



# ORSAM WATER BULLETIN

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





**Issue 158** 

#### **ORSAM WATER BULLETIN**

09 December 2013 - 15 December 2013

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#### Turkey Inaugurates 36 Dams to Improve Water Storage

Turkey inaugurated 36 dams today as part of 3.25 billion liras (\$1.6 billion) of projects to improve water storage for farmers and increase acreage for agricultural use.

With Istanbul among the cities suffering from drought, Prime Minister Recep Tayyip Erdogan authorized spending for 26 irrigation facilities, mostly in the southeastern province of Sanliurfa, and on drinking water for Izmir, Van, Ordu, Karaman, Sinop and Aydin.

Turkey spent 760 million liras for dams in Adatepe, Gulbahar and elsewhere and a similar amount for irrigation works to provide water to 1.1 million acres of agricultural land, according to the General Directorate of State Hydraulic Works.

Turkey's spending for 113 projects also includes weather forecast stations, naval radar and rehabilitation of forest and river areas, the Forestry and Water Works Ministry said in a statement.

"Turkey Inaugurates 36 Dams to Improve Water Storage", 11/12/2013, online at: <a href="http://www.bloomberg.com/news/2013-12-11/turkey-inaugurates-36-dams-to-improve-water-storage.html?utm\_source=Circle+of+Blue+WaterNews+%26+Alerts&utm\_campaign=2e89e03de8-</a>

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**❖** Iran-KRG trans-boundary waters issue

Iran and Iraq share many rivers and waterways along their 1,200-kilometer-long border. There are more than 42 watercourses along the border that cross into both countries.

These watercourses originate from the mountainous western parts of Iran and flow into the marshlands of the Tigris and Shatt al-Arab Rivers. Another important tributary of the Tigris is the Diyala River, and both Iraq and Iran are riparian countries to the Diyala.

The Diyala's drainage area is about 31,896 square kilometers, and 75 percent of this basin is located within Iraqi territory. The Darbandikhan Dam, with a capacity of 3 billion cubic meters, was built in 1962 on the Diyala within Iraqi territory. The tributaries that originate from Iran and join the Diyala are listed respectively as follows: Beara, Towels, Serwan (one of the most important tributaries of the Diyala) and Zegmen. These tributaries are major resources for the Darbandikhan Dam. Other important tributaries are the Abassan (Hawassan), Karatu and Derendek.

The most important tributary of the Diyala is the Alwand River, the water quantity of which the Kurdistan Regional Government (KRG) and Iran have disputed over from time to time. The Alwand has two major tributaries within the Iranian territories: Dara and Saed Sadek. The Alwand originates from Iran's Zagros Mountains and provides the Tigris with 5.74 billion cubic meters of water. The total length of the Alwand is 152 kilometers, of which 89 kilometers are within the Iranian territories and 63 within the Iraqi territories. The river creates problems between Iran and Iraq, especially during dry periods.

The rise in tensions resulting from Iran diverting river water, especially during the summer, ended back when the Iranian authorities promised they would discharge more water from the Alwand. The Little Zab, one of the main tributaries of the Tigris, originates in Iran. The drainage basin of the river covers 21,475 square kilometers, and 74 percent of the basin is located within Iraqi borders. The tributaries of the Little Zab are as follows: Banowsota, Zarawa, Baneh, Fazlaje, Kokasor, Wazna, Khairy, Nerzenk, Leo, Tshezan, Janbera, Khaleel Abad and Kula. The total annual discharge of the Little Zab is 7.5 billion cubic meters, of which 2.85 billion cubic meters is in Iraq.



Reports surfaced in Iraqi news this week that the dam project carried out by Iran on the Sirwan will further escalate tension between the two riparian countries. As mentioned above, the Sirwan is one of the main tributaries of the Diyala. It has been said that the Garan Dam built on the Sirwan River will negatively affect the amount of water stored in Darbandikhan Dam. In addition, it has also been reported that this situation will cause environmental disasters during dry periods.

The KRG has often asserted that the dams built by the countries upstream, Turkey and Iran, will leave Iraq without water, and it makes complaints regarding the issue through both the media and at international conferences. As mentioned in previous articles, 50 percent of the water across Iraq is wasted because of the mismanagement of water resources, old water structures and a damaged network. In general, regarding the existing water shortage, Iraq should focus on the mismanagement of water resources that cause the loss of water, rather than pointing at dams in countries that are upstream as the reason for the water shortage in Iraq.

"Iran-KRG trans-boundary waters issue", Tuğba Evrim Maden, 15/12/2013, online at: http://www.todayszaman.com/news-333890-iran-krg-trans-boundary-waters-issue.html



#### ❖ Iran Completes Preliminary Studies To Transfer Caspian Sea Water To Inland

Iran has finished preliminary studies for transferring water from the Caspian Sea to inland, Mehr News Agency quoted Iranian deputy energy minister Sattar Mahmoudi as saying on December 14.

Iran has finished preliminary studies for transferring water from the Caspian Sea to inland, Mehr News Agency "ed Iranian deputy energy minister Sattar Mahmoudi as saying on December 14.

"Some 200 million cubic meters of water is projected to be transferred per year to the central parts of the country for drinking and industrial purposes," Mahmoudi said.

"Iran will start operations to transfer water from the Caspian Sea to the central parts of the country in the near future," former Energy Minister Majid Namjou said in April.

"The required budget, which is about 20 trillion rials (about \$800 million), has been provided," he said.

He added that the project will be completed by March 2016.

In October 2012, the Iranian energy ministry received the permission to transfer water from the Caspian Sea to the central parts of the country.

"Meanwhile, transferring water from the Caspian Sea to the central desert of Iran will lead to an ecological disaster," Iran's environment protection organization official Abdolreza Karbasi sad in October.

"Water desalination systems will add 32 million tons of salt to the Caspian Sea water per year, which is a disaster for the ecology of the sea," he added.

Currently, the Caspian Sea water holds 13 grams of salt per liter of water.

"If 250 million cubic meters of water is transferred annually to Semnan, some 32 million tons of salt will be added to the sea," he explained.

"Iran Completes Preliminary Studies To Transfer Caspian Sea Water To Inland", 14712/2013, online at: <a href="http://en.haberler.com/iran-completes-preliminary-studies-to-transfer-336063/">http://en.haberler.com/iran-completes-preliminary-studies-to-transfer-336063/</a>



Heavy rain and snow cause deaths, evacuations in Middle East

JERUSALEM — Hundreds of Gaza Strip families were forced to evacuate their homes in boats and

rafts as heavy flooding rose to second-story levels during the heaviest winter storm to hit the Middle

East region in decades.

At least four people were reported dead as the torrential rain and snow began to subside Saturday

after hammering Israel, the Palestinian territories and other nations for three days.

In a rare appeal, Hamas authorities in Gaza requested assistance from Israel, via the United Nations.

Israel opened the Kerem Shalom crossing to Gaza to allow gas for heating and other humanitarian aid

into the Strip, as well as pumps to remove water from flooded areas.

According to Israeli military officials, an Israeli-Palestinian command center was also set up to

coordinate power, traffic and other weather-related assistance needed in the West Bank.

Prime Minister Benjamin Netanyahu kept abreast of intensive efforts to bring emergency relief to

thousands of Israelis cut off from power in sub-zero temperatures.

Police, fire department and medical teams a joined hands to assist people in need, including

delivering babies, transporting elderly to warm shelters and extricating people from cars and flooded

structures.

Israel's military dispatched dozens of bulldozers and heavy-duty vehicles to help clear the roads in

and around Jerusalem, snowed in and cut off since Thursday, including 30 armored personnel

carriers. By Saturday night, the main road to Jerusalem was partially opened. Other locations in

northern Israel remained cut off.

Special authorization was issued for trains to run on the Sabbath to take home hundreds stranded in

Jerusalem during the storm. Schools will remain closed in and around Jerusalem, Safed, Galilee and

Golan Heights, as well as several southern locations.

Among the storm's victims were a 6-week-old baby who died in a fire caused by a malfunctioning

heating device in Lod and two men who drowned in a flooded river. Authorities implored nature

lovers to avoid chasing the desert flash-floods that are spectacular but dangerous.



Mayors, politicians and citizens complained of a grave lapse in preparedness for extreme weather conditions, and the state comptroller announced Friday he would examine Israel's readiness on all levels.

"Heavy rain and snow cause deaths, evacuations in Middle East", 14/12/2013, online at: <a href="http://www.latimes.com/world/worldnow/la-fg-wn-middle-east-snowstorm-20131214,0,3958755.story#axzz2nZXIMCY1">http://www.latimes.com/world/worldnow/la-fg-wn-middle-east-snowstorm-20131214,0,3958755.story#axzz2nZXIMCY1</a>



**❖** Middle East water deal brings Red Sea-Dead Sea pipeline one step closer

WASHINGTON, Dec 9 (Reuters) - Israel, Jordan and the Palestinian Authority on Monday signed a

water-sharing agreement that includes the building of a desalination plant on the Gulf of Aqaba and a

pilot study for a pipeline linking the Red Sea with the Dead Sea, the World Bank said.

The agreement brings a long-awaited Red Sea-Dead Sea pipeline one step closer to completion.

The plant will be built in the southern Jordanian port of Aqaba on the Red Sea and will desalinate

water to be shared by the neighbors. The salty by-product, known as brine, will be sent north in a

112-mile (180-km) pipeline to the Dead Sea.

The idea of linking the two bodies of water has been around for more than a century. The Dead Sea

has been found to be receding at a rate of more than 3.3 feet (1 metre) every year.

Under the agreement, Israel also plans to release more water from the Sea of Galilee, its largest

reservoir, to Jordan, and sell desalinated water to the Palestinian Authority. Palestinians have long

complained about Israeli restrictions on constructing new water infrastructure, which they say

exacerbate water shortages.

Ministers from the three governments gathered on Monday at the Washington headquarters of the

World Bank, the poverty-fighting institution that brought them together and plans to help them

implement the projects.

"I am pleased that the long-term engagement of the World Bank has facilitated this next step by the

three governments, which will enhance water availability and facilitate the development of new water

through desalination," Inger Andersen, the World Bank's vice president for the Middle East and

North Africa, said in a statement.

The World Bank did not say how much the project would cost or who would pay for it.

The agreement was reached after the World Bank determined in January that it is possible to use the

Red Sea to replenish the shrinking Dead Sea after years of studying whether such a connecting

lifeline could work.



The World Bank said the current phase of the agreement was limited, designed to provide new water to a region critically short of it and the chance to study what happens when Red Sea and Dead Sea waters are mixed.

Environmental groups have long warned of the adverse effects of a pipeline, such as the possibility of new algae and mineral-deposits changing the color of the Dead Sea.

The Dead Sea, technically a lake, is a tourist spot famous for its salty waters that allow bathers to float. Its mineral-rich mud, used for skin treatment, is sold around the world.

As the population has increased in the region, water has been diverted from the Jordan river, the Dead Sea's natural water source, for drinking and agriculture.

The shoreline has shrunk at an accelerating pace, leaving behind a rocky, desert beach full of dangerous sink holes. Factories extracting minerals from the lake have also contributed to the shift in coastline. (Reporting by Anna Yukhananov; additional reporting by Ari Rabinovitch in Jerusalem; Editing by Mohammad Zargham)

"Middle East water deal brings Red Sea-Dead Sea pipeline one step closer", 09/12/2013, online at: http://www.trust.org/item/20131209231120-

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❖ Israel, Jordan and Palestine sign water cooperation pact

Representatives from Israel, Jordan and Palestine yesterday signed a milestone regional cooperation agreement at the World Bank headquarters in New York to support management of scarce water resources and the joint development and use of new water resources through desalination.

The MOU, signed by the three countries' water ministers, outlines three major regional water sharing initiatives. These include developing a desalination plant in Aqaba, at the head of the Red sea, whose waters will be shared by Israel and Jordan.

Other elements of the agreement include increased releases of water by Israel from lake Tiberias for Jordan's use; and the sale of around 20 to 30M.m3/year of desalinated water from Mekorot, Israel's water utility, to the Palestinian Water Authority for use in the West Bank.

A pipeline from the desalination plant at Aqaba will also convey brine to the Dead sea to study the effects of mixing the brine with Dead sea water. To advance these activities, technical work and studies will have to be undertaken.

"Israel, Jordan and Palestine sign water cooperation pact", 10/12/2013, online at: <a href="http://www.iwapublishing.com/template.cfm?name=news1830&utm\_source=IWA+Publishing+Mailing+List&utm\_campaign=82def95aff-GND\_10\_December\_2013&utm\_medium=email&utm\_term=0\_49a7734030-82def95aff-89952245</a>



**❖** An Assessment of Water Cooperation Between Israel-Jordan-Palestine

The Dead Sea, the lowest point on the land surface of the earth, is rapidly drying up due to excessive

use of the Jordan River, the main water resource flowing into the Dead Sea.

The Jordan River has an important place in international water politics and international politics

despite the small amount of water it discharges. Its basin countries are Jordan, Israel, Syria, Lebanon

and Palestine. It is the main surface water resource for Israel and Jordan. Palestinians, on the other

hand, do not currently consume water from this resource.

A plan to save the Dead Sea, whose level has been falling at a rate of around three meters per year,

has been on the agenda, especially since the 1990s. One leading project, the Red Sea-Dead Sea

Conduit (Canal), is in progress. Although some projects aim to generate electricity by taking

advantage of the height difference between the Dead Sea and the Red Sea, there is no such goal in the

current project, at least for now. It is envisaged as an additional water supply for Jordan and Israel via

a desalination plant to be constructed in Aqaba, Jordan, and the project will be financed by the World

Bank. Meanwhile, the Palestinian Authority (PA) will buy 20-30 million cubic meters per year in

additional desalinated water from Israeli water company Mekorot, as the parties have agreed in a

memorandum of understanding (MoU).

In addition to the MoU's great importance for relations between the three countries, it is also

necessary to determine Palestine's situation under Israeli occupation and see what kind of obstacles

this poses for the social and economic development of Palestine. Water resources in Palestine are

becoming scarce due to overpopulation and pollution caused by insufficient sanitation services, as in

other underdeveloped countries. This situation damages water quality and leads to water scarcity, as

well as causing conflict between domestic, industrial and agricultural water uses. However, Palestine

has one feature that distinguishes it from other underdeveloped countries. In terms of the pre-1967

borders of Palestine, it has been under Israeli occupation since that time, and in addition to the water

scarcity stemming from geographic and climatic conditions, it also faces a water shortage caused by

political factors. Another point that should be highlighted here is that it is not unusual to read or hear

about Israeli settlements in the West Bank discharging their waste water intentionally onto

Palestinian land.

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The Israeli occupation of the West Bank makes it possible for Israel to unilaterally draw ground water in the area. The occupation of the West Bank prevents Palestinians from using the ground water resources in the area. Israel has been systematically damaging the wells belonging to Palestinians in the West Bank since its 1967 occupation of the land. Permission from the Israeli military authorities is required before drilling a well in this area. Also, prolonged water cuts in Palestinian settlements are not unusual. Moreover, Israel illegally pursues its occupation through Israeli settlements in the West Bank and East Jerusalem.

Israeli settlers in the West Bank and East Jerusalem pay one-third of the price paid by Palestinians for domestic water and one-tenth of the price for irrigational use. The annual amount of water consumed by an Israeli settler in the West Bank is seven times more than a Palestinian's. Before the settlers were evacuated in 2005, the figure for Israelis in the Gaza Strip was 13 times more than for Palestinians. Interpreting the situation without taking these figures into consideration would be to ignore the facts.

The MoU was signed in Washington at the World Bank headquarters on Dec. 9, 2013. The project aims not only to provide drinking water but also to maintain the ecological balance in the region. However, there are still certain problems in terms of the environment. It has been suggested that the ecological balance and ground water resources in the region will be damaged by the project.

