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ORSAM WATER BULLETIN

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Issue 111

ORSAM WATER BULLETIN

14 January 2012 - 20 January 2013

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* Caspian water project authorized

Feasibility studies on desalination of Caspian Sea water have been completed, announced the caretaker of Energy Ministry's Water and Wastewater Department.

Alireza Daemi added that the project on transferring Caspian water to the Central Plateau of Iran would start from the next Iranian year (to start March 21).

He explained that the project's design and implementation will be conducted simultaneously, adding that permits have been obtained from various organizations.

"The project's report was sent to the Department of Environment and after four months, the permits were issued," he said.

The project is aimed at securing water for agricultural and industrial purposes and attracting investments to Iran's central districts.

"The project seeks to meet the water requirements of central regions that don't have access to water due to climatic and regional conditions," he said.

"Therefore, they have been deprived of development and access to new investments."

The project to transfer Caspian water is implemented for preventing uneven development as well as generating wealth in central Iran, and securing the water required by industrial units and mines.

Last month, Daemi said domestic firms have invested 200 trillion rials in water projects.

He also said Iran is one of the major countries involved in developing water infrastructures, adding that introducing the capabilities of the country's water sector and establishing an information network for the sector's industrialists, advisors, contractors and constructors are among important responsibilities of the water sector.

A comparison between the country's recently manufactured products, including taps, pipes and other water and wastewater equipment, and previous ones indicates that the Islamic Republic has become one of the world's



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major exporters of water equipment.

Daemi noted that latest studies by the standard and technical evaluation units show that Iranian products enjoy higher quality compared with the ones manufactured by China and Turkey.

He said Iran is 95 percent self-sufficient in producing the equipment for water and wastewater sectors.

"Iran possesses the technology to produce 100 percent of the equipment for water and wastewater sectors," he said.

Since certain equipments have limited applications and their production is not economically viable, they are imported.

"Caspian water project authorized", 16/01/2013, online at: http://www.zawya.com/story/Caspian water project authorized-ZAWYA20130116054053/

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* Op-Ed: In Israel, Water Prices Will Continue to Rise

On January 1st, the price of domestic water rose again in Israel. The cost of a cubic meter including sewage treatment is now 9.1 NIS for the first 3.5 cm a month and then 14.64 NIS for the rest.

My neighbor reacted with frustration, "But we are blessed with such a good start to the winter rains. When water is more plentiful shouldn't prices fall?"

That is the problem – Israeli government policy has created a complete disconnect between supply and demand. The government decided that we should no longer depend on nature but produce water through desalinating sea water. In an area of repeated periods of prolonged drought this indeed makes sense. The question is though, how independent of nature can we be, who benefits and who will pay the costs? The rising price of domestic water is a direct outcome of large scale desalination.

By the end of the year Israel should be desalinating over 300 mcm annually. Current plans are that by 2020, Israel will desalinate 750 mcm with some ministers calling for a billion mcm to be the target. Our domestic water needs are 700 mcm so that while presently we are producing desalinated water to meet half our needs in the future if these plans go forward we can do without the rains. Should we?

Desalination is in fact not at all independent of nature. In fact the process is very harmful to nature. The process is energy intensive – increasing electricity needs by 10 %, burning more fossil fuels that pollute the air and contribute to climate change (that guess what reduces rainfall). The brine emitted from the plants also pollutes our sea and our beaches.

Who benefits? The concession to build desalination plants is not undertaken by a government authority, but through the private sector in a Build, Operate and Transfer (BOT) arrangement. The same tycoons that control so much of our economy already are the ones that own the desalination plants too. They are building the plants on the promise that the government will purchase all water that they produce for a given price irrespective of anything.

Who pays? We do! The Israeli Water Authority told us just two summers ago in their commercials – 'save water now but in the future you will not need to as the desalination plants will be operating'. Last summer, with more desalinated water produced there were already next to no commercials. Encouraging water conservation, promoting grey water reuse that could reduce our water bills by half, are no longer in the interests of the Water Authority as the promise made to their friends, the



tycoons, is to buy up all the water they produce, even when the Kinneret overflows again as expected this year.

"Op-Ed: In Israel, Water Prices Will Continue to Rise",15/01/2013, online at: http://foeme.wordpress.com/2013/01/15/op-ed-israel-water-prices/

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Lake Kinneret adds 2m; hits highest level since 2007

Week-long torrential rain storms give Israel's freshwater reservoir much needed boost; Water Authority expects additional 50cm rise from snowfall

Lake Kinneret enjoyed a robust six-day period resulting in a massive rise of nearly a meter, the Water Authority said.

The weather system which brought a week-long rain storm to Israel has caused increased outflow in the rivers flowing to the lake, which is Israel's only freshwater reservoir, resulting in an 80cm rise in water levels in the span of five days.

The Sea of Galilee has added 2 meters since the winter began and is now at 211.20 meters below sea level.

The Kinneret's water level is now 1.80 meters above its lower red line and 2.40 meters below its upper red line – the highest level recorded since 2007.

According to the Water Authority, the recent snowfall is expected to add an additional 50cm to the lake – not taking into consideration future rainfall this season.

According to the water authority, the amount of water added to Lake Kinneret in January alone make up two-thirds of the lake's annual average.

"Lake Kinneret adds 2m; hits highest level since 2007", YNET, 13/01/2013, online at: http://mideastenvironment.apps01.yorku.ca/?p=6683

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World Bank: Red-Dead pipeline is feasible

Project connecting the two seas would be an environmental disaster, green activists warn.

While there may be environmental and social impacts on the region, a trilateral plan to construct a 180-kilometer pipeline transporting water from the Red Sea to the Dead Sea is feasible, a World Bank study has determined.

After nearly a decade of pondering the project in Israel, Jordan and the Palestinian Authority, the World Bank recently released its final draft version of its Red Sea-Dead Sea Water Conveyance Study Program: Feasibility Study.

Published as part of a series of studies, the World Bank printed the report alongside an environmental and social assessment study and a study of strategic alternatives, as well as various other studies and models of the Dead and Red seas – all done simultaneously, but conducted by different companies.

The main objectives of building a water conduit from the Red Sea to the Dead Sea would be saving the latter from environmental degradation, desalinating water, generating hydroelectricity at affordable prices and generating "a symbol of peace in the Middle East," according to the feasibility study.

The Dead Sea water level has been declining at a rate of more than a meter per year, with its surface area shrinking from 960 square kilometers to 620 sq. km. in the past 50 years, the report said.

The severe losses in the Dead Sea's volume are in large part due to the progressive decline of the Jordan River flow due to upstream diversion by Israel, Jordan and Syria.

Influx of water into the sea has dwindled from 1,250 million cubic meters per year in 1950 to around 260 million cu.m. per year in 2010, the report said. Meanwhile, there are less than 10 centimeters of rainfall in the area each year, with peak temperatures in the summer exceeding 45 degrees Celsius.

The feasibility study looked at three scenarios -a "no project" situation, a base case scenario to stabilize the Dead Sea, and a base case plus scenario that also includes desalination and hydroelectricity generation.

As the Dead Sea continues to decline, the report cited many benefits of going ahead with the project. With increased water influx, the project would gradually diminish the basin's sinkholes, as well as restore water to the groundwater table and curb the infrastructural erosion that has been plaguing the region.



In addition, the project would be able to reverse the decline in tourism that has been correlated to the plummeting level of the Dead Sea, the study said.

After examining all the alternatives, the feasibility study settled on the "base case plus scenario" as the best plan. The option would entail the lowest installed cost and far less onerous engineering, though it would involve higher net energy demands and generate a larger carbon footprint, the study said.

According to this plan, an eastern intake site would be submerged off the coast of Aqaba in Jordan at the site of an old thermal power station.

A combination of 180 km.

worth of tunneling and pipelines would extend from this point to the Dead Sea, with stops along the way for a tremendous desalination plant and two hydropower plants.

The desalination plant would have a capacity of 320 million cu.m. per year at startup, rising to 850 million cu.m. per year by 2060. It would require 247 MW of power in 2020, and 556 MW in 2060.

While the estimated total cost of the project is \$9.97 billion, the study concluded that it is economically feasible, and direct economic benefits exceed the costs by some \$1b.

The greatest risk posed by the Red-Dead pipeline would be the leakage of seawater into valuable groundwater, and appropriate engineering solutions must be incorporated to minimize the risk, the study said.

Examining the potential impacts of the project on the Red Sea, the study concludes that damage to benthic habitats, in the ecological region at the lowest level of the sea, can be minimized, as can disruption to coral reefs, by planting the intake site 90 meters deep or more.

In the Dead Sea region, the study predicted a change in chemical composition as well as a rise in gypsum growth, potentially causing increased whitening in the surface waters.

While Dead Sea salinity would probably decrease from the current 1.24 grams per liter to 1.17 gr. per liter, this would likely not be a large enough drop to cause increased red algae blooms, the study said.

Although the feasibility study may have identified the pipeline plan as the best solution, the Red Sea-Dead Sea Water Conveyance Study Environmental and Social Assessment published along side it highlighted many more risks.



One of the biggest concerns expressed in the assessment is "the risk that the influx of seawater and reject brine into the Dead Sea will cause changes to the appearance and water quality such that its value as a heritage site of international importance will be damaged."

There would also be a major impact on the Dead Sea's appearance and integrity, as well as the 48 archeological sites along the route.

Socioeconomic concerns would arise as residents protest the route and as labor accidents occur, and the appearance of the region's landscape would be affected by the new desalination and hydropower plants. Other negative effects would include damage to the region's ecology and hydrogeology, as well as the significant presence of nonrenewable energy resources generated in the region, according to the assessment.

In the other publication that was printed alongside the feasibility study – a report centered on alternatives to the Red-Dead pipeline – the authors focused on all options that would save the Dead Sea from environmental degradation, desalinate water, generate affordable energy and build a symbol of peace for the Middle East, the report said.

One of the alternatives presented is a "Lower Jordan River Option," with either full or partial restoration of historic Lower Jordan River flow levels using recycled water.

A second choice is a "Water Transfer Option," involving the transfer of water from either the Mediterranean Sea, from Turkey or from the Euphrates River basin. The "Desalination Option" suggests several desalination options rooted in the Mediterranean or Red Sea waters, while a "Technical and Water Conservation Option" proposes changes in technology used by the Dead Sea chemical industry and increased conservation in the Lower Jordan basin.

Aside from the Red-Dead pipeline, the report found that the Mediterranean Sea- Dead Sea conveyance would be the best option from cost standpoint, but also not without environmental and social impacts. Another option would be a combination of desalination at Aqaba and at the Mediterranean Sea, with water importation from Turkey as well as water recycling and conservation, according to the report.

In response to the feasibility study's unveiling, Development of the Negev and Galilee and Regional Cooperation Minister Silvan Shalom praised the World Bank's determinations.

"This cooperation will benefit all sides given the existing deficiencies in the area, and this will lead particularly to the salvation of the wonder of the world that is the Dead Sea," Shalom said. "The World Bank and donor countries believe in the ability to realize cooperation from this activity.



From here on we will harness the influential bodies in order to ensure that the project will implemented in reality."

Cross-border environmental organization Friends of the Earth Middle East, however, called the World Bank "irresponsible," slamming the idea that a Red-Dead conduit was environmentally and economically feasible.

"If this project were to go forward, the real beneficiaries would be Israeli business tycoons associated with the building of the largest desalination plant in the world, and foreign pipeline construction companies," said Gidon Bromberg, Israeli director of FOEME. "The public would be the ones to foot the bill, twice over – once, in unaffordable water prices, and again, in the further demise of the environment."

The group pointed out that the report warms of gypsum formations as well as the possibility of polluting the groundwater and the leap in energy usage.

While the report deemed the project economically feasible, it failed to point out that the \$2.6b. of private sector funds required would be dependent on receiving \$5b.

worth of international grants and \$2.5b. raised by Jordan for water infrastructure costs, according to FOEME.

"The study seems to forget that there is a global economic crisis, that Jordan is on the verge of bankruptcy, and that Israel is heavily in the red. The study also ignores the fact that a cubic meter of water from this project would cost up to \$2.7b. in Jordan; an impossible expense for Jordanians to pay, that will lead to riots in the streets," said Munqeth Mehyar, Jordanian director of FOEME.

"Similarly, for Israelis and Palestinians, the water from this project will cost \$1.8 per cubic meter, more than triple the cost of desalination at the Mediterranean," he said.

In November, the Jordanian Water and Irrigation Ministry announced that due to financial obstacles and feasibility concerns, the country would be downsizing its participation in the potential project, The Jordan Times reported at the time. The ministry said the country would now be initially desalinating only about a quarter of what it had original planned, according to the Jordanian newspaper.

Nader Khateeb, Palestinian director of FOEME, deemed the 10 years of research that the World Bank put into studying the Red-Dead idea as "wasted" time. During that period, international attention should have been devoted to the "root cause of the problem and the real reason for the shrinking of the sea – the diversion of the Jordan River flow and the unlimited use of Dead Sea waters by the mineral industries," Khateeb explained.



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The alternative study demonstrates that there are indeed other options that can help stabilize the Dead Sea and provide more water to the region while promoting regional cooperation – including a plan combined with Jordan River rehabilitation that would require Israeli Dead Sea Works and the Jordanian Arab Potash to pay for the water they extract, FOEME said.

"The bottom line is that the bank doesn't have an opinion yet," Bromberg told The Jerusalem Post. "The bank is presenting three different studies written by three different groups."

"World Bank: Red-Dead pipeline is feasible ",Jerusalem Post, 17/01/2013, online at: <u>http://mideastenvironment.apps01.yorku.ca/?p=6719</u>

ВАСК ТО ТОР



***** Kinneret Waters Continuing to Rise

The waters of Lake Kinneret (Sea of Galilee) are continuing to rise. In the past 24 hours, the level of the lake rose 2 cm.

With at least two more months to go till the end of the rainy season, the waters of Lake Kinneret, the Sea of Galilee are continuing to rise in what has been the wettest winter in the past 10 years.

Over the past 24 hours, the level of the lake has risen by another two centimeters, to 210.99 meters below sea level.

But with eight more feet (2.438 meters) to go before the lake reaches its maximum capacity, it is still unlikely authorities will need to open the Degania Dam this year in order to keep the lake from cresting.

Located in the northern part of the Dead Sea rift in the African-Syrian Rift valley, the Kinneret is Israel's only natural freshwater lake, and a crucial source of water for the country. It provides more than half of the country's water demand.

The northern Jordan River provides most of the lake's water supply, entering the Kinneret from the north and flowing out again from the south.

At its highest water level, the surface area of the lake is 168 square kilometers, with a maximal water depth of 46 meters, and a volume of 4,150 million cubic meters (MCM). The average depth of the lake is 25 meters. Much of the data collected on the operation of the lake and its drainage basin is gathered by scientists from the **Kinneret Limnological Laboratory (KLL)**, established in 1968.

"Kinneret Waters Continuing to Rise", 16/01/2013, online at: http://www.israelnationalnews.com/News/News.aspx/164258#.UPmxnB26fIQ

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Palestine believes monitoring system at water plant will save in the long run

EAST PALESTINE - Spending a little more money now to address problems at the water plant is the best move for the village, Village Manager Pete Monteleone said Monday.

Monteleone explained to council that purchasing a System Communication and Data Acquisition (SCADA) system to monitor the plant's distribution equipment, including the two lift stations, will allow the department to respond more quickly in the event of a water leak or equipment malfunction.

Water and Wastewater Superintendent John Jurjavcic said the current monitoring system installed in the 1990s is antiquated and cannot be repaired if it fails.

Now, only water levels in one of the plant's two storage tanks are monitored through an AT&T land-line telephone system. Dante Fiorino, of MS Consultants, said the current system is costing the village \$400 to \$450 a month in utility bills for that tank. The SCADA system would be completely web-based and cost roughly \$200 a month in utility bills.

"The best argument for this system is it's going to be cellular-based. There will be seven cellular sites and three radio sites," he said.

The system would cost about \$61,000 and will monitor water levels and the overall operation of all water towers, each booster pump and the lift stations, and Jurjavcic can access that information online or through a Smartphone, he added.

"I can go on a Smartphone and take a look at the system and see what pumps are down. It will let us know right away if we've got a problem. It's something that should have been here for years," Jurjavcic said.

The booster pumps are not monitored through the current system.

"There is no way to monitor these stations unless we go out and see (them) physically," he said.

Booster pumps are located on Jimtown, McClure, and Hamilton roads and the Stacey and Howell roads intersection.



The pump on Stacey and Howell feeds the Covington Nursing and Rehabilitation Facility and the plant's two lift stations serve the Vineyards and Leslie Run Estates housing developments.

Fiorino said the web-based system will help the plant avoid "major, major breakdowns and issues."

According to Jurjavcic's year-end report provided to council, in 2012 the water department handled 80 reports of high consumption and repaired or replaced equipment 37 times.

He has previously said high consumption is sometimes caused by a leak in the system. In October and November combined the department was called upon to check five different leaks.

He and Fiorino began looking into the SCADA system while looking for a system to monitor the new tank at the Wheathill Reservoir.

Council approved hiring Gateway Tank in October for \$478,669 to replace the in-ground, centuriesold tank at the reservoir after being told to do so by the Environmental Protection Agency.

Fiorino said \$50,000 was already included in the project's budget for a monitoring system there, but he and Jurjavcic found a system could that could monitor the entire plant instead for only \$11,000 more.

That cost would also be reduced since the system would be eligible for the 20 percent principal forgiveness already awarded for the reservoir project, he explained.

The village has 20 percent forgiveness on the project through the EPA's Water Supply Revolving Loan Fund.

Fiorino said the \$61,000 includes the small fee for the storage of the information on servers owned by Mission Communications.

Jurjavcic said Mission is the company used by most government defense agencies and would protect the information from hackers and malware.

"All data is backed up continuously," he said.

He also said the plant's equipment cannot be controlled through the web-based system, meaning any planned shutdowns or restarts would be through manual means on site.



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Monteleone said if council chooses not to proceed with the new system now they will not receive the 20 percent forgiveness and likely pay more money in the future.

"We are trying to be creative ... and use money that was already budgeted," he said.

Council then approved a motion to authorize submission of a change-order for the system.

"Palestine believes monitoring system at water plant will save in the long run", 16/01/2013, online at: <u>http://www.morningjournalnews.com/page/content.detail/id/545469/Palestine-believes-</u> <u>monitoring-system-at-water-plant-will-save-in-the-long-run.html?nav=5006</u>

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Floods, Climate Change and the Garden of Eden?

Are <u>Jordan's snow</u> and <u>Israel's floods</u> signs of climate change or are they simply flukes of weather? People might argue this for decades there is strong evidence that Mideastern climate has changed dramatically over thousands of years and there is evidence that humans can negatively impact their environment over a much shorter time period.

The fertile plain between the Tigris and Euphrates have long been known as the <u>cradle of civilization</u>. It is where the wheel, writing and cities were invented. It contained the marsh where the Sumerian's creation took place. It was the <u>biblical Eden</u>. The Garden of Eden was described with such beautiful language in Genesis:

"And a river went out of Eden to water the garden; and from thence it was parted, and became into four heads. The name of the first is Pison: that is it which compasseth the whole land of Havilah, where there is gold; And the gold of that land is good: there is bdellium and the onyx stone. And the name of the second river is Gihon: the same is it that compasseth the whole land of Ethiopia. And the name of the third river is Hiddekel [Tigris]: that is it which goeth toward the east of Assyria. And the fourth river is Euphrates" (Genesis 2:10-14).

One can almost smell the bdellium-scented breeze moving over the garden's dark leaves and taste the sweet fruit of the tree of life. Eden's location was given in relation to the lands of Assyria, Kush and Havila ('Stretch of Sand'.) It was said to be a meeting place of four great rivers; the Pishon, Gihon, Tigris and Euphrates.

According to the Oxford Dictionary of the Jewish Religion (2011) the name 'Eden' comes from an Aramaic word meaning fruitful and well-watered. But Saddam Hussein diverted the waters of the Tigris and Euphrates away from this region and <u>dried up the remains of the world's oldest garden</u> in order to punish the 500,000 <u>Marsh Arabs</u> who lived there.

He also punished the animals of this region and destroyed the plants. This along with the oil fires and the draining of the Aral sea are some regional examples of the human ability to destroy significant



parts of our environment within the short span of a human life. Those who say we are too small to impact our world have lost touch with recent history.

The Tigris and Euphrates rivers are well-known, but the locations of the other two biblical rivers, the Pishon and Gihon, were lost in time. Farouk El-Baz, the same Egyptian-American geologist who found ancient lakes beneath the deserts of Egypt and Sudan, used satellite technology to locate what may be the Pishon river in a dry channel which runs from the Hijaz mountains near Medina northeast to Kuwait.

Two rivers were diverted by man, two vanished into the desert sand.

This region is also where agriculture began and there is some evidence that the fig tree was the first plant to be cultivated. Agriculture allowed us to exchange a nomadic existence for settlements and this began a perilous dependence on technology and <u>environmental modification</u>. Once we began modifying our environment there was no turning back. Perhaps Genesis explained it best:

"Cursed is the ground because of you; through painful toil you will eat of it all the days of your life. It will produce thorns and thistles for you, and you will eat the plants of the field. By the sweat of your brow you will eat your food until you return to the ground, since from it you were taken; for dust you are and to dust you will return."

The Flood

The desertification of two biblical rivers were by no means the only catastrophic environmental change in the Mideast. We've seen evidence that <u>Egypt's pyramid builders may have been affected</u> by long periods of drought and fires. Another climate catastrophe happened sometime around 8,000 years ago after the last ice age ended. Sea levels rose until the Indian Ocean broke through the straits of Hormuz<u>flooded what had once been a fertile oasis in the desert</u> between these four ancient rivers. A land the size of Great Britain disappeared beneath the sea. If this is where Eden was, we can never return.

The sea may have continued to rise. When Portuguese explorer Pedro Teixeira visited Bahrain in 1603, he saw how fresh water was obtained from springs three and a half fathoms beneath the sea. Men would earn their living by diving down with water skins, collecting fresh water and bringing it to the surface.



In "Kings of Harmoz", he wrote that, "Certain of the oldest Moors of the isle, with whom I spoke of this, told me that these springs were once far inland; but the sea broke in and overflowed them, as we see at this day."

The end of the last ice age also raised the sea levels of the Mediterranean and sea of Marmara until about 7000 years ago they broke through the Bosporus channel in Turkey. Robert Ballard, the undersea explorer who rediscovered the Titanic, has been exploring the sterile bottom of the Black Sea. He found evidence of ancient shorelines and even human settlements far beneath these notoriously stormy waters.

Ballard recently found evidence that the sea level rise was not gradual here. He told ABC news, "It probably was a bad day. At some magic moment, it broke through and flooded this place violently, and a lot of real estate, 150,000 square kilometers of land, went under."

In the six hundredth year of Noah's life, on the seventeenth day of the second month—on that day all the springs of the great deep burst forth, and the floodgates of the heavens were opened. ¹² And rain fell on the earth forty days and forty nights. (Genesis 5:32 11-12)

Was there 100% chance of rain in northwestern Turkey on the seventeenth of February 8000 years ago? Can anyone say they understand climate based on their personal experience? Societies which are focused on individualism, fads and the next 90 days of corporate profits are unlikely to see the big picture that even a six hundred year-old Middle Eastern man was too young to fully understand.

"Floods, Climate Change and the Garden of Eden?", 13/01/2013, online at: http://www.greenprophet.com/2013/01/floods-climate-change-and-the-garden-of-eden/

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Israel Floods Replenish the Med and Dead Sea

Israel, like other rich countries in the Middle East, <u>has had to rely a lot on desalination plants</u> to supply much of its drinking water. Desalination now supplies Mideast countries like Saudi Arabia, which is <u>said to have the world's largest desalination plant</u>. The country receives almost all its fresh water supplies from this energy-intensive process.

In addition to using a significant amount of energy to remove salt and other minerals as well as various pollutants from sea water, the process also is responsible for contributing to raising the salinity levels in sea water due to the highly saline outflow that is returned back into the sea during the desalination process. Studies that have been made to this effect indicate that as more and more desalination plants are used, especially in countries like Saudi Arabia, Australia, the United Arab Emirates and Israel, the sea water in these regions will become more and more saline which will be very damaging to marine life.

The recent winter storm that slammed into Israel, Jordan, Lebanon and other Middle Eastern countries, brought rain and <u>winds of almost biblical proportions and literally swamped Tel Aviv</u> and other cities. While the flood and wind damage was significant, there was a silver lining to all the clouds as millions of cubic meters of fresh water not only helped fill reservoirs such as the Sea of Galilee, Israel's largest inland fresh water lake, but also helped replenish the water level in the Dead Sea which in recent years has had significant drops in its water level due to its main water supply source, the Jordan River, being reduced to a mere trickle.

The lack of water in the Dead Sea was brought to world attention with demonstrations by photo artists such as Spencer Tunick, whose nude art photography was shown graphically with the help of 1,000<u>Israelis who posed naked in the Dead Sea's placid waters</u>.

The significant flooding that occurred in the desert areas near the Dead Sea helped supply that lake with much needed water supplies. In the coastal areas, flooding of streams like the Kishon, Alexander and Hadera caused havoc to area residents; <u>especially in the city of Hadera and the Arab</u> <u>community of Baqa al Gharbiya</u> where an entire neighborhood had to be rescued by the Israel Navy.



Flooding of the Ayalon and Hayarkon streams in the Tel Aviv area have resulted in large amounts of fresh water finding its way into the Mediterranean and thereby helping to reduce the salinity increase caused by the country's coastal desalination plants.

An official for the Mekorot Water Company was quoted as saying that last week's storms resulted in the creation of as much fresh water as an entire year of operation by all of Israel's desalination plants. The Sea of Galilee lake alone is said have increased its water level by almost 75 centimeters, and it is now the highest it has been in 20 years.

While last week's stormy weather will not on its own solve the water problems of Israel and other regional countries, it certainly offered a welcome respite, despite the damages caused.

"Israel Floods Replenish the Med and Dead Sea", 15701/2013, online at: <u>http://www.greenprophet.com/2013/01/israel-floods-storm-red-sea-med/</u>

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* Israel no longer thirsty after rains, minister says

Energy and water chief Uzi Landau tells cabinet that the recent storm swept the country out of its water crisis

After several years of drought, Israel's water needs are finally quenched, Minister Uzi Landau said Sunday, citing heavy rains from the week before that helped fill the Sea of Galilee.

Israel suffered its heaviest storm in decades last week, with large amounts of rain and snow being dumped around the country. The Sea of Galilee, the country's largest freshwater reservoir, swelled to its highest point since 1994.

Landau, the water and energy minister, told the weekly cabinet meeting that by the middle of last week 130 percent of the annual average had fallen in the wettest start to a winter for decades.

The rise in lake level comes after nearly a decade of below-average rainfall, which plundered Israel's water reserves and led to a sharp increase in the cost of the wet stuff. A <u>price hike</u> went into effect at the beginning of January.

Landau said the country had emerged from a period of crisis into a period of stability.

Though the rain petered out on Thursday, over the weekend the level of the Sea of Galilee rose by 13 centimeters, adding up to 84 centimeters gained since the start of the storm over a week ago.

In total, the lake is now 1.93 meters above the lower red line and 2.27 meters below the upper red line, beyond which the lake's floodgates must be opened to prevent flooding.

The reservoir may rise an additional 45 centimeters as the rest of the snow that fell in the north melts and runs into the lake, Globes reported.

The bumper rainfall has already poured over 100 million tons of water into the Sea of Galilee. Inadequate rainfall in previous years had left the water level in the lake at record lows.

"Israel no longer thirsty after rains, minister says", 13/01/2013, online at: <u>http://www.timesofisrael.com/israel-no-longer-thirsty-after-rains-minister-says/</u>

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Eldridge goes to Israel to discuss water conservation, treatment

Two area legislators recently returned from a delegation trip to Israel where they met with representatives of the water industry to learn how the Middle Eastern state became a world leader in water conservation and treatment.

State Rep. Carolyn Dykema, D-Holliston, and state Sen. <u>Jamie Eldridge</u>, D-Acton, were part of a 50person delegation that traveled all around Israel this week and last week to meet with business people, academics and politicians. The trip included visits to the Israel Institute of Technology, the Shafdan Wastewater Treatment Plant and Jerusalem.

"It was really a fascinating experience," said Eldridge.

This trade mission grew out of Gov. Deval Patrick's trip to Israel in 2011, where he discussed potential trade and business relationships between Israel and the Bay State. No state money was used to pay for the trip, Eldridge and Dykema said. It was paid for with private and personal funds. The pair was approached about joining the delegation because they co-chaired the Water Infrastructure Finance Commission.

In addition to learning about Israel's water innovations, Eldridge had a chance to learn about the politics, policies and history of the area, which included a meeting with Palestinian Prime Minister Salam Fayyad in the West Bank.

"I think what I most appreciated is there was a commitment by the organizers of the trip to meet with Israelis and Palestinians from all perspectives," said Eldridge.

The senator said Fayyad was very passionate when he talked about the Israeli-Palestinian conflict, as well as the Unites States' role in the Middle East.

"He felt President Obama and his administration needed to do more to bring the two sides together," said Eldridge. "It was really fascinating to talk to him about some of the challenges."

Eldridge represents the Middlesex & Worcester district, which includes Acton, Ayer, Boxborough, Harvard, Hudson, Littleton, Maynard, Precinct 3 of Northborough, Shirley, Southborough, Stow,

Precincts 2, 3 and 5 of Sudbury, Westborough, Marlborough and Devens.

Eye on demand

Israel, which has a population of about 7.9 million, has the world's largest water desalination plant at the lowest-cost operating expense, and has an 86 percent water recycling rate, making it the No. 1 recycler in the world, according to a press release from the New England-Israel Business Council.



Eldridge and Dykema got to see that innovation first hand. Both saw how invested the Israeli government is in water innovations, including the government's willingness to pay for pilot programs between municipal water districts that partner with new technologies. And also allowing startup companies to test their water programs before they look for financing.

"They have a strong focus on innovation," said Dykema. "The idea is they develop all these great new technologies to meet local needs, but make it easy to take them to the commercial level." Eldridge said he has at least three legislative measures he will look to file at the State House as a result of this trip, including one similar to the funding program for water districts and new technologies. Dykema said she would definitely be putting something forward in the House of Representatives, but it is too early to tell what the bills would include.

One technology Dykema said she was impressed with that relates to Massachusetts' water infrastructure needs was a technology that improves the lining of water pipes from the inside, which means roads do not have to be dug up.

"They obviously face some very significant challenges with water over there," said Dykema. Because the Israeli-Palestinian conflict recently escalated, there was some discussion about canceling the trip, Eldridge said. A decision was made about a week before the start of the trip to go as planned. "I will say, when I was there, I felt really safe," Eldridge said. "Although you could feel through conversations and different meetings, you could feel the tension of what the conflict does to people." State Sen. Jamie Eldridge covers the Middlesex & Worcester senate district which includes the town of Littleton.

"Eldridge goes to Israel to discuss water conservation, treatment", 13/01/2013, online at: http://www.wickedlocal.com/littleton/news/x1069946717/Eldridge-goes-to-Israel-to-discuss-water-conservationtreatment#ixzz1Vy2EXNE

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* Egypt's Nile quota too low: Minister

Egypt's quota of water from the Nile River is not enough, a spokesperson at the water resources ministry told Ahram Online by phone on Monday.

Khaled Wassif confirmed what Water Resources Minister Mohamed Bahaaeddin said on Saturday in an interview with the Chinese news agency Xinhua.

Wassif told Ahram Online that Egyptians currently consume roughly 62 billion cubic metres of water per year from the Nile River, but the official quota is 55.5 billion cubic metres.

"We are handling the 7 billion cubic metres gap in annual water consumption through waterrecycling methods," he explained.

In May 2012, the Egyptian National Planning Institute stated that Egypt would need nearly 50 per cent more Nile water by 2050 to cater for an estimated population of 150 million people.

According to Xinhua, Bahaaeddin repeated Egypt's refusal to sign the Entebbe agreement with the Nile Basin countries regarding the reallocation of Nile water.

"The Entebbe agreement is useless without the signatures of Egypt and Sudan," the State Information Services has quoted the minister as saying telling Xinhua.

Egypt is a member in the Nile Basin Initiative (NBI), a partnership of Nile states aiming to share the river's socio-economic benefits and promote regional security.

Nine countries are involved in the initiative: Egypt, Sudan, Ethiopia, Uganda, Kenya, Tanzania, Burundi, Rwanda and the Democratic Republic of Congo.

Bahaaeddin said the Egyptian government was looking forward to the partnership with Ethiopia regarding the \$4.1 billion-Grand Renaissance Dam along the Nile River in the western Benishangul-Gumuz region, which will be completed by 2015 and generate 6000 mega watts of electricity.

"Egypt's Nile quota too low: Minister", 14/01/2013, online at: http://english.ahram.org.eg/NewsContent/3/12/62463/Business/Economy/Egypts-Nile-quota-too-low-Minister-.aspx

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Sudan: Nile Project Aims to Unite Riparