost in 2005, when Congress approved a tax credit for hydropower that was already in place for other sources of renewable energy, including wind and solar.

President Barack Obama signed two bills this past month designed to spark more interest in hydropower. One directs the FERC to consider adopting a two-year licensing process at existing non-

powered dams. The second authorizes quicker action on proposals for small hydro projects at dams owned by the U.S. Bureau of Reclamation.

Interest in hydropower had been low because of the high cost of construction and a protracted government permit process requiring extensive environmental studies and mounds of paperwork. That left projects mired in bureaucracy for as much as eight years before construction could begin.

"If you keep putting money into something over eight years, pretty soon the cost of that capital just eats you up," said Kristina Johnson, the former undersecretary in the Department of Energy and CEO of Enduring Hydro, a company that develops hydropower projects. "Given that, it's not surprising decades go by and things don't get built."

Her company is building a 6-megawatt plant at a dam on Mahoning Creek in western Pennsylvania after buying the permit from another company in August. It will supply enough power for 1,800 homes.

'Useful purpose'

An environmental group that has sought since 1973 to minimize harm from hydropower dams largely supports the idea of adding generators to existing dams.

"Some dams need to be removed, but there are also many working dams out there that are still serving a useful purpose for society," said John Seebach, who leads the effort for Washington-based American Rivers.

In general, he said, rivers would be better off without dams. But since they aren't going away, "powering those existing dams is in our view the best way to get new hydropower capacity. It's cheaper than building new dams, and it's much less likely to cause additional harm to a river."

"Hydroelectric power makes big comeback at U.S. dams", 15/09/2013, online at: http://www.news-journal.com/business/hydroelectric-power-makes-big-comeback-at-u-s-dams/article_d2990d3d-3766-5772-ae83-1ea624224771.html

BACK TO TOP



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