If further negotiations are launched, the MoU's most important achievement for all three countries will be its promotion of common interests by putting political disputes, especially on water, aside. Also, it is easier to reach an agreement between the parties with the presence of an organization or mediator such as the World Bank, which is capable of mobilizing major financial power and which actively participates in negotiations. From a historical viewpoint, furthermore, it is known that the World Bank played an active role in solving the conflict between India and Pakistan.

However, the MoU avoids the term "water conflict," which has been mentioned in the context of water scarcity for many years. This avoidance makes the agreement meaningless, as one of the parties is still under occupation -- Palestine -- and the other is the occupying state -- Israel. It would be a more realistic approach to consider the MoU a significant step in terms of the development of cooperation. Under the agreement, Israel will also provide Amman, the Jordanian capital, with 30-45



million cubic meters of fresh water from the Sea of Galilee. The Jordan River is considered to have two parts: The upper part of the river covers the area from the source to the Sea of Galilee, and the lower side of the river covers the area from the Sea of Galilee to the Dead Sea. In negotiations held between Israel and Jordan in previous years, Israel had stated that Jordan is a riparian state only to the lower Jordan River, rejecting Jordan's water demand from the Sea of Galilee. This attitude, which does not make hydrological sense, was maintained by Israel for many years.

The MoU shows that Israel's long-term policy of ignoring Jordan's demands about the Jordan River's upper parts has changed. The change in this agreement is considered a significant result.

"An Assessment of Water Cooperation Between Israel-Jordan-Palestine", Seyfi Kılıç, 15/12/2013, online at: <a href="http://www.todayszaman.com/news-333891-an-assessment-of-water-cooperation-between-israel-jordan-palestine.html">http://www.todayszaman.com/news-333891-an-assessment-of-water-cooperation-between-israel-jordan-palestine.html</a>



#### ❖ Israel, Jordan, Palestinians sign 'historic' water agreement

Israel, Palestinians and Jordan signed on Monday an agreement to support the management of scarce water resources and the joint development and use of new water resources through sea water desalination.

The project includes the development of a desalination plant in Aqaba at the head of the Red Sea, where the water produced will be shared between Israel and Jordan; increased releases of water by Israel from Lake Tiberias for use in Jordan; and the sale of about 20-30 million m3/year of desalinated water from Mekorot (the Israeli water utility) to the Palestinian Water Authority for use in the West Bank.

The project will also see a180-kilometer (111-mile) pipeline built to channel water from the Red Sea to the Dead Sea and help manage water scarcity.

About 200 cubic meters of water per year will be channeled, after being desalinated at the plant built in Jordan and then sent for use in Jordan and Israel.

"I am pleased that the long term engagement of the World Bank has facilitated this next step by the three governments, which will enhance water availability and facilitate the development of new water through desalination," said Inger Andersen, Regional Vice President for the Middle East and North Africa, on behalf of the World Bank at the signing ceremony.

The deal was lauded by Israel's Water and Regional Cooperation Minister Silvan Shalom as "historic" but it elicited criticism from experts and environmentalists, Associated Press reported.

Eli Raz, a geologist and biologist at Israel's Dead Sea and Arava Science Center, praised the project as a symbol of regional cooperation, but said it would do little to alleviate the Dead Sea's woes. The Dead Sea is losing roughly 1 billion cubic meters of water each year, he said, while the project would only return about 10 percent of that amount.

"As a symbol, it's very good. In respect for the Dead Sea, the deficit, the water balance, this is nothing," he said, according to AP.



A larger project envisioned in the past, linking either the Red Sea or the Mediterranean to the Dead Sea via a large canal, remains unlikely. Raz said such ideas have suffered from high costs and environmental concerns.

Mira Edelstein, from the Friends of the Earth Middle East environmental group, said the plan threatens the "environmental sensitivity" of the Dead Sea.

The pipeline is expected to cost between \$300-400 million and set to be completed within three years of a tender announcement in 2014. It was not immediately clear who would fund the project.

"Israel, Jordan, Palestinians sign 'historic' water agreement", 10/12/2013, online at: <a href="http://english.alarabiya.net/en/News/middle-east/2013/12/10/Israel-Jordan-Palestinians-sign-historic-water-agreement.html">http://english.alarabiya.net/en/News/middle-east/2013/12/10/Israel-Jordan-Palestinians-sign-historic-water-agreement.html</a>



**A Rare Middle East Agreement, on Water** 

JERUSALEM — In a rare display of regional cooperation, representatives of Israel, Jordan and the

Palestinian Authority signed an agreement on Monday to build a Red Sea-Dead Sea water project

that is meant to benefit all three parties.

The project addresses two problems: the acute shortage of clean fresh water in the region, especially

in Jordan, and the rapid contraction of the Dead Sea. A new desalination plant is to be built in Aqaba,

Jordan, to convert salt water from the Red Sea into fresh water for use in southern Israel and southern

Jordan — each would get eight billion to 13 billion gallons a year. The process produces about the

same amount of brine as a waste product; the brine would be piped more than 100 miles to help

replenish the already very saline Dead Sea.

Under the agreement, Israel will also provide Amman, the Jordanian capital, with eight billion to 13

billion gallons of fresh water from the Sea of Galilee in northern Israel, and the Palestinians expect to

be able to buy up to eight billion gallons of additional fresh water from Israel at preferential prices.

The agreement was signed at the Washington headquarters of the World Bank, a sponsor of the

project.

The water level in the Dead Sea, an ancient salt lake whose shores are the lowest dry places on the

earth's surface, has been dropping by more than three feet a year, mainly because most of the water

in the Jordan River, its main feeder, has been diverted by Israel, Jordan or Syria for domestic use and

irrigation; very little now reaches the lake. Potash industries on either side of the lake have also had a

detrimental impact. About 25 miles of the Dead Sea's shoreline lie in the Israeli-occupied West Bank

and are claimed by the Palestinians as part of a future state.

Israeli officials said that proposals would soon be solicited internationally from private companies to

build and operate a desalination plant in Aqaba, which is meant to operate on a commercial basis,

selling the potable water to Jordan and Israel. A brine pipeline to the Dead Sea, estimated to cost at

least \$240 million, would be financed by donor countries and organizations, with the World Bank

providing a bridge loan.



The brine pipeline will run through Jordanian territory, because the planning process in Jordan is

quicker and less liable to be slowed by the objections of environmentalists and other opponents,

according to Israeli officials. They said that the added brine's effects on the Dead Sea would be

carefully monitored.

The project has been discussed and studied in various forms for 20 years. Speaking on Israeli Army

Radio on Monday, Silvan Shalom, the Israeli cabinet minister responsible for water projects and for

regional cooperation, called the agreement "historic." But critics said it was far less ambitious than an

earlier proposal for a canal that would also exploit the altitude difference between the Red and Dead

Seas to generate hydroelectricity.

Regional tensions also manifested themselves. Shaddad Attili, the head of the Palestinian Water

Authority, said the agreement was essentially one between Israel and Jordan, with the Palestinian

Authority involved because it shares part of the Dead Sea coastline. "We gave our support to

Jordan," he said.

Speaking by telephone from the United States before the signing ceremony, Mr. Attili said the brine

from the plant would have to be taken north to the Dead Sea because draining it back into the Red

Sea would upset Saudi Arabia and Egypt.

Mr. Attili signed the agreement in Washington on behalf of the authority; Mr. Shalom signed for

Israel; and Hazim el-Naser, the Jordanian minister for water and irrigation, signed for Jordan.

Yaakov Garb, an Israeli environmental and social studies expert at Ben-Gurion University of the

Negev, said that he suspected that the project was mainly motivated by a geopolitical desire to

support Jordan, but that it was "wrapped up in 'Saving the Dead Sea' clothing" in order to attract

international financing. He said it was often difficult to discern the true forces behind such major

projects.

Friends of the Earth Middle East, a regional organization, expressed concern over the environmental

impact of releasing brine into the Dead Sea. The organization's Jordanian director, Munqeth Mehyar,

said in a statement, "What is being signed today is a conventional desalination project, albeit with a

regional perspective."

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Israel and Jordan signed a peace treaty in 1994, but their relationship has generally remained low profile. Israel and the Palestinians are currently engaged in a round of peace talks, but they are taking place in an atmosphere of rancor and mutual recrimination.

"A Rare Middle East Agreement, on Water",09/12/2013, online at: <a href="http://www.nytimes.com/2013/12/10/world/middleeast/israel-jordan-and-palestinians-sign-water-project-deal.html?\_r=0">http://www.nytimes.com/2013/12/10/world/middleeast/israel-jordan-and-palestinians-sign-water-project-deal.html?\_r=0</a>



Environmental group warns pipeline will destroy Dead Sea

Adam Teva V'Din: Piping water from the Red Sea will lead to the destruction of the Dead Sea's unique ecosystem.

Environmental group Adam Teva V'Din (Israel Union for Environmental Defense)warns that channeling water from the Red Sea to the Dead Sea will lead to the destruction of the Dead Sea's ecosystem. The organization published this warning in anticipation of the agreement due to be signed later today by Israel, Jordan, and the Palestinian Authority at the World Bank headquarters in Washington.

The historic agreement is meant to facilitate the construction of a pipeline in Jordan, which will carry water 180 kilometers from the Red Sea to the Dead Sea. Under the terms of the agreement, a desalination plant will be built alongside the pipeline, and the desalinated water will shared by Jordan and Israel. According to the agreement, 200 million cubic meters will be drawn from the Red Sea each year. Roughly 80 million cubic meters each year will be treated in the desalination plant near Agaba, and Israel will receive most of the water - for Eilat and settlements in the Arava region. In exchange, Israel will supply 50 million cubic meters of water to Jordan from the Kinneret (Sea of Galilee). However, Adam Teva V'Din is cooling the enthusiasm surrounding the agreement, and warns that the ambitious initiative will be a disaster for generations to come. Adam Teva V'Din Water Management Head Sarit Caspi-Oron said today: "The mineral composition of the Dead Sea is unique and unlike any other place in the world, it is what makes it what it is and allows industry to profit so extensively from it. Piping water from the Red Sea to it will lead to the destruction of its ecosystem." According to Caspi-Oron, under the first phase of the plan, half of the water that is drawn from the Red Sea will be channeled to the northern basin of the Dead Sea. "This process will turn the Dead Sea into an artificial body of water that is fed by the Red Sea, will shut down the industry that is built around it, and will destroy its uniqueness," she said.

In addition, she said that there was no substance to the claim that the project would save the Dead Sea from drying out, that the implementation of the first phase of the project would not raise the water level in the northern basin, and that, in any event, environmental surveys conducted in the past



suggested that channeling massive amounts of water was liable to cover the Dead Sea with a layer of gypsum, or to trigger the growth of algae, which would color the water red. "Saving the Dead Sea means protecting it, and not by artificial means. We objected to this plan at every related hearing at the World Bank, which is leading this initiative. We intend to assess our next steps on the matter, including collaboration with environmental organizations around the world to initiate a broad public campaign, as the entire project is being carried out in Jordanian territory."

"Environmental group warns pipeline will destroy Dead Sea", 09/12/2013, online at: http://www.globes.co.il/serveen/globes/docview.asp?did=1000900353



#### ❖ Israel claims 'historic' water agreement will save Dead Sea

Silvan Shalom, Israel's energy and regional development minister, has hailed as "historic" a water agreement with Jordan and the Palestinian Authority that links the Dead and Red seas.

**Israel** on Monday hailed a "historic agreement" that it claimed would save the sinking Dead Sea by linking it with the Red Sea through a 112-mile underground pipeline.

The Red-Dead Conduit deal was due to be signed by Israel, Jordan and the Palestinian Authority at the World Bank headquarters in Washington after years of deliberation and feasibility studies.

The project is expected to see 22,000 gallons of water pumped northwards annually from a desalination plant to be built at the Gulf of Aqaba in Jordan, near the mouth to the Red Sea.

Some will be distributed to Israel, Jordan and the occupied West Bank while four pipes will pump the rest to the Dead Sea.

Water levels in the Dead Sea, whose banks are in Israel and Jordan, have dropped by 82 feet in the past 50 years - with experts forecasting it could be dried up by 2050 at current rates of decline.

Silvan Shalom, the Israeli energy and regional development minister, said the deal was a result of "strategic cooperation of diplomatic significance between Israel, Jordan and the Palestinian Authority".

"This is a breakthrough after many years of efforts. It is nothing less than a historic move," he told Israel Radio before concluding the agreement at a signing ceremony with Hazem Nasser, Jordan's water minister, and Shaddad Attili, the Palestinian Authority's minister in charge of water affairs.

The agreement will also include a water trading arrangement, under which Israel will receive between 6,600 and 11,000 gallons to use in the resort city of Eilat and the Arava region. Jordan will receive 6,600 gallons for the south of the country and another 11,000 gallons from Israel's Lake Kinneret, also known as the Sea of Galilee, bordering the Golan Heights.

The Palestinian Authority will also receive water from Lake Kinneret to improve supplies in the West Bank.

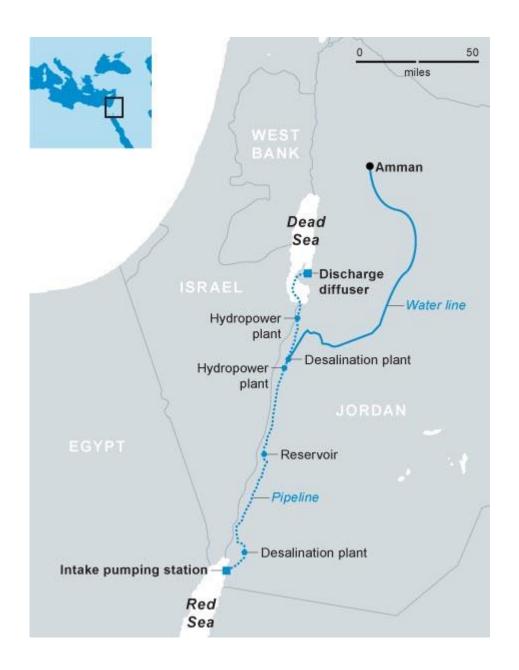
But environmentalists criticised the agreement, with Friends of the Earth accusing Mr Shalom of "misleading the Israeli public" by packaging it as an initiative to save the Dead Sea.

"What is being devised here is nothing to do with the Red-Dead Canal project but is a water exchange programme, " Gidon Bromberg, Israeli director of EcoPeace/Friends of the Earth Middle



East, told The Telegraph. "The link to the Dead Sea that's being proposed here threatens the viability of the project from an environmental and economic perspective. It will bring foreign water into the Dead Sea that would upset its ecosystem, creating Gypum and quite probably algae."

A much bigger project, which proposed pumping two billion cubic meters of water from Aqaba to the Dead Sea, including the construction of a nearby desalination plant, was deemed economically and environmentally unfeasible by the World Bank.





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The agreement will also include a water trading arrangement, under which Israel will receive 30-50 million cubic meters to use in the resort city of Eilat and the Arava region. Jordan will receive 30 million cubic meters for use in the south of the country and another 50 million from Israel's Lake Kinneret, also known as the Sea of Galilee, bordering the Golan Heights.

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"Israel claims 'historic' water agreement will save Dead Sea", 09/12/2013, online at: <a href="http://www.telegraph.co.uk/news/worldnews/middleeast/israel/10506007/Israel-claims-historic-water-agreement-will-save-Dead-Sea.html">http://www.telegraph.co.uk/news/worldnews/middleeast/israel/10506007/Israel-claims-historic-water-agreement-will-save-Dead-Sea.html</a>

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**❖** A Terrible, Horrible, No Good Idea for Israeli-Palestinian-Jordanian Cooperation

This sounds like the sort of thing I should be excited about: authorities in Jordan, Israel, and Palestine have agreed to a <u>massive regional water projectine</u> to meet shared needs.

As the New York Times reports,

The project addresses two problems: the acute shortage of clean fresh water in the region, especially in Jordan, and the rapid contraction of the Dead Sea. A new desalination plant is to be built in Aqaba, Jordan, to convert salt water from the Red Sea into fresh water for use in southern Israel and southern Jordan — each would get eight billion to 13 billion gallons a year. The process produces about the same amount of brine as a waste product; the brine would be piped more than 100 miles to help replenish the already very saline Dead Sea.

Coupla problems with that. Actually, several problems with that. Starting with: It will be very bad for the actual, physical region.

As the *Times* notes, the Dead Sea is contracting. It is, for all intents and purposes, split in two, and if you look at <u>Google Map's Earth view</u>, you'll see part of the reason why: The extraction of Dead Sea minerals via evaporation ponds. It's a huge business that makes a lot of money for some very well connected people, but between the Israeli and Jordanian industries, it's causing a <u>40-48 cm drop</u> in the water level every year.

This massive, unsustainable extraction has also led to the extensive and wildly unpredictable creation of hundreds and hundreds (and hundreds) of sinkholes in the area, because when you yank out the minerals, the necessary balance between those deposits and the fresh water coming from the Jordan River is hugely disturbed.

The excess fresh water washes away deposits and as a result, when pockets are created underground, the earth simply gives way. The various spas and hotels along the Dead Sea's shore <u>have had to literally rearrange their deck chairs</u>, closer and closer to the center of the sea, as the shore has moved and sink holes have rendered beaches unusable. (All of which is why I haven't bought any Dead Sea products, produced by anyone, anywhere, for a very long time).



Yet another enormous problem (and here I begin to run out of synonyms for "so big you can hardly imagine it") is the amount of fresh water currently feeding into the sea from the Jordan River. In 1948, the Jordan's flow was roughly 1.3 billion cubic meters, enough to power a hydroelectric plant, but until very recently, the volume had been reduced by more than 90 percent—and half of what

remained consisted of agricultural run-off, dumped saline water, and (are you listening carefully?)

raw, untreated sewage.

This past May finally saw some good news—after decades of diverting 60 percent of the water leaving the Sea of Galilee for the river, Israel announced plans to pump 30 million cubic meters into the Jordan annually. "I know that's not enough," <u>Israel Water Authority head Alex Kushnir told Haaretz</u>, "but that's what we can manage now. We won't be able to restore the river to its

historic flow levels."

Don't misunderstand: As bad as Israel's policies have been in the Jordan River Valley (an eco-system that stretches from the Sea of Galilee to the Dead Sea and should be considered a single unit), Israel is

hardly the only one to blame for the disaster at hand.

Jordan built a canal that diverts water from the Yarmouk River, a major tributary; Syria has built more than 40 dams on the Yarmouk. Then there's the Syrian-Jordanian Unity Dam, completed in

2007, which nearly choked the Yarmouk off all together.

Israel isn't the only one to have added human waste to the mix, either—untreated sewage seeps into the water basin from Jordanian and Palestinian septic tanks and cesspits. Furthermore, agricultural policies on all sides have long been senseless: Bananas, for instance, a major Jordan Valley crop, require enormous quantities of water. In recent years, agriculture took up some 30 percent of Israel's fresh water and 70 percent of Jordan's, while translating to about three percent and six percent of CDP, respectively.

GDP, respectively.

And I haven't even gotten to why the project meant to help resolve these issues is such a bad idea.

Put very simply: The Red Sea is not the Dead Sea. The make-up of one is not identical to the other.

Dumping the brine from Point A into Point B is likely to cause <u>lasting ecological damage</u>.



<u>Gidon Bromberg</u>, Israeli Director of the tri-national (Palestinian-Israeli-Jordanian) environmental group Friends of the Earth Middle East (FoEME): "Based on the research already done by the World Bank, the brine should not be transferred into the Dead Sea because of detrimental impacts."

Oh right, that's the other thing: The World Bank conducted a feasibility study a few years back regarding an even bigger project under consideration, the "Red-Dead Canal"— it was found unfeasible, in part because of the environmental damage it would cause. But this new project isn't that. It's a standard desalination project project that hasn't even been studied yet.

And that, unfortunately, isn't even the end of the story. FoEME's Palestinian Director, <u>Nader Khateeb</u>: "Even if this project includes selling [additional] water to Palestine, it continues to ignore riparian rights of Palestinians on the Dead Sea and the Palestinians' fair share of water allocation."

A genuine resolution of all of these problems would require the kind of tremendously creative thinking we only rarely see in the Middle East—including changing farming techniques, a reduction of the minerals industry, and a willingness to treat all stakeholders as equal.

I don't know what the answer is. In fact, the water shortage that was once acute is even more severe now, as as Jordan finds itself grappling with a million Syrian refugees.

I do know, though, that failing to address existing problems even while creating a new one is no solution. I can only hope that enough pressure can be brought to bear on all involved that this project will be scrapped, and more responsible ideas sought.

"A Terrible, Horrible, No Good Idea for Israeli-Palestinian-Jordanian Cooperation", 11/12/2013, online at: <a href="http://www.thedailybeast.com/articles/2013/12/11/a-terrible-horrible-no-good-idea-for-israeli-palestinian-jordanian-cooperation.html">http://www.thedailybeast.com/articles/2013/12/11/a-terrible-horrible-no-good-idea-for-israeli-palestinian-jordanian-cooperation.html</a>



❖ New project to create drinking water from the Red Sea will also boost shrinking Dead

Sea

JERUSALEM — The Dead Sea has been rapidly disappearing for 50 years, one of the world's

natural wonders careening toward ecological collapse in a region more often focused on political

conflict.

On Monday, Israel, Jordan and the Palestinian Authority agreed on an ambitious plan to begin

refilling the ancient salt lake with briny water pumped from the Red Sea — and relieve local

shortages of fresh water at the same time.

In the first stage of what could become a massive joint initiative, private investors will be asked to

finance construction of a large desalination plant in Jordan, on the Gulf of Aqaba. The plant would

suck billions of gallons from the Red Sea and convert it to drinking water that would be shared by

Israel and Jordan. Israel, in turn, would increase the amount of water it sells to the Palestinian

Authority by as much as 30 million cubic meters a year.

Billions of gallons of "reject brine" — essentially, super-salty water created by the desalination

process — would be pumped via a new, 100-mile pipeline and discharged into the Dead Sea, in

quantities hoped to be large enough to buy some time and slow the lake's disappearance.

The initiative was announced two days before Secretary of State John F. Kerry makes his latest trip

to Jerusalem to nudge forward peace talks between Israel and the Palestinian Authority. Although the

Dead Sea project is not directly linked to those talks, Kerry has said that increasing the supply of

water in the West Bank is a key part of economic development there, which the United States sees as

a vital stepping stone to peace.

The project has been under study for years. Negotiators for the three sides had to navigate the cost of

rehabilitating a natural heritage site they all border and address the region's pressing water problems.

Jordan and the Palestinian Authority are chronically short of fresh water, and although Israel has a

surplus — it has invested heavily in desalination and enjoyed a recent spate of good rainfall — that

could quickly change in a drought.





The Washington Post

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ORTADOĞU STRATEJİK ARAŞTIRMALAR MERKEZİ
CİNTER FOIN MIDDLE EASTERN STRATEĞICİ STUDÜİS
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WATER RESEARCH PROGRAMME
-Weekly Bulletin-

At a signing ceremony in Washington — witnessed by representatives of the U.S. State Department

and the World Bank — Israeli, Jordanian and Palestinian officials said the agreement was proof that

they could come to terms on a life-and-death issue.

"It is no joke when people are looking for a liter of water to drink," said Hazem Nasser, Jordan's

water minister. "The role of water in our region is completely different from anywhere in the world."

Much about the project remains to be worked out. Bids from private investors will be solicited next

year, with estimated construction costs for the plant and pipeline running anywhere from \$500

million to about \$1 billion. The sensitive issue of fees for the water and the exact routing of the

pipeline remain to be negotiated.

The first drop of brine would probably not be deposited into the Dead Sea before 2017.

But if it works out, the agreement could pave the way for even more "Dead to Red" investment. The

World Bank has conceptualized a \$10 billion program — once envisioned as a canal between the two

bodies of water but now possibly involving a series of pipelines and desalination plants.

"This is a historic agreement that realizes a dream of many years," said Silvan Shalom, Israel's water

and energy minister. "The agreement is of the highest diplomatic, economic, environmental and

strategic importance."

And, hopefully, not too late.

The Dead Sea is the lowest spot on Earth, a vast, sulfurous and strange body of water landlocked in a

great rift valley, a cradle of civilizations and religions. It gets its name from the fact that no plants or

animals can live in its mineral-saturated waters. The sea is mentioned a few times in the Bible and is

located just south of Jericho, near the sites of the ancient cities of Sodom and Gomorrah. The

Crusaders called it the Devil's Sea.



Today, it is a popular destination for tourists, who pack themselves in mud from its shores and float in water that is about 10 times as salty as the ocean. There are salt ponds, potash mining and a mystical vibe — with lots of quicksand and sinkholes.

Thanks to humans, the sea has been dying for years — its spa resorts, once seaside, now so far from the shore that visitors have to hop a trolley or hoof it to reach their salty baths.

The water level has dropped more than 80 feet in the past half-century as Israeli and Jordanian agricultural projects reduced the flow of the Jordan River to a trickle. The decrease in inflow from the river and the desiccation of local natural springs have shrunk the surface area of the lake by one-third.

Government scientists and World Bank officials said the desalination deal would be only a small step on the long and uncertain path to stabilizing the Dead Sea. The 26 billion gallons of brine that would be added each year is a fraction of what is needed to maintain the sea's current water level.

Some environmental groups, such as Friends of the Earth Middle East, say the transfer of brine into the sea could have "detrimental impacts."

Scientists say they will monitor the sea for any negative effects. A mixing pool will be created at the southern end, where the brine will be added, and dammed off from the rest of the sea, so they can study the interaction of water from the two places.

Schneider reported from Washington. Anne Gearan in Washington contributed to this report.

"New project to create drinking water from the Red Sea will also boost shrinking Dead Sea", 09/12/2013, online at: <a href="http://www.washingtonpost.com/world/middle-east/new-project-to-create-drinking-water-from-the-red-sea-will-also-boost-shrinking-dead-sea/2013/12/09/3b4beea2-6106-11e3-bf45-61f69f54fc5f\_story.html">http://www.washingtonpost.com/world/middle-east/new-project-to-create-drinking-water-from-the-red-sea-will-also-boost-shrinking-dead-sea/2013/12/09/3b4beea2-6106-11e3-bf45-61f69f54fc5f\_story.html</a>

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#### **❖** New Mideast Pipeline Deal Shows Why Water Doesn't Start Wars

It's a truism that water will be the cause of the next world war. But a new diplomatic agreement shows why that belief is false.

On Dec. 9, <u>Israel</u>, <u>Jordan</u> and the <u>Palestinian Authority signed a major deal</u> that calls for the construction of a large desalination plant in Jordan that would take billions of gallons of water from the Dead Sea and convert it to clean drinking water—water that would be shared by Jordan and Israel. The leftover brine water would be pumped via a new, 100-mile pipeline and discharged back into the Dead Sea, the massive lake that has water 10 times as salty as that found in the oceans. The deal also calls for Israel to increase the amount of water it sells to the parched Palestinian Authority by as much as 30 million cu. meters. Silvan Shalom, the Israeli water and energy minister, <u>called</u> the agreement "of the highest diplomatic, economic, environmental and strategic importance."

My colleague Karl Vick in Jerusalem <u>has more on the deal</u>, which environmentalists have a number of qualms about. The Dead Sea has been shrinking for years, with the lake's surface area declining by 20% over the past two decades as water from the River Jordan, which feeds into the Dead Sea, has been appropriated for farming and domestic use in Israel, Syria and Jordan. The deal itself looks to be much smaller than a mega-project that has been on the drawing board for almost 20 years.

But even if the Dead Sea deal is less than historic, it's still a deal, hammered out by entities that usually have a hard time even speaking to each other. And it's a reminder that contrary to the much-repeated phrase that "the next world war will be fought over water," similar deals tend to be the rule with international disputes over water, not the exception. Far from being a source of violent conflict—like religion or oil—water is something that even bitter rivals can usually sit down and discuss, however reluctantly.

I don't blame you if you don't believe me. The idea that water is a limited resource that will inevitably be the source of conflict in arid regions of the world is considered a given in many security, foreign policy and environmental circles. Just see this piece, or this one, or that one. Or this piece, or this one, or that one. (And those are just from 2013.) Water wars were even the subject of the 2008 James Bond film *Quantum of Solace*—the one with the eco-villain named Greene who was going to corner the Bolivian market on water, which I have to say, is pretty dull compared to



irradiating the gold in Fort Knox (*Goldfinger*) or flooding all of Silicon Valley (*A View to a Kill*). Even Mark Twain, referring to disputes between Western U.S. states over the Colorado River, memorably said that "whiskey is for drinking. Water is for fightin' over."

But when it comes to actual armed conflict—as opposed to wars of words—I'm sorry to say that Mr. Twain has it wrong. That's what science journalist Helen Barnaby discovered when she began work a number of years ago on a proposed book about water wars. In the course of her research, Barnaby discovered that there hasn't been an actual war between two nations over water <u>for about 4,500 years</u>, back when Lagash and Umma, two Mesopotamian city-states located in what is now southern Iraq, took up arms over boundary canals. Sandra Postel and Aaron Wolf <u>found</u> that between the years of 805 and 1984, countries signed more than 3,600 water-related treaties. Their analysis of 1,831 international water-related treaties over the second half of the 20th century found that two-thirds of the encounters were of a cooperative nature. India and Pakistan have abided by the World Bankarbitrated Indus Waters Treaty since 1960, and none of the three wars the bitter rivals have fought were caused by water disputes. Even as Palestinians and Israelis kill each other, water professionals on both sides interact through the Joint Water Committee, established by the Oslo-II Accords in 1995.

As Barnaby put it herself in a *Nature* essay in 2009:

Countries do not go to war over water, they solve their water shortages through trade and international agreements. Cooperation, in fact, is the dominant response to shared water resources.

Drawing on research from Tony Allan at the School of Oriental and African Studies in London and the late Gideon Fishelson from Tel Aviv University, Barnaby notes that much of the water we consume is actually "embedded" in the goods we consume, like fruits and vegetables. (This is also known as "<u>virtual water</u>.") While temperate countries like the U.S. can produce more than enough water to meet their population's needs—about 1 cu. meter per year for drinking, 100 cu. meters for washing and cleaning, and 1,000 cu. meters a year to grow food—arid countries like Israel have long since outgrown their water supplies, as Barnaby writes:

Ten million people now live between the Jordan River and the Mediterranean Sea. If they were to be self-sufficient in food, they would need ten billion cu. meters of water per year. As it is, they have



only about one-third of that: enough to grow 15-20% of their food. They import the rest in the form of food.

More virtual water flows into the Middle East each year in the form of imported grain that flows down the Nile to farmers in Egypt. Nations cooperate on water, through trade and treaties, because they have no other choice. And that's a good thing, because it means that water is one area where even fractious countries are forced by their own needs to negotiate with each other. They may threaten war over water, but they almost never resort to it.

None of this is to say that water scarcity isn't a major global problem now and won't be a bigger one in the future, as global population increases—especially in already arid countries in the Middle East and sub-Saharan Africa—and climate change alters hydrological patterns. Peter Gleick at the Pacific Institute for Studies in Development, Environment and Security complied a list of scores of conflict that occurred over water, going all the way back to ancient Sumerian legend. But the violence in the vast majority of these cases is relatively contained, and usually civil—within a country, rather than between nation-states. Which does point to a problem. The severity of armed conflict between nation-states has declined sharply in recent decades, even with the U.S. invasions of Iraq and Afghanistan. But civil conflict is still a major problem, as the ongoing civil war in Syria demonstrates, and it's one that will likely be worsened thanks to climate change and dwindling resources—including water.

The belief that, as Barnaby wrote, "cooperation is the dominant response to shared water resources," depends on the existence of relatively stable nation-states capable of safely negotiating and trading with each other. In a hot and crowded future, there's no guarantee that already troubled countries won't eventually fall apart under the stress. And if that happens, all bets are off.

"New Mideast Pipeline Deal Shows Why Water Doesn't Start Wars", 10/12/2013, online at: <a href="http://science.time.com/2013/12/10/new-mideast-pipeline-deal-shows-why-water-doesnt-start-wars/">http://science.time.com/2013/12/10/new-mideast-pipeline-deal-shows-why-water-doesnt-start-wars/</a>

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#### Who said peace is dead? In historic moment, Jordan, Palestine, and Israel come together to save the Dead Sea

Representatives of Israel, Jordan and the Palestinians are due to sign a historic deal to build a canal connecting the Red Sea with the shrinking Dead Sea, an Israeli minister said.

Energy and Regional Development <u>Minister Silvan Shalom</u> told army radio that under the agreement to be signed at the World Bank in Washington, water will be taken from the Gulf of Aqaba at the northern end of the Red Sea.

Some will be desalinated and distributed to Israel, Jordan and the Palestinians, while the rest will be transferred in four pipes to the parched Dead Sea, which <u>would otherwise dry out by 2050</u>, according to proven scientific research.

Shalom emphasized the pragmatic economic aspects of supplying cheap desalinated water to neighbouring states, the environmental angle of "bringing the Dead sea back to life" and the diplomatic and strategic aspect of the deal which is being signed at a time when <u>peace talks between Israel and the Palestinians are floundering</u>, to say the least.

"This is a breakthrough after many years of efforts," he said. "It is nothing less than a historic move."

According to Yediot, the Palestinian Authority's minister in charge of water issues, Shaddad Attili, and Jordanian Water Minister Hazem Nasser will be signing the agreement with Shalom.

Shalom said that following the signing, "an international tender will be issued for the entire project -- building the desalination plant in Aqaba and laying the first of the four pipes."

According to Yediot Aharonot newspaper, which first broke the story, the idea dates back to the <u>1994</u> signing of a peace treaty between Israel and Jordan.

The World Bank in 2012 published a feasibility study report on the project, and in a way, giving the green light for its implementation.

But all is not rosy, Friends of the Earth Middle East and other environmental groups warned that a large influx of Red Sea water could radically alter the Dead Sea's fragile ecosystem, forming gypsum crystals and introducing red algae blooms.

"Who said peace is dead? In historic moment, Jordan, Palestine, and Israel come together to save the Dead Sea", 09/12/2013, online at: http://www.albawaba.com/business/dead-red-canal-desalination--539394



#### ❖ New Pipeline Won't Save Dead Sea, But Will Help Israel's Neighbors With Water Needs

<u>JNS.org</u> – A recently approved trilateral plan to create a water pipeline connecting the Red Sea and the rapidly evaporating Dead Sea has everything to do with providing freshwater to a desperate region, and less to do with reversing the receding water levels in the Dead Sea.

"This project will not save the Dead Sea," Prof. Jiwchar Ganor, faculty member at the Department of Geological and Environmental Sciences at Ben-Gurion University of the Negev, told *JNS.org*.

Each year, the Dead Sea loses approximately 800 million cubic meters of water, and the shoreline recedes by approximately one meter. Tourists visiting the sea can easily see the impact of water recession.

"You would need to add 800 million cubic meters per year to stabilize the levels of the sea. This will be a project of approximately 100 million cubic meter per year," Ganor said.

As part of the project, approximately 100 million cubic meters of water will be desalinated in the Gulf of Aqaba, in Jordanian territory, and divided between Israel and Jordan, with the majority of the water going to provide drinking and irrigation to Israel's Arava desert. As part of the cooperation, Israel will then provide desperately needed water to Jordan in the north.

"In Jordan, they have a very severe problem of water shortage. It is not like the shortage we have in Israel. In Amman, you do not have fresh water everyday in the taps. They have a huge water shortage," said Ganor.

According to Ganor, a water shortage for Jordanians could fuel growing instability for the Hashemite regime. Citizens without water may act in unpredictable ways, including taking to the streets.

"If you look at the entire region, Jordan, Syria, Israel, and Lebanon all take water. This area has a huge population, and it needs a huge amount of water. ... It's not good to have neighbors that are thirsty," Ganor said.

"For Israel, it is very important, as I see it, that Jordan will have more water," he said. "Through this cooperation, Israel gains water where it needs it in the South, and Jordan gains it where they need it in the North."

It is this demand for fresh water that has caused the evaporation of the Jordan River and the Dead Sea. Waters that flow into the Jordan River and Israel's Kinneret Lake, also known as the Sea of Galilee, are all diverted for consumption, meaning the natural flow through the Jordan River and ultimately into the Dead Sea has been greatly reduced.



For years, environmentalists have warned about the dangers to the future of the Dead Sea if appropriate water flow is not restored. Several plans have been floated to bring water to the Dead Sea, either from the Mediterranean Sea to the West, or the Red Sea to the South.

Most recently, Israeli President Shimon Peres was a vocal advocate of a plan to build a canal between the Red Sea and the Dead Sea—which at 400 meters below sea level is the lowest point on Earth.

The plan approved by Israel, Jordan, and the Palestinian Authority last week will bring water from the Red Sea to the Dead Sea via a pipeline. Yet the waters that will be piped to the Dead Sea will neither be desalinated freshwater nor seawater.

"What will be brought to the Dead Sea is the waste of the desalination project, known as brine," Ganor said.

"The present plan is to desalinate sea water in Aqaba, [Jordan]. As part of the desalination process, half the water output will be fresh water, and half will become brine that includes all the salt from the desalination, so it has a double concentration of sea salt. It is this strategic brine water will be distributed to the Dead Sea," he said.

Ganor said there are two reasons to bring the brine to the Dead Sea.

"The first is reason is to avoid dumping of brine into the Red Sea. The second is to contribute some water to the Dead Sea, which has a negative water balance, so it will slow down the decrease in the Dead Sea water level," he said.

According to Ganor, substantial research has not been conducted on whether or not placing the brine back into the Red Sea would have any tangible ecological impact on the Red Sea's famed coral reefs and colorful sea life—yet that is clearly a concern.

In terms of total salinity, the water in the Dead Sea is about 10 times saltier than the seawater of the Red Sea, and five times saltier than the brine. Yet the compositions of the two waters are very different.

"There are different salts in the Dead Sea," Ganor told *JNS.org*. "In the Dead Sea, for example, calcium is high, while sulfates are low. In seawater, sulfates are high and calcium is low. And there are many other examples."

Meanwhile, some environmentalists are arguing against bringing the brine to the Dead Sea.

"The question of risk to the ecology of the Dead Sea depends on the amounts of water deposit. In small amounts, there is no risk. If we are talking about very high amounts of new water, then there are various types of risks relating to the Dead Sea water composition, and the growth of particular types of algae that are currently not part of the Dead Sea's environment," Ganor said.



"According to the research that we conducted at Ben-Gurion University along with other institutes including Hebrew University, we found that if you add relatively small amounts, less than 350 million cubic meters per year, there will be no ecological risk to the Dead Sea," he said. "If you add a very high amount, say 700 or 800 million cubic meters, there is a much bigger concern."

Whether these are concerns would negatively affect tourism in the Dead Sea is unknown, as the actual effects cannot be accurately studied.

"We don't know the precise amount of water that is safe to add without ecological change. The current pilot can give us a real field study to better determine the impact in larger numbers," Ganor said.

While politicians would like to enlarge the project in the future, more data is needed to do that, said the professor.

"Yet again, the issue of the brine is not the major component of this deal," he said.

"New Pipeline Won't Save Dead Sea, But Will Help Israel's Neighbors With Water Needs", 13/12/2013, online at: <a href="http://www.algemeiner.com/2013/12/13/new-pipeline-wont-save-dead-sea-but-will-help-israels-neighbors-with-water-needs/">http://www.algemeiner.com/2013/12/13/new-pipeline-wont-save-dead-sea-but-will-help-israels-neighbors-with-water-needs/</a>



#### **❖** The Red Sea-Dead Sea Water Deal: A Game Changer for Jewish-Muslim Relations

Government leadership on Red Sea-Dead Sea deal creates a potential "safe" platform for American Jews and American Muslims to cooperate more broadly on Middle Eastern development projects.

The widely reported water sharing agreement this <u>week</u> between Israel, Jordan and the Palestinian Authority (PA) to link the Red Sea and the Dead Sea has implications over and above the potential increase to agricultural and drinking water resources -- if we don't blow it.

The American Jewish community has a strong tradition of financing and developing water and infrastructure projects in Israel. For example organizations such as Jewish National Fund have constructed over <u>250 reservoirs</u> in Israel over the past three decades. This tradition has helped to strengthen Israel, but equally importantly, it has strengthened the American Jewish community through the bond these projects forge between American Jews and Israelis.

This week's agreement affords an opportunity for American Jewish organizations to expand their scope by partnering with American Muslims to jointly fund cooperative projects on the ground in the Middle East.

Jointly funded major projects by American Jews and Muslims in the Middle East are rare because (1) there can be skepticism or mistrust between American Jewish and American Muslim organizations, and (2) when trust and good faith exist, there is skepticism about whether that trust and belief is also held on the ground by the respective governments in the Middle East to bring these projects to realization.

For this reason, American Jewish and Muslim relations are often limited in their scope to "advocacy," which is less impactful on the ground in the Middle East, harder to quantify and as a consequence only a small proportion of American Jews and Muslims buy in.

However, with the agreement this week, representatives of the governments of Israel, Jordan and the PA have sent a clear signal of good faith that they want to make this project happen. If this signal is grasped with both hands by both the American Jewish and American Muslim communities, it could be a safe platform to work together that has not existed in recent memory.



The World Bank has conceptualized a \$10 billion program but has not made it clear how this will be funded, so there is room for both resources and expertise on the many financial, environmental and execution challenges related to the project.

Cooperating and financing tangible projects and successfully completing them will strengthen the relationship between American Muslims and American Jews because they will have worked together on these projects, meaning greater overall cooperation on common goals. And the successful completion of these projects will have a clear positive impact on the ground, which will strengthen the relationship between Jews and Muslims in the Middle East.

As President Kennedy famously said at his speech at American University in 1963: "Our problems are man-made, therefore they may be solved by man... No problem of human destiny is beyond human beings... our most basic common link is that we all inhabit this small planet."

Let's take the hard work created by this week's agreement and make something great out of it.

"The Red Sea-Dead Sea Water Deal: A Game Changer for Jewish-Muslim Relations", 12/12/2013, online at: http://www.huffingtonpost.com/ben-jablonski/red-sea-dead-sea-water-deal b 4425428.html



**❖** Israel Complains to Dutch Ambassador Over Water Boycott

Foreign Ministry files a complaint with ambassador after Dutch water company cuts ties with its

Israeli counterpart

Israel's Foreign Ministry on Wednesday filed a formalcomplaint with the Dutch ambassador to Israel

over the decision by Vitens, a Dutch water company, to cut ties with its Israeli counterpart Mekorot

due to the company's presence in areas located beyond the 1949 Armistice lines.

According to Kol Yisrael radio, the complaint said that the Dutch Foreign Ministry was creating an

atmosphere that encourages a boycott of Israel. The complaint was filed with the ambassador during

a meeting marking the conclusion of the visit to Israel of Dutch Prime Minister Mark Rutte.

The report added that the Dutch foreign ministry has indicated to Israel that Vitens' decision was an

independent one and was not made at the request of the government in the Netherlands.

Meanwhile, Vitens said on Wednesday that it ended its partnership with Mekorot due to the "political

context", reported AFP.

In a statement quoted by the news agency, Vitens said it had come to the conclusion that it was

"extremely hard" to work with Mekorot on future projects "because they cannot be taken out of the

political context."

Vitens said, according to AFP, that the decision to end the Mekorot tie-up was made after conferring

with the Dutch foreign ministry and other "concerned parties".

Mekorot, which provides water to Israeli towns and to Jewish communities in Judea and Samaria, has

been accused by Dutch media of denying water access to Palestinian Authority Arabs.

However, the head of Mekorot told Kol Yisrael radio on Wednesday night that not only was his

company not denying water to PA Arab towns, it was in fact providing these towns with water.



Deputy Foreign Minister Ze'ev Elkin said on Wednesday he was "blindsided" by the pullout, adding that "a few more European companies have made similar decisions in the past months, which have blindsided us exactly in parallel with the peace process."

The Vitens saga came after another issue affected Rutte's visit to Israel. The Dutch premier was to inaugurate a Dutch scanner on the Gaza border to verify contents of Hamas exports to the Palestinian Authority (PA) in Judea and Samaria.

However, the inauguration was <u>put off</u> after "the Dutch suddenly imposed political conditions, notably on the percentage of merchandise destined for the West Bank or abroad," according to an unnamed Israeli official.

"Israel Complains to Dutch Ambassador Over Water Boycott", 12/12/2013, online at: http://www.israelnationalnews.com/News/News.aspx/175069#.Uq9QsdKaDPZ

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#### **❖** Divesting Dutch water firm called 'hypocritical' over Gaza projects

(JTA) — Several Dutch politicians accused the Vitens water company of hypocrisy in its decision to abandon projects with an Israeli firm because of West Bank settlements while pursuing projects in Hamas-led Gaza.

The ruling VVD and three other parties filed critical queries in parliament this week to Foreign Minister Frans Timmermans asking whether his office advised the government-owned Vitens to divest from Mekorot, as some Dutch media reported. Timmermans told the media on Thursday that his office had no objections to working with Mekorot.

Rene Dercksen, a lawmaker in the provincial parliament of Utrecht, where Vitens is headquartered, filed queries at the provincial parliament asking the provincial government to seek clarifications from Vitens on what he said was contradictory policy.

Vitens announced on Tuesday that it had decided to abandon several joint projects with Mekorot because Vitens "attaches great importance to integrity and adheres to international law and regulations" and Mekorot's activity, which includes providing water to the Palestinian Authority, "cannot be seen separately from the political context."

The Reformatorisch Dagblad daily quoted a Vitens spokesperson as saying the company wished to "remain neutral."

But in a statement earlier this month, Vitens said it had agreed to cooperate with the Coastal Municipalities Water Utility, a governmental arm of the Hamas government in Gaza. The utility's donors include the World Bank and European Commission, according to the United Nations.

In an interview for the news agency Novum, Han ten Broeke, a prominent VVD lawmaker, said Wednesday that Vitens' move was "not a case of discouraging Israeli settlements but the unmasking of a superimposed activism."

"We believe that as a Dutch water company, Vitens should content itself with providing clean and good water to its clients in the Netherlands," Dercksen told JTA. "But if it chooses to be political, Vitens must be consistent. Working with government in Gaza inevitably means working with Hamas, which the European Union views as a terrorist group. This is an unusual choice for a company concerned with international law."

Sebastien Kraaijeveld, a spokesperson for Vitens, declined to comment on the matter.







#### **❖** Jerusalem slams Dutch water company's 'self-righteous hypocrisy'

Vitens cut ties with Israeli water company because it operates in West Bank, but continues to work with Hamas utility company

Israel on Thursday condemned the "self-righteous hypocrisy" of Dutch government-owned water company Vitens, after it emerged that the company still cooperates with the water authorities in the Hamas-run Gaza Strip. On Tuesday, Vitens had announced it would<u>cease</u> working with Israel's national water supplier Mekorot because it provides water to Jewish communities in the West Bank.

"This only confirms yet again that Vitens' move regarding Mekorot is heavily tainted with selfrighteous hypocrisy and has nothing to do with international law," the spokesperson of Israel's Foreign Ministry, Yigal Palmor, told The Times of Israel Thursday. "Cowardly caving in to pressure by radicals and extremists will only encourage more iniquitous actions, and Vitens's verbose moralizing will bring them more of this kind."

Mekorot has been criticized in the Netherlands — both by local media and in parliament — as a company that drills for water in the West Bank and was suspected of discriminating against Palestinians in the way it distributes water, according to Haaretz.

The Netherlands' Ambassador to Israel, Caspar Veldkamp, was invited to the Foreign Ministry in Jerusalem, where officials "expressed their protest," Palmor said. The official complaint, in which Jerusalem<u>reportedly</u> accused the Netherlands of fostering a "pro-boycott atmosphere," came on the heels of Dutch Prime Minister Mark Rutte's visit to Israel earlier this week.

The Dutch government insists that Vitens took the decision to bow out of any cooperation with Mekorot independently. But Vitens said it held consultations with the Dutch Foreign Ministry.

Vitens said it was cutting ties with Mekorot because "it would be very difficult to develop joint ventures together, considering the fact that they cannot be seen as divorced from their political context." A company statement added: "We follow international law."

However, earlier this month Vitens announced an agreement with <u>Coastal Municipalities Water Utility</u> (CMWU), a governmental arm of the Hamas government in Gaza. The cooperation between Vitens and CMWU "has a strong consultative character, with possibility for future involvement of additional parties," the Dutch company stated on its website.



<u>According the United Nations</u>, CMWU is Gaza's sole service provider for water. Regulated by the Palestinian Water Authority, it receives funding from the World Bank, the European Union and other international bodies.

Dutch politicians, too, accused Vitens of hypocrisy for working with CMWU but not with Mekorot. "We believe that as a Dutch water company, Vitens should content itself with providing clean and good water to its clients in the Netherlands," René Dercksen, a lawmaker in the provincial parliament of Utrecht, where Vitens is headquartered, told the Jewish Telegraphic Agency. "But if it chooses to be political, it needs to be consistent. Working with government in Gaza inevitably means working with Hamas, which the European Union views as a terrorist group. This is an unusual choice for a company which is concerned with international law."

Han ten Broeke, a prominent parliamentarian for the Netherlands' ruling People's Party for Freedom and Democracy, said Vitens' decision to cut ties with Mekorot was "not a case of discouraging Israeli settlements, but rather the unmasking of a superimposed activism."

The Netherlands' largest drinking water company, Vitens provides water to 5.4 million Dutch people. According to the company's website, Vitens seeks to look "beyond the national borders," being involved in providing water to more than 20 million people across the globe.

"Jerusalem slams Dutch water company's 'self-righteous hypocrisy'", 12/12/2013, online at: http://www.timesofisrael.com/jerusalem-slams-dutch-water-companys-self-righteous-hypocrisy/



**❖** Timmermans: Netherlands not in Israel Water Dispute

Foreign Affairs Minister Frans Timmermans said that the Dutch government should not get involved in the decision by water company Vitens to pull out of a partnership with Mekorot. <u>Vitens previously announced they would no longer work with Mekorot</u> because of the Israeli company's presence in the contested West Bank.

The minister denied an accusation by the Jerusalem Post, telling Nos that the government was not previously party to the decision by Vitens, and the national government should not become a player in the company's business decisions. Vitens is owned by provincial and municipal governments in the Netherlands.

Timmermans said that the only contact Vitens made with his department on the issue was to ask if there were any objections with entering into the deal in the first place. He claims that at the time, the department "indicated in all clarity they see no objection to the cooperation between Vitens and Mekorot."

"We only discourage companies that want to operate in the occupied territories if there is no agreement with the Palestinian Authority."

In a statement released earlier in the week, Vitens said, "Vitens places great importance on integrity, and adheres to [national and international] laws and regulations. After consulting with stakeholders, the company came to the realization that it is extremely difficult to work jointly on potential future projects [with Mekorot] since these can not be severed from the visible political context."

Israel's Foreign Ministry filed a formal complaint with the Netherlands Embassy in Tel Aviv. Caspar Veldkamp, the Netherlands Ambassador there, was also summoned over the business decision.

The Jerusalem Post later reported that Israel has taken issue with "ambiguous" comments from the Netherlands Foreign Ministry. The Israeli government is concerned about the possibility of increased boycotts by the Netherlands of Israel and Israeli companies, the newspaper said.

Vitens is the largest water production company in the Netherlands, serving 5.4 million customers domestically and 20 million internationally.

"Timmermans: Netherlands not in Israel Water Dispute", 12/12/2013, online at: http://www.nltimes.nl/2013/12/12/timmermans-netherlands-not-in-israel-water-dispute/

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❖ Gaza in chaos as rising flood waters add to misery caused by storm

Aid agencies warn of crisis for refugees living in tents and makeshift shelters as flood waters rise

Miserable conditions endured by Syrian refugees and others in the Middle East as a result of the harshest weather for decades are set to worsen in the coming days as melting snow causes flooding.

Heavy snowfalls, torrential rain and icy winds have caused havoc, bringing down power lines, blocking roads and trapping people in homes and cars in <u>Lebanon</u>, <u>Syria</u>, <u>Turkey</u>, <u>Jordan</u>, <u>Israel</u>, Palestine and <u>Egypt</u>. Authorities in Jerusalem said the storm, named Alexa, was the worst to hit the city for 60 years.

Aid agencies warned that Syrian refugees living in tents and makeshift shelters faced desperate conditions, with the Bekaa Valley in Lebanon – where hundreds of thousands of people live in informal refugee settlements – particularly badly hit.

They expect to see a rise in respiratory infections, especially among the young and the old, burn injuries caused by makeshift fires, and chilblains and frostbite among the many whose feet are clad only in plastic flip-flops or sandals.

The Lebanese government, which has not set up properly run and equipped refugee camps for fear that their populations could become permanent, says the international community has failed to deliver on its promises of financial aid.

Al-Jazeera reported that there are at least 80,000 Syrian refugees in Lebanon living in tented settlements. These figures came from Dana Sleiman, a public information officer with the Office of the United Nations High Commissioner for Refugees (UNHCR). Hundreds of thousands more people are living in unfinished buildings, garages and other structures that offer little protection against the cold.

In Gaza, where around two-thirds of the 1.7 million population are classified by the United Nations as refugees dating from the 1948 war, serious flooding followed the first snowfall in around two decades. Thousands of people evacuated from their homes were sheltering in schools as the Gaza health ministry declared a state of "extreme emergency".



Jabaliya refugee camp, in the northern Gaza Strip, had "become a massive lake with two-metre-high waters engulfing homes and stranding thousands", according to Chris Gunness, of the UN agency for Palestinian refugees, Unrwa. "Large swaths of northern Gaza are a disaster area with water as far as

the eye can see," he added.

Around 4,000 UN workers were evacuating families and distributing emergency supplies, including fuel to pumping stations. But Gunness said: "The situation is dire, and with the flood waters rising,

the risk of waterborne disease can only increase. This is a terrible situation which can only get worse

before it gets better."

In an indication of the severity of the situation, the Israeli military opened a border crossing to allow

emergency supplies of heating gas into Gaza following an appeal by the UN. Four water pumps were

also transferred into the blockaded territory to deal with flooding, the Israeli Defence Forces said.

Raw sewage mixed with flood waters was increasing the risk of disease. Gaza has been unable to

pump sewage for more than a month, as power plants have shut down for lack of fuel. The fuel

shortages – which were causing daily power cuts of 12-16 hours even before the crisis caused by

storm Alexa – are mainly a result of the Egyptian authorities' destruction of most of the smuggling

tunnels between Gaza and Egypt.

Jerusalem continues to be badly affected by snow, with the army clearing blocked roads and rescuing

stranded motorists. Thousands of homes were without power on Saturday, and at least two people

were reported to have died. Israeli authorities were forced to lift a Jewish sabbath public transport

ban on Saturday and allow trains out of the city, where highways were shut to traffic.

"Gaza in chaos as rising flood waters add to misery caused by storm", 14/12/2013, online at:

 $\underline{http://www.theguardian.com/world/2013/dec/15/gaza-chaos-rising-flood-waters}$ 

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❖ Israel transfers aid supplies to Gaza due to harsh weather conditions

Israel on Friday decided to open the Kerem Shalom crossing with Gaza to transfer aid supplies to the

coastal enclave amidharsh weather conditions hitting the region.

After a UN request to Maj.- Gen. Eitan Dangot, the coordinator of government activities in the

territories (COGAT), Israel implemented the transfer of gas for heating and water pumps to the Strip

facing heavy flood from severe winter storms.

"Israel will do everything that is necessary to assist the civilian populations in Gaza and in Judea and

Samaria, with an emphasis on providing electricity to the power plant in Gaza," the army said on its

website.

A joint Israeli-Palestinian situation room was also opened to help distressed civilians in the West

Bank with transportation and electricity concerns.

More than 5,000 people have been evacuated from flood-damaged homes in northern Gaza and at

least one person killed in what the UN called "a disaster area."

The flooding, caused by four days of torrential rain, was so severe that many homes could only be

accessed by rowing boat with water two meter deep in some places.

"Large swaths of northern Gaza are a disaster area with water as far as the eye can see," the United

Nations Relief Works Agency (UNRWA) that administers refugee camps in the Palestinian territory,

said in a statement on Saturday.

Many people were trapped inside homes in Gaza inundated by rising waters. A 22-yearold

Palestinian man died from smoke inhalation on Saturday after lighting a fire to warm his home, a

government spokesman said.

The Gaza Health Ministry said 100 other people had been hurt as flood waters damaged poorly built

homes in the coastal territory. Among those injured were people who had been hit by objects falling

from inundated buildings or had been in car accidents on flooded roads.



Chris Gunness, an UNRWA spokesman, said areas near a refugee camp in northern Gaza "have become a massive lake with two-meter-high waters engulfing homes and stranding thousands." Thousands of agency workers were evacuating stranded Palestinians to UN shelters, Gunness said.

Gaza's Hamas government said 5,246 people in all had been evacuated to schools and other centers used as temporary shelters in the past four days. The government said all its resources and manpower were available to aid rescue operations, including its armed wing usually charged with fighting Israel.

Hamas Prime Minister Ismail Haniyeh called for fuel to be allowed to enter Gaza.

"Gaza survived two wars [against Israel] and it will walk out of this," he said wearing a heavy coat and the yellow jumper of emergency workers as he toured the affected areas overnight.

"Israel transfers aid supplies to Gaza due to harsh weather conditions", 13/12/2013, online at: http://www.jpost.com/Defense/Israel-transfers-aid-supplies-to-Gaza-due-to-harsh-weather-conditions-334952



#### **❖** More than 5,000 evacuated from Gaza 'disaster area' floods

(Reuters) - More than 5,000 people have been evacuated from flood-damaged homes in northern Gaza and at least one person killed in what the United Nations called "a disaster area".

The flooding, caused by four days of torrential rain, was so severe that many homes could only be accessed by rowing boat with water two meters (more than six feet) deep in some places.

"Large swathes of northern Gaza are a disaster area with water as far as the eye can see," the United Nations Relief Works Agency (UNRWA) that administers refugee camps in the Palestinian territory, said in a statement on Saturday.

Severe weather in the form of heavy snowfall also paralyzed Palestinian cities such as Hebron in the occupied West Bank, as well as Jerusalem and parts of Israel's northern Galilee.

In Gaza, many people were trapped inside homes inundated by rising waters. A 22-year-old Palestinian man died from smoke inhalation on Saturday after lighting a fire to warm his home, a government spokesman said.

The Gaza health ministry said 100 other people had been hurt as flood waters damaged poorly built homes in the coastal territory. Among those injured were people who had been hit by objects falling from inundated buildings or had been in car accidents on flooded roads.

Chris Gunness, an UNRWA spokesman, said areas near a refugee camp in northern Gaza "have become a massive lake with two-meter-high waters engulfing homes and stranding thousands."

Thousands of agency workers were evacuating stranded Palestinians to U.N. shelters, Gunness said.

Gaza's Hamas government said 5,246 people in all had been evacuated to schools and other centers used as temporary shelters in the past four days.

Gaza's 1.8 million people have also endured daily blackouts of around 12 hours since the territory's lone power plant was switched off last month due to a fuel shortage.

One of the most densely populated tracts on earth, Gaza is home to mostly impoverished refugees and their descendants.

The territory lacks much basic civil infrastructure and lives under an Egyptian-Israeli blockade meant to cut off arms flows, but which also curbs imports of fuel, building supplies and basic goods.

SNOWFALL BLANKETS ISRAEL, WEST BANK



Israel opened a main crossing with Gaza on Friday to allow in fuel supplies and four water pumps to help relieve flood damage.

In the West Bank, Hebron saw its heaviest snowfall in decades, about a meter deep. Falling tree branches caused electricity cuts, and left mountain roads impassable. Schools and government offices were to remain shut there and in the city of Ramallah on Sunday, officials said.

The Israeli military sent armored personnel carriers to sweep through snowbound roads outside Jerusalem, where more than 50 centimeters of snow has fallen in a rare heavy downfall.

Prime Minister Benjamin Netanyahu ordered officials to work fast to reopen traffic arteries clogged by snow and shut since Thursday.

Authorities eased a travel ban for the Jewish Sabbath to run trains to Tel Aviv to relieve a transport backlog caused by blocked highways.

Tens of thousands of Israelis had electric power knocked out by snow in the Jerusalem area and northern Galilee.

The bodies of two Israeli men in their 20s washed away by a desert flash flood were found on Saturday. In other storm casualties, a man trying to fix a roof fell and died in the Tel Aviv area as well as a toddler killed by a heater fire.

"More than 5,000 evacuated from Gaza 'disaster area' floods", 14/12/2013, online at: http://in.reuters.com/article/2013/12/14/us-palestinians-flood-idINBRE9BD06Z20131214



**❖** Nile Nations Agree Panel to Oversee Study on Ethiopia Dam Impact

Egypt, Ethiopia and Sudan agreed to form a committee within a month to oversee a regional hydrological study of the Grand Ethiopian Renaissance Dam, Ethiopia's Water and Energy Ministry

said.

The panel will be comprised of four representatives from each country who will select consultants,

review their findings and submit a final report to each country's government, Fekahmed Negash,

head of the ministry's Boundary and Transboundary River Affairs Directorate, said in a phone

interview today from the capital, Addis Ababa.

The \$4.2 billion dam being built on the Blue Nile River, the main tributary of the Nile, is scheduled

for completion in 2017. Egypt, which relies on the Nile for almost all its water, has said the dam will

significantly reduce water supplies. An international assessment in June found that further studies

were needed to assess the impact of the dam on downstream nations. Last month, Ethiopian officials

disagreed with Egypt's push to have international representation on the new committee.

"There is a basic change of attitude" by the Egyptians, Fekahmed said. "It was very positive."

The countries plan to meet again in the Sudanese capital, Khartoum, in the first week of January, he

said.

"Nile Nations Agree Panel to Oversee Study on Ethiopia Dam Impact", 10/12/2013, online at:

http://www.bloomberg.com/news/2013-12-10/nile-nations-agree-panel-to-oversee-study-on-ethiopia-dam-

impact.html?utm\_source=Circle+of+Blue+WaterNews+%26+Alerts&utm\_campaign=2e89e03de8-

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**❖** Sudan: Unbreakable

December 15, 2013: Earlier this month Sudan and Egypt failed to reach an agreement with Ethiopia over Nile River water distribution rights. Sudan and Egypt object to Ethiopia's Grand Ethiopian Renaissance Dam (GERD) project. In June 2013 the three countries agreed to form a joint special committee of international experts to discuss and analyze the dam project and its potential effects on Nile River water flow. Though Sudan and Egypt tend to operate as allies on Nile water issues, diplomats indicated that in the latest round of talks Sudan has been trying to act as a mediator between Egypt and Ethiopia. Some hotheaded Egyptian politicians have threatened to attack the GERD. Egypt claims it has rights to around 85 percent of the Nile's annual flow and cites two treaties, one from 1929 and one from 1959, as the basis for its claim.

December 14, 2013: Three mortar shells fired by SPLM-N (Sudan Peoples Liberation Movement-North) rebels struck Kadugli, capital of Sudan's South Kordofan state. Three people were wounded. The Sudanese Army retaliated by firing a barrage of 122 mm rockets.

December 13, 2013: The fighting between rebels and the Sudanese Army has disrupted health services for some 165,000 children in South Kordofan and Blue Nile states because relief agencies cannot enter many areas. The UN has been trying to run a polio vaccine inoculation program in South Kordofan state.

December 12, 2013: President Omar al Bashir of Sudan made one of his most trusted personal allies Sudan's first vice president. Lieutenant General Bakri Hassan Saleh helped stage the 1989 coup which put Bashir in power. At the time Bashir was a brigadier general in the Sudanese Army. Saleh and Bashir had served together in a parachute infantry unit. Bashir has rejected demands by opposition leaders and some members of his own National Congress Party that the government commit itself to serious political and economic reform. Bashir remains under indictment for war crimes and genocide by the International Criminal Court (ICC).

December 10, 2013: Satellites continue to document Sudanese Army operations in in South Kordofan state. The latest photo imagery appears to support word-of-mouth reports about the Sudanese military offensive which began in November. Satellite images show the town of Kundukr burning and



Sudanese Army soldiers in the town. SPLM-N rebels said that they had no fighters in Kundukr and

the satellite imagery appears to support the rebel claim.

December 9, 2013: UN and AU (African Union) peacekeepers and diplomats have made progress in

resolving the armed conflict between the Maaliya and Rezeigat tribes. The tribes fought a series of

battles in August 2013.

December 8, 2013: Sudan has formed a new cabinet. The new cabinet is stocked with men personally

loyal to president Bashir.

December 6, 2013: Armed members of the Hamar and Maliya tribes clashed in the town of Um

Dekon (Sudan's West Kordofan state) leaving 25 dead and 26 were wounded. This apparently began

when a farmer and a herder got into an argument over pasturage. The argument escalated into a

battle. Hamar (Hammar-Banna) are primarily cattle herders, though some Hamar farm. Some Maliya

also herd cattle.

December 2, 2013: The newly-formed Sudanese opposition political group NCF (National Consensus

Forces) announced that it has made contact with the Sudanese Revolutionary Front (SRF). The SRF

is an umbrella political organization uniting several guerrilla groups in Sudan, including the SPLM-N

and JEM (Darfur Justice and Equality Movement). NCF opposes Sudan and corruption within

president Bashir's National Congress Party.

December 1, 2013: The SPLM-N denied that the Sudanese Army had attacked its base in the town of

Kauda (South Kordofan state). Kauda is approximately 90 kilometers east of Kadugli and is a major

rebel political center and supply base. The Sudanese government had claimed that Sudanese security

forces had destroyed several SPLM-N tanks (T-55s) and destroyed numerous supply trucks.

November 30, 2013: The Dinka Ngok's unilateral referendum in the disputed Abyei region continues

to anger the Sudanese government. That may well have been the Dinkas' goal. In late October the

Dinka Ngok held a unilateral referendum which the tribe said would determine if Abyei would join

Sudan or South Sudan. The Dinka voted overwhelmingly to become part of South Sudan. The

African Union called the vote illegal, but that did not stop the Dinka from holding their vote.

According to the 2005 Comprehensive Peace Agreement (CPA), Abyei was supposed to hold a final

www.ORSAM.org.TR



referendum in 2011 to determine its ultimate status. The referendum did not take place and the Dinka contend the Sudanese government has no intention of ever holding the referendum. Sudan and South Sudan disagree on who has the right to vote in Abyei. During the long civil war, many native Dinka fled Abyei. The Sudanese government encouraged members of the pro-Khartoum (and seminomadic) Misseriya tribe to take up residency in Abyei. The Dinka regard the Misseriya as outsiders. Abyei is traditional Dinka Ngok territory.

November 28, 2013: South Sudan's Unity state is investigating a battle between the Jikany and Leek clans that occurred in mid-November. Seven people were killed and nine wounded. The clans were fighting over land rights. The clans fought over the same territory in 2009. Meanwhile, the government of South Sudan has sent a force of around 100 national policemen and soldiers to the area.

November 27, 2013: The SPLM-N claimed that its forces attacked a Sudanese Army column near Umm Kraisha (Nuba Mountains, South Kordofan state). The SPLM-N claimed rebels captured three tanks and 20 other vehicles.

"Sudan: Unbreakable", 15/12/2013, online at: http://www.strategypage.com/qnd/sudan/articles/20131215.aspx



**❖** Nigeria: Need for More Dams in Nigeria

Many lives were lost and property worth billions of naira destroyed in 2012 due to the combined

effects of flood waters from Lagdo Dam in the Republic Cameroon and heavy rainfall recorded that

year.

The National Emergency Management Agency (NEMA) said that Nigeria lost N2.6 trillion to floods

that year which could have been averted if the government had constructed buffer dams to hold flood

waters.

At a recent National Water Conference in Calabar, experts advocated for the construction of dams at

strategic locations to check flooding.

They said with about 13 dams spread across the six geo-political zones of the country, more dams

were still needed in the country.

Mr Otis Anyaeji, an expert, stressed that Nigeria still required more dams especially in Lokoja and

Onitsha to control floods.

Anyaeji, who is the Vice President, Nigerian Society of Engineers (NSE), urged the Federal

Government to construct more dams, and properly fund its water agencies.

He noted that the construction of more dams would not only avert flood disasters, but provide water

for irrigation.

Prof. Paul Marley, Managing Director, Upper Niger River Basin Development Authority, said

Nigeria loses 200 billion cubic metres of water to the Atlantic Ocean annually.

He said that the nation was able to store 34 billion cubic metres of water, adding that effort need to be

made and sustained to impound more water through dam construction.

"If these waters were not impounded during its passage and allowed to get to the ocean, it would

become salt water and no longer fresh; which is not healthy.



"In the year 2030, population would increase to 258 million and the demand for water will increase

17 times than it is now," he said.

Stakeholders want the government to commence the construction work on the proposed Dasin Hausa

Dam in Adamawa.

The federal government was expected to have constructed the dam when its Cameroonian counterpart

built the Lagdo Dam in 1982.

The two dams would have acted as safety valves to control flooding and impound water for

irrigation, hydropower generation and fishery, among others.

The Dasin Hausa Dam, was also expected to serve as a buffer dam to curtail any water released from

Ladgo Dam.

Dr Emmanuel Adanu, Director Dams and Reservoir Operations, Federal Ministry of Water

Resources, said plans were on ground to commence work on the dam, adding that the procurement

department had already commenced work on the project.

According to him, the ministry had written to the Bureau of Public Enterprises (BPE), adding, "they

are responding positively because they believe the dam will curb flooding in the country".

Adanu also said there were proposals before the federal government on the construction of more

dams in the country, pointing out that the dams would effectively check the recurrence of floods.

Available records show that over 30 dams are currently being constructed, while some of them had

already been completed and ready for inauguration.

The Minister of Water Resources, Mrs Sarah Ochekpe, in her 2013 mid -term report said that the

water sector recorded 422 million cubic metres increase in the volume of stored water in the nation's

reservoirs following the completion of nine dams.

The completed dams, according to her, are Ibiono Ibom Dam, in Akwa Ibom; Sulma Dam, Katsina;

Mgbowo Dam, Enugu; Owena Dam Treatment Plant, Ondo; Dutsi Dam in Katsina; Inyishi Dam in

Imo; Mashi Dam in Katsina; Amauzari Dam, Imo; and Galma Multipurpose Dam in Kaduna.



Observers have noted that since the importance of dams are well known, government should fast-track the completion of the remaining dam projects across the country. (NANFeatures)

"Nigeria: Need for More Dams in Nigeria",12/12/2013, online at:

http://allafrica.com/stories/201312130177.html?viewall=1

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#### **\*** When every drop counts

FAO experts are taking on the problem of water scarcity in the region, writes Sherine Abdel-Razek

The per person share of fresh water resources in the Middle East region is 10 per cent of the world average and is projected to decrease by 50 per cent by 2050 if current trends in population growth and consumption patterns continue, according to figures released by the United Nations Food and Agriculture Organisation (FAO).

"Only four or five countries in the region are not considered water scarce, and there are four to five at risk of absolute water scarcity. This occurs when a country records less than 500 m3 of water per year per capita," said Abdessalam Ould Ahmed, FAO assistant director-general and regional representative for the Near East and North Africa.

With the current rates of population growth, the Near East and North Africa region (NENA), representing the Middle East and North Africa (MENA) but excluding Israel and Turkey, will have to feed 200 million additional people by 2050.

This will be nigh-on impossible as while the agricultural sector consumes 85 per cent of the fresh water in the NENA region, its productivity does not match with the needs of the populations. FAO expects the total demand for cereals in the region to double to approximately 200 million tonnes by 2050.

Moreover, some 40 to 55 per cent of the arable land in the region is degraded, as insufficient drainage and irrigation at low levels of efficiency, among other factors, are causing the progressive salinisation of soils. Growing urbanisation also reduces farming and makes less land available for agriculture. "The problem will only intensify if the current patterns continue, "Ould Ahmed told reporters during a media briefing in the FAO premises in Cairo this week.

Next week, water experts from inside and outside the region are convening in Amman to discuss the problem further and conclude draft recommendations to deal with it. "In Amman, we will focus only on agricultural water security," Ould Ahmed said, adding that the four-day event would discuss a collaborative strategy on agricultural water management and food security in the region under the auspices of the FAO and 12 other partners.

The study from which this week's figures come was prepared within the framework of the Water Scarcity Initiative in the Near East and North Africa that the FAO launched earlier this year. The



outcome of the Amman discussions will also be included in the study and presented to the ministers of agriculture of the region, who will be meeting in Rome at end of February for the FAO's Near East regional conference.

This will feed into the Regional Collaborative Strategy on Sustainable Agriculture Water Management that FAO member countries are currently developing.

Climate change is also likely to exacerbate existing problems, the FAO has said, with agricultural production in the region being likely to suffer from higher temperatures, droughts, floods and soil degradation.

The subsequent decrease in production could contribute to increasing NENA's current dependence on wheat and rice imports and further threaten the food security of many countries.

In Egypt, climate change could cause significant variations in the annual Nile flood, which provides the country with more than 97 per cent of its renewable water resources. According to the fact sheet to be distributed in Amman nest week, estimates show that a 0.5 m rise in sea levels as a result of climate change might accelerate desertification in the form of increased soil salinity, leading to a loss of part of the agricultural land of the Nile Delta.

Egypt suffers from a "water gap" of more than 23 billion cubic metres a year, being the difference between the 55.5 billion cubic metres it receives from the Nile and its consumption of nearly 78.5 billion cubic metres.

With 700 cubic metres of water per capita per year, Egypt is on the border between countries that are "relatively stressed" in terms of water resources and those that are "absolutely stressed," Ould Ahmed said.

Negative trends in rainfall patterns are also projected for countries like Morocco, Algeria, Syria and Iran.

As the water supply for agriculture in the region cannot be increased, its efficient use will need to be improved, said Pasquale Steduto, FAO deputy regional representative for NENA.

Better recycling of waste water is one option, this being defined as the combination of liquid waste discharged from domestic households, farms, institutions, and commercial and industrial establishments, which is eventually mixed with groundwater, surface water, and rain water.

"The problem is that the public is not willing to eat food that is watered with sewage water, for example, though this can be used for forestry," Steduto said, adding that "this water in fact contains nutrients that can reduce the use of fertilisers."



However, the water needs to be treated before its reuse as it can pollute the soil and underground water. Steduto said that in Jordan waste water was used to cultivate forage for livestock, but that there had been problems since the water had not always been correctly treated.

Regarding the possibility of greater desalinisation of sea water, Ould Ahmed said that this was not economically viable. "The cost of the energy used for pumping the water and during the desalinisation process is very high," he said, adding that there had however been reductions in costs of some two-thirds due to the use of solar energy.

But desalinated water was still too expensive for use in agriculture, and there have been environmental concerns. "What are we going to do with all the extracted salt," Ould Ahmed asked. As a result, increasing the productivity of the available water is the recommended approach to the problems of water scarcity. "In such growing water-scarce environments, improved productive efficiency, meaning more crop per drop, and allocative efficiency, meaning more value per drop, are both needed to meet food security needs," he said.

Ould Ahmed added that in addition to minimising water losses, countries should choose crops that bring in more money, "either wheat [for local consumption] or tomatoes to increase exports." Ould Ahmed said that Egypt had good experience of water management and was one of the countries where water efficiency had been highest in recent years. "Egypt has one of the most complex irrigation systems in the region. Little water is wasted in irrigation as it is recycled one way or another in the system," he said.

Egypt's irrigation network depends entirely on water from the Aswan High Dam, which feeds the more than 18,000 miles of canals and sub-canals that push water out into the country's farmlands. Steduto said that Egypt was optimising the efficiency of the water used in irrigation. "The FAO has been monitoring the productivity of wheat by remote sensing all over the world, measuring the crop yield per acre per cubic metre of water use, and Egypt ranks first worldwide," he said.

"When every drop counts",11/12/2013, online at: <a href="http://weekly.ahram.org.eg/News/4933/18/When-every-drop-counts-aspx">http://weekly.ahram.org.eg/News/4933/18/When-every-drop-counts-aspx</a>

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#### **❖** Saudi puts SR15bn in water storage

Projects are part of \$13.6bn investment to meet water demand

Saudi Arabia intends to launch projects to store water at a cost of SR15 billion and a contract for the Middle East's largest processing plant will be awarded shortly, a Saudi official has said.

The projects are part of an overall investment plan worth nearly SR51 billion to expand water resources to meet demand in the Gulf desert Kingdom, which is one of the richest nations in oil but poorest in water.

Luay Al Musallam, CEO of the National Water Company (NWC), said the first storage project would be launched in the second quarter of 2014 in the Western Red Sea port of Jeddah and would have a storage capacity of 1.5 million cubic metres.

He said another contract has been awarded for the construction of water storage dams near the city with a capacity of two million cubic metres.

Quoted by the Arabic language daily Okaz, he said the projects involve the construction of large dams targeting Jeddah, Makkah and the capital Riyadh, adding that they would be enough to meet water demand for those cities for 7-10 days in case of a disruption.

"We also plan to invest SR seven billion to build processing stations...one of them at a cost one billion riyal has a capacity of 500,000 cubic metres and is the largest in the Middle East...it is now under tendering and it will be awarded soon," he said.

"Saudi puts SR15bn in water storage", 10/12/2013, online at: <a href="http://www.emirates247.com/business/energy/saudi-puts-sr15bn-in-water-storage-2013-12-10-1.530730">http://www.emirates247.com/business/energy/saudi-puts-sr15bn-in-water-storage-2013-12-10-1.530730</a>



China's Water Diversion Project Starts Delivering Water in East

A section of China's South-to-North Water Diversion Project, the world's biggest such undertaking,

started supplying water through its eastern route.

The route's first phase, designed to ease shortages in China's arid north and costing more than 50

billion yuan (\$8.2 billion), delivers water from the Yangtze River in Jiangsu province to Shandong

along the Beijing-Hangzhou Grand Canal, the state-run China Daily said yesterday, citing the project

office.

The diversion will benefit as many as 100 million people by supplying as much as 8.77 billion cubic

meters of water annually to the eastern provinces of Jiangsu, Anhui and Shandong, the report said.

The amount of water supplied will be adjusted annually based on shortages in the provinces and

inflows in the route's upper reaches, according to the report.

A rising population and urban migration along with economic growth means China needs more clean

water for industry, irrigation and drinking. The project will transfer 44.8 billion cubic meters of water

a year from the nation's water-rich south through three routes to the parched north including Beijing,

the Daily said.

The price of diverted water will be higher than local sources, the report said, citing Yang Jianwei, a

Shandong official in charge of the project.

The central route's first phase, expected to be completed this year, will deliver water from the

Danjiangkou reservoir in Hubei province to northern cities including Beijing, Tianjin, Shijiazhuang

and Zhengzhou, beginning next year.

The western route supplementing the Yellow River with water from the upper reaches of the Yangtze

River is in planning, the report said.

"China's Water Diversion Project Starts Delivering Water in East", 11/12/2013, online at:

http://www.bloomberg.com/news/2013-12-11/china-s-water-diversion-project-starts-delivering-water-in-

east.html?utm\_source=Circle+of+Blue+WaterNews+%26+Alerts&utm\_campaign=2e89e03de8-

RSS\_EMAIL\_CAMPAIGN&utm\_medium=email&utm\_term=0\_c1265b6ed7-2e89e03de8-250657169

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China says poorly prepared to fight impact of climate change

(Reuters) - China is poorly prepared to tackle the impact of climate change that presents a serious

threat to the country, thanks to a lack of planning and public awareness, the government said on

Monday.

The world's most populous country already faces challenges from weather extremes, with 2,000

people dying on average each year since the 1990s in natural disasters that are set to get worse,

China's powerful economic planning agency said.

"Our country is a developing nation with a large population, complex climate conditions and a weak

environment (situation)," the National Development and Reform Commission said in a report.

"Climate change is already a serious threat to food, water, ecological and energy security, and to

people's lives and property," it added.

"The mission to deal with climate change is very arduous, but knowledge in society and ability to do

this are weak across the board."

China is seeing more droughts in its northern region, with typhoons arriving earlier, wetlands drying

up and sea levels rising, said the document, published in coordination with several ministries,

including the Agriculture Ministry.

"In the future the rising trend of temperatures will become even more obvious, there will be even

more unfavourable impacts (from climate change), and if effective measures are not taken the losses

from disasters caused by extreme weather will be even more serious," the agency added.

Government steps to mitigate climate change range from building more reservoirs, providing better

protection to forests and wetlands to improving weather warning systems, but the overall picture was

not optimistic, the planner said.

"Although our work at dealing with climate change has achieved some successes, basic abilities have

yet to be raised up, and there are many weak links in our work," it added.

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<u>China</u> was unable to protect basic infrastructure, such as power and water supplies, from extreme weather events, and flood prevention efforts need to be spruced up, it said.

A coal-dependent manufacturing base has made China the world's biggest contributor to climate change, while high and rising local air-pollution levels have sparked widespread public anger nationwide.

In recent months, officials have outlined new policies to fight the problem, on top of steep renewable energy targets in the current five-year plan.

China's pollution is expected to continue growing well into the next decade, albeit at a slower pace, as it has little choice but to rely on fossil fuels to develop its western interior.

"China says poorly prepared to fight impact of climate change", 09/12/2013, online at: <a href="http://www.reuters.com/article/2013/12/09/us-china-climate-idUSBRE9B806D20131209?utm\_source=Circle+of+Blue+WaterNews+%26+Alerts&utm\_campaign=a41d0d82fc-RSS\_EMAIL\_CAMPAIGN&utm\_medium=email&utm\_term=0\_c1265b6ed7-a41d0d82fc-250657169</a>



**\*** The Mekong must run free!

The Mekong is among Southeast Asia's greatest rivers, sustaining tens of millions from its abundant

fisheries and its floodwaters which both irrigate and fertilise. But as Tom Fawthrop reports, Nature's

bounty, and beauty, are at risk from a series of 11 dams.

Explorers, travellers and traders have long been enchanted by the magical vistas and extraordinary

biodiversity of the Mekong flowing through six countries from the mountains of Tibet to the delta in

Vietnam.

Approaching the Cambodian border in the Laos's southern region of Siphandone lie the spectacular

Khone Falls - where the river becomes braided into channels, with a glorious panorama of

spectacular waterfalls and swirling rapids.

These rapids create endless islets - the famous Four Thousand Islands that give Siphandone its name,

set apart by a maze of narrow channels and rapids.

This uniquely beautiful and biodiverse habitat is just upstream of a colony of Irrawaddy dolphins that

also draws many visitors - sustaining a growing eco-tourism industry which directly benefits local

communities.

**Abundant resources** 

The river provides the largest inland fisheries in the world, its 1,000 species of fish providing

nutrition and food security for over 60 million people. These include the iconic Giant Catfish, the

world's largest catfish species, which can reach more than 3 metres in length and weigh over 300kg.

A Mekong River Commission (MRC) consultant in a 1994 report described the Khone Falls as "an

ecologically unique area, so rare in nature that every effort should be made to preserve all of Khone

Falls from any development."

This eco-tourism paradise has all the credentials to qualify as a World Heritage site - with all the

tourism benefits that designation would bring. It is also eligible to become an internationally

designated Ramsar wetland.

The total value of fisheries, tourism and other benefits has been estimated at \$2-3 billion per year.

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All sacrificed on the altar of hydropower

But the Malaysian hydropower company Mega First, backed by the Laos government, has an entirely different plan: to construct a huge hydroelectric dam project at Don Sahong only a few kilometres away.

The MRC, comprising Cambodia, Laos, Thailand and Vietnam as its member states, was set up to facilitate peaceful dialogue, cooperation and good governance of the Mekong and its precious resources. On 30th September Laos <u>notified the MRC of its plan</u> to begin construction of the 260 megawatt Don Sahong Dam in 2014. [See the International Rivers Network map.]

This dam is the second in a hydropower programme approved by the Laos government to build a cascade of 11 dams. The first dam at Xayaburi was launched in November 2012 in the face of fierce opposition from NGOs in three Mekong countries; from numerous scientists; and from two MRC states, Cambodia and Vietnam. It is currently under construction (photograph below).

The Xayaburi also provoked a fierce conflict inside the MRC which has lasted from 2011 until the present, with no sign of coming to an end. Thailand lined up with Laos in support of the dam while Cambodia and Vietnam cited the need for more scientific studies to be completed prior to construction.

Now the prospect of the Don Sahong dam has triggered a new flurry of opposition across the Mekong region. A coalition of 103 Thai NGOs, drawing support from eight Provinces bordering the Mekong, have demanded that the Thai government take immediate action to block the dam project.

One of its most immediate impacts would be on the Irawaddy dolphins. Changes to the hydrology of their habitat just below the Don Sahong dam could lead to the colony's extinction.

What about the fisheries?

Chhith Sam Ath, Executive Director of the Phnom Penh NGO Forum Cambodia warns: "The Don Sahong Dam will only push Cambodia and Vietnam closer to a food crisis. The project is next to Cambodia's border. Have they forgotten that fish are our lifeline and the backbone of our economy? Fish are central to our diet and our main source of protein,"

Scientists are warning of grave consequences for food security in the region if fish migration is blocked by a dam across the Sahong channel. according to Dr Ian Baird, a Mekong specialist at the University Of Wisconsin Madison,



"The dam would cause serious nutritional problems throughout the Mekong Region. Decreasing availability of fish in the marketplace would lead to higher prices, reducing fish consumption, especially by poorer consumers."

The Hou Sahong channel is the only channel allowing migratory fish to bypass the Khone Falls and rapids, and continue their journey into Laotian waters. It is used by an estimated 80-90 percent of migratory fish entering Cambodia from Laos.

So to locate a dam precisely so as to block the only viable channel for large scale fish migration on this stretch of the Mekong appears - to say the least - perverse.

Jeremy Bird, former CEO of the MRC, stresses the imperative to safeguard the Mekong's fisheries. When considering building dams on the Mekong, he told me in 2011, "fisheries is the number one issue that has to be solved. And the onus for demonstrating that this can be solved rests with the owner of the project."

#### **Problem? What problem?**

But Mega First airily dismisses concerns that the dams threaten fisheries as "unfounded". The Malaysian company's senior environmental manager, Dr Peter Hawkins, claimed in the Vientiane Times that "environmental impacts can be mitigated by using other natural channels adjacent to the Hou Sahong.

International consultants Poyry Energy Asia, hired by the Laos government, agree. Its director Knut Sierotzki 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".

But UK fisheries expert Terry Warren, a consultant on the first Don Sahong dam EIA in 2007 warns:

"If these fish can complete this migration, it means Cambodian fisheries will continue to flourish. Stop a migration and within a few years everything will start to collapse and eventually cease to exist. I see disaster looming for the fisheries of Cambodia and southern Laos, if this project goes ahead."

Fisheries experts also doubt the possibility of using any other channel. They point out that fish ladder and fish pass technology has only been widely tested and practised in only in the cold climates of North America, Norway and Switzerland.



Can fish ladder technology be transferred?

And they believe the technologies cannot be simply transplanted to a totally different fish ecology and environment in tropical climes, owing to the far greater complexity and diversity of the ecosystems.

Dr Jian Hua-Meng, WWF's hydropower consultant, is astounded by the sweeping assumption that fish technology could be so readily imported to a tropical Asia. He told *The Ecologist*:

"Building a fish pass based on experiences of northern Europe Switzerland and transferring them to the Mekong is just not serious business: According to the developer this is a dam that is so benign that has so little impact or zero impact. This is nonsense. It is plain ridiculous."

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

The approach adopted at the Xayaburi dam gives little cause for confidence. Eric Baran, a leading fisheries expert working with the World Fish centre in Phnom Penh, visited the dam site in 2012. He later said that fish mitigation has never been adapted to the huge fish diversity of any tropical river in Asia, and remains untested on the Mekong:

"There has never been a successful fish pass built for a dam the size of Xayaburi, anywhere in the tropics."

Yet Laotian vice Minister of Energy Viraponh Viravong insists: "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."

During the recent visit to the Xayaburi dam site, a Poyry senior project manager was perhaps a little too frank when he told a guest: "Whether the fish get across (the dam), you'll only see when it is built".

'Main stream dams' and the MRC prior consultation process

Laos, one of the poorest nations in the region, has long been encouraged by the World Bank to develop hydropower as its prime avenue for earning foreign exchange by supplying electricity to its energy hungry neighbours, especially Thailand.

Many rivers and tributaries have already been dammed. But the 1995 Mekong Treaty stipulates that any country building a dam on the main stream of the Mekong must either find agreement by



consensus with the other 3 Mekong states, or seriously address their objections to the dam project before construction begins.

The Don Sahong dam appears certain to re-ignite the bitter divisions in the MRC that were set off by the Xayaburi dam. Laos surprised almost everyone with its declaration that Don Sahong was no longer a "mainstream Mekong dam"; but only a "tributary" - and tributaries are not subject to the prior consultation process.

This would benefit the authoritarian Lao regime which would therefore escape serious scrutiny by the affected downstream countries and the <u>public forums mandated by the MRC</u> that would take place in other countries where opposition's voices and grassroots communities could be heard.

However neighbouring Cambodia, supported by Vietnam and even Thailand have rejected this bizarre claim. The Laos government may have to accept some scrutiny after all.

Meanwhile WWF's research shows that the dam presents a risk to the endangered Giant Catfish and 227 other fish species that inhabit the lower Mekong. In spite of this, Poyry Energy Asia have argued that the environmental impact studies for the dam should be carried out <u>during the period of construction</u>.

"This is not a responsible corporate player", WWF's Jian commented. "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."

Fisheries expert Terry Warren questions the wisdom of the Don Sahong dam, given its potential "to ruin an extremely important SE Asian fisheries and the livelihoods of thousands", and its relatively modest electrical output. As he asks: "Why risk it?"

#### The impact of a series of Mekong dams

And remember - we have so far examined the impacts of just two dams on the lower Mekong, each threatening devastating damage to fisheries, biodiversity, natural beauty and tourism. But for the Laos Government this is only the beginning of an 11-dam cascade.

There has so far taken place only a single major study on the potential loss of fisheries from the dams: the Strategic Environment Assessment of SEA, commissioned by the MRC and released in 2010.



The SEA concludes that the dams could inflict economic havoc on these two countries, and strongly recommends a moratorium on building all mainstream dams on the Mekong for at least 10 years in order to complete further research on dam impacts.

Meanwhile technological breakthroughs in renewable electricity, solar energy in particular, are undermining any economic rational for building the dams. Of course Laos has a legitimate need for electricity but this could be provided at much lower cost by solar power - located much closer to power demand in the major cities - as its cost continues to decline.

All the MRC countries should respect the moratorium called for by the SEA report. Construction at Xayaburi should be halted while proper studies on its impacts are carried out. The entire Don Sahong project must be called off given the enormous costs it threatens to inflict, and the paucity of its benefits. And Laos must explore alternative, lower cost and lower impact power generation strategies.

The Mekong must run free!

"The Mekong must run free!", 14/12/2013, online at:

http://www.theecologist.org/News/news analysis/2196721/the mekong must run free.html



### Cambodian Villagers Petition Chinese Embassy to Scrap Dam Projects

Villagers living along Mekong River tributaries in northeastern Cambodia protested in front of the Chinese embassy in the capital Phnom Penh calling on the authorities to scrap three proposed Chinabacked dam projects, citing environmental and other concerns.

Villagers from riparian communities along the Sesan, Sekong and Srepok rivers presented a petition to the embassy detailing the plight of the 75,000 people they say could be directly affected by the proposed dams, representatives told RFA's Khmer Service.

The petition called on Chinese Ambassador Bu Jianguo to "stop Chinese companies Hydrolancang International Energy and Hounan Group from building the 400 megawatt Lower Sesan 2 hydropower dam," which is to be built in conjunction with Cambodian conglomerate Royal Group.

The petition—collated by the 3S Rivers Protection Network, which represents those threatened by the dams—called on the Chinese authorities to also scrap two proposed, 300 megawatt dams in Ratanakiri.

They are the Lower Sesan 3 dam to be developed by China's Sinohydro Resources and the Srepok 3 dam undertaken by Huadian Hong Kong Co. Ltd.

The petition also called on Ambassador Bu to "meet with villagers to learn about the impacts from the hydropower dams."

Recent studies suggest the Lower Sesan 2 project in Stung Treng could displace 5,000 people and adversely affect 100,000 more through a more than 9 percent drop in fish stocks in the Mekong Basin.

Villagers campaigning against the dam have expressed concern about compensation for villagers displaced by the project, which they say would also destroy protected forest areas, kill rare fish, and



negatively impact local ethnic minority culture.

Srepok River representative Tan Cheang told RFA that the Chinese environmental attaché had met with villagers to accept the petition and assured them that the embassy would investigate the villagers' claims.

"The officials said that they will work to resolve the issue, but that the government had already granted the companies' licenses," Tan Cheang said.

"We want a meeting between the companies, embassy officials and the villagers. [The embassy officials] said that they will conduct studies at the sites and if there are potential impacts they will resolve the issues with us."

Embassy officials informed the villagers that if they could not find a resolution to the dispute, they would ask the companies to meet directly with the riparian communities, Tan Cheang said.

Villager representatives said that they had also petitioned Cambodia's National Assembly, or parliament, to resolve the dam disputes, but had received no response. However, National Assembly spokesman Chheang Von told RFA that the assembly had not received any petitions on the issue.

Impacts outweigh benefits

Hoy Soth, a representative for villagers living near the Lower Sesan 3 dam site said the villagers don't want any dams "because the environmental impacts outweigh the benefits" such as access to electricity.

"The first impact will be our eviction, the second is that the dam will cause the fish stocks to decline and the third is that we will lose our cultural traditions," she said, adding that a local indigenous spiritual ceremony held on the river would be affected by the dam.

She said that a hydropower dam that had been completed across the border in nearby Vietnam



already affects their daily living standards.

The Cambodia Daily quoted Meach Mean, coordinator at 3S Rivers, as saying that the Chinese companies should exercise social responsibility and pull out of construction.

"We think that whenever the Chinese companies reconsider and withdraw from the construction of hydropower dams, the construction by a local company solely will never be able to start," he said, adding that Sinohydro and Huadian had reportedly completed environmental and social impact assessments to build the dams in Ratanakiri.

Land-clearing preparations for the Lower Sesan 2, which were started in March, were suspended by the government in October.

But the Cambodia Daily quoted Puth Khoeun, a representative of Srekor commune in Stung Treng's Sesan district, as saying that the halt in clearing appeared to be temporary.

"It seems the company is just taking a break for a while since machinery and workers are still staying at a wood warehouse built about 1 kilometer (half a mile) away from the commune office," he said.

"Cambodian Villagers Petition Chinese Embassy to Scrap Dam Projects", 12/12/2013, online at: <a href="http://www.rfa.org/english/news/cambodia/dams-12122013143125.html">http://www.rfa.org/english/news/cambodia/dams-12122013143125.html</a>



PFF opposes Kalabagh, Akhori dam projects

The Pakistan Fisherfolk Forum (PFF) on Thursday expressed concern over the rigid stand adopted by

the PML-N government over the construction of Kalabagh Dam and termed it like rubbing salt on the

wounds of the environmentalists and the common people of Sindh, who have already been facing

acute water shortage and food insecurity.

In a statement issued here, Chairperson PFF Mohammed Ali Shah said that the water streaming to

Kotri downstream in the River Indus was a dire need for maintaining ecology of the river and forests

as well as meeting the needs of the people living at the tail end of the river.

He said more than one million people associated with agriculture, livestock and fishing depend on the

river water, particularly those living in the Indus Delta areas, adding that the restoration of the

environmental flow of the River Indus should be given proper consideration before designing any

such mega water projects on the river.

"In case the present government decides to construct the controversial Kalabagh Dam the same may

cause uncertainty among the people of Sindh, who have already been opposing the project," he said.

According to the statement, Federal Minister for Water and Power Khawaja Asif had told the

National Assembly session that the water streaming to downstream Kotri was going waste and

reiterated the stance of building the Kalabagh and Akhori dams for storing water for electricity

generation.

The minister further told the assembly that the technical design of Dasu hydropower project was

about to be completed and the World Bank has approved funding for the mega scheme, starting in

2014.

However, the PFF rejected the government's justification and asked the environmentalists and

experts of Sindh and other provinces to take stock of the government's agenda and formulate



comprehensive arguments in the interests of the people living in tail-end areas, who were being denied their rights by certain engineers and successive governments since long.

Shah said that the government should take the environmentalists and ecologists into confidence, as hundreds of wildlife and water species depend on the river, adding that forests depletion was another problem because of such mega projects developed earlier, which have affected the natural flow of the river.

"Hundreds of people of Sindh will not allow the government to further destroy the natural flow of the River Indus by controlling the stream under such projects," he said and asked the government to learn from the experiences of the developed countries which have destructed the dams to restore the river ecology.

Shah also appealed to the environmentalists at national and international level to oppose the WB-funded project so as to save the ecology of the river which has already been severely affected by the mega water projects.

"PFF opposes Kalabagh, Akhori dam projects", 13/12/2013, online at: <a href="http://www.thenews.com.pk/Todays-News-4-219794-PFF-opposes-Kalabagh,-Akhori-dam-projects">http://www.thenews.com.pk/Todays-News-4-219794-PFF-opposes-Kalabagh,-Akhori-dam-projects</a>



# **❖** Why Is the US Getting in the Way of International Efforts to Make Clean Water a Basic Human Right?

The United States is the only country marring the good works of a UN resolution on the right to safe drinking water and sanitation.

On 21 November 2013 the UN General Assembly's Third Committee (The Committee) adopted a resolution on "The human right to safe drinking water and sanitation." There, all UN member states agreed that the rights to water and sanitation are derived from the right to an adequate standard of living. As a result, these rights are now implicitly recognised as being part of International Covenant on Economic, Social and Cultural Rights (ICESCR), Convention on the Rights of the Child (CRC) and the Universal Declaration of Human Rights (UDHR).

This means that for the very first time, all UN member States affirm that the rights to water and sanitation are legally binding in international law. This is indeed a moment for all of us to celebrate.

Yet this agreement is marred by the reluctance of the United States to join all other nations in a universal agreement on the definition of these rights (as defined in a resolution of the UN Human Rights Council (UNHRC) adopted by consensus in September 2013).

Writing about this, an Amnesty International <u>press release</u> says: "At the time [of the unanimous adoption of the UNHRC resolution] the United States was the only country that disassociated itself from the definition of these rights and stated that it did not agree 'with the expansive way this right has been articulated.' However, it has not explained what aspects of this definition it does not accept." The press release continues: "Such rights are only 'expansive' if one adopts a 19th century understanding of hygiene and of government duties to ensure the provision of public services."

At the behest of the United States the main sponsors of the <u>draft resolution</u>—Germany and Spain—tried to reach a consensus by removing the following paragraph, which contained a critical affirmation of the contents of these rights, from the resolution that was unanimously passed at the General Assembly this November:

"the human right to safe drinking water and sanitation entitles everyone, without discrimination, to have access to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use and to have physical and affordable access to sanitation, in all spheres of life, that is safe, hygienic, secure, and acceptable and that provides privacy and ensures dignity."

Given that this was the only reference in the <u>draft resolution</u> to the content of the rights to water and sanitation, the final resolution adopted is stripped of essential elements related to these rights.



Amnesty International is right that it is "incumbent upon the U.S. government to explain which of these aspects of the rights it cannot accept and why." The removal of that text from the resolution would seem to indicate that some aspects of our rights to water and sanitation are not guaranteed by the federal government. Which ones?

Quite apart from the domestic implications, such a position by the U.S. government also works against the interests of the billions of people who lack adequate access to water and sanitation.

The debate isn't over yet. Even though the references to the content of the rights to water were removed from the November resolution, UNGA's Third Committee endorsed the UNHRC resolution of September 2013, which elaborates the underlying essential elements of these rights. Thus, reintroducing the content of these rights in future texts on rights to water and sanitation should be quite straightforward.

The issue will likely come up <u>again</u> at the UN General Assembly next year. For the supporters of the <u>draft resolution</u> this offers an opportunity to reintroduce the removed language. For the United States too, that will provide a chance to stand on the right side of history, rather than holding back progress.

If and when a UN GA resolution is adopted with these amendments, it will indeed be a big step forward in advancing rights-based approaches to development. Yet, we need to be mindful that this will only be a baby step towards ensuring adequate access to water and sanitation for world's poor. It will require sustained work at multiple levels and spaces, including rethinking our water intensive development trajectory, to make it a reality for all.

"Why Is the US Getting in the Way of International Efforts to Make Clean Water a Basic Human Right?", 12/12/2013, online at: <a href="http://www.alternet.org/water/why-us-getting-way-international-efforts-make-clean-water-basic-human-right?page=0%2C0">http://www.alternet.org/water/why-us-getting-way-international-efforts-make-clean-water-basic-human-right?page=0%2C0</a>

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**A** sensible alternative to new dams

Manitoba Hydro, pressured by the provincial government, continues to spend and make commitments for its \$22-billion "preferred development plan."

The plan involves the construction of Bipole III, down the extreme west side of the province and through prime agricultural land, and two new northern dams, Keeyask and Conawapa (the dams in partnership with First Nations, their investments largely borrowed from Hydro).

If, instead of implementing its plan, the utility built a 850-megawatt gas-fired generating plant in Brandon, as advocated by Len Evans, a former NDP cabinet minister, Hydro could shelve Bipole III and Keeyask and, when the time came, decommission rather than replace Pointe du Bois, while increasing its overall capacity and diversifying its power generation, thereby reducing risks due to drought.

The cost of such a plant would likely be no more than \$1.25-billion, five per cent of what Hydro plans to spend on its current plans. No need to borrow \$20 billion, thus less capital tax, debt guarantee fees and interest costs for ratepayers to bear. As well, with a gas-fired plant there would be no water rental fees levied by the province, further reducing the cost loaded on to ratepayers, and no need for partners.

The construction of the plant in Brandon would involve about 800 construction and 50 ongoing, well-paying jobs for the area. It would also provide an opportunity to extract natural gas from southwestern Manitoba's share of the Bakken field, which is already producing oil and more resource jobs, along with pipeline construction to carry the gas to Brandon. The economic boost to the area would be in the hundreds of millions.

The demand for electricity in Manitoba is nowhere near high enough to justify the current plan. There has been no new major industry for Manitoba in years, with some operations either shut down (Tembec) or reduced (Vale and HudBay). Recently, despite Manitoba's low electricity prices and central geographic location in Canada, Rogers and Facebook took their expansions elsewhere.

Rather than counting on increased industrial activity, Hydro plans to export more power to largely American utilities, and boost Manitoba rates by more than 100 per cent over the next 20 years.

The known problems associated with Hydro's plans include a history of bad forecasts, including everincreasing construction cost projections. Low natural gas prices and sluggish growth in industrial



demand have led to low wholesale spot electricity prices. Adding to these concerns, there is increasing opposition from landowners to the Bipole III route and the risk of a substantial jump in interest rates.

And, there is growing recognition of needed repairs, upgrades and expansions to Hydro's infrastructure, adding another \$12 billion to the capital expenditure bill.

Under the current plan, future challenges would be met by a system for electricity generation that lacks diversity -- the next drought could devastate Hydro's financial position and require even higher rate increases.

In aggregate, Hydro's current forecast calls for large-scale borrowing by the provincial government. Governments have only so much room to borrow before credit agencies downgrade their credit rating, potentially bringing sharp increases in interest rates on the province's growing debt.

Let's summarize some of the advantages of adding a Brandon gas-fired plant to Manitoba Hydro's generation mix:

- Ability to develop Manitoba's own natural gas resources.
- Generating new jobs in Brandon for construction and continuing operation.
- Reducing the risks that lie with borrowing tens of billions of dollars.
- Eliminating the need for complex partnerships.
- Reducing the current forecast of four per cent annual increases in rates for Manitobans.
- Reducing the volumes of imported electricity required in times of drought.
- Increasing security of supply, a reduced dependency on lengthy power lines.
- Eliminating transmission line damage to Manitoba's prime agricultural lands.

The Selinger government has stated it has no interest in a gas-fired generation, yet Manitoba Hydro has had inefficient gas-fired turbines for a decade or more to provide the surplus capacity required to meet export rules.

Does the loss of revenue for government that would occur with a Brandon gas-fired plant -- due to the loss of water rentals and much reduced levies on Hydro for capital tax and debt guarantee fees -- play a role in its opposition to such a plant?

The building of new northern dams, with the additional transmission required for conveying the power south, west or east, should await a different day. Deferral would allow time for improved market opportunities to develop, reducing risks now present.



Let's re-evaluate the situation, put away ideologically based blinders and take a serious look at what likely would be the safest and most economical way to meet Manitoba's current power needs. Hydro's objectives used to be reliability and lowest possible rates, let's go back to them.

"A sensible alternative to new dams", 11/12/2013, online at: <a href="http://www.winnipegfreepress.com/breakingnews/a-sensible-alternative-to-new-dams-235354821.html">http://www.winnipegfreepress.com/breakingnews/a-sensible-alternative-to-new-dams-235354821.html</a>



### ❖ A Discussion on Biofuel Policies: A Key Link in the Water-Food-Energy Nexus

"In the last few months, the European Union started to take a closer look at the negative implications of biofuel subsidies and, in particular, the mandates, imposing biofuel as a percentage of transportation energy consumed," writes Peter Brabeck-Letmathe, Chairman of the Board at Nestlé S.A. "The closer look started to have an impact; but policy change remains slow, too slow."

A letter to Ministers for Energy of the European Union by Peter Brabeck-Letmathe, Chairman of the Board at Nestlé S.A, and Paul Polman from Unilever.

Therefore, Peter Brabeck-Letmathe from Nestlé together with Paul Polman from Unilever wrote to Ministers for Energy of the European Union. "While in my own argumentation", says Brabeck-Letmathe, "I mostly focus on the water as linchpin in the water-food-energy nexus for biofuels – up to 9,100 litres of freshwater are needed to grow the soy needed for 1 litre of biodiesel – the text below lists some other facts and figures to be considered."

"We are writing you to further your leadership in the battle against hunger and poverty by limiting the amount of food crops used to produce biofuels.

"The proposed 5% cap by the European Commission would have been a significant step towards phasing out the use of food for fuel. A 1% increase in biofuels produced from food crops would divert enough food to feed 34 million people. Across the G8 the amount of food consumed as fuel annually is already enough to feed more than 441 million people for a year, while the European taxpayer subsidizes the industry to the tune of  $\epsilon$ 6.2 billion per year.

"Biofuels continue to lead to food price rises. The EU's current biofuels targets, those that are being reviewed, could by 2020 increase oilseed prices by up to 20%, vegetable oil prices as much as 36%, maize by as much as 22%, sugar by as much as 21% and wheat by as much as 13%. The World Bank, OECD, WTO, IFPRI, IMF, and five other UN agencies have all told G20 governments that 'prices are substantially higher than they would be if no biofuels were produced.'

"The cost of food still represents, for many European families, a substantial share of their income. Any measure that can contribute to alleviate this situation is beneficial to Europe's economy and prosperity. But we also must keep in mind poor families in developing countries, where spending on



staple food for subsistence, particularly cereals most affected by biofuel subsidies, amount to 30-50% of disposable incomes.

"Furthermore, many of the recent large-scale land acquisitions in Africa, and worldwide, have taken place for biofuels. A report from the World Economic Forum also showed that Africa will become a very significant exporter of biofuels to the EU by 2020. ActionAid's research documenting European biofuels activities in Africa suggests that between 2009 and 2013, 98 biofuels projects have been started so far, covering six million hectares of land. These projects alone will be responsible for the yearly use of 35-40 km<sup>3</sup> of fresh water. This volume corresponds to 7-8 times the yearly needs of fresh water for the public water supply in Germany.

"The European Parliament also discussed the opportunity to introduce correct accounting for the full impact of biofuels on our climate, taking into consideration the CO2 emissions caused by deforestation and other negative factors caused by the production of biofuels (so-called Indirect Land Use Change factors - ILUC). The vote did introduce binding ILUC factors, but only from 2020. "Ahead of the next European Energy Council meeting in December, we urge you to strongly support a standstill-cap on biofuels that compete for food, towards an eventual phasing-out, and the introduction of binding ILUC factor accounting."

"A Discussion on Biofuel Policies: A Key Link in the Water-Food-Energy Nexus", 11/12/2013, online at: <a href="http://www.water-energy-food.org/en/news/view\_1435/a-discussion-on-biofuel-policies-a-key-link-in-the-water-food-energy-nexus.html">http://www.water-energy-food.org/en/news/view\_1435/a-discussion-on-biofuel-policies-a-key-link-in-the-water-food-energy-nexus.html</a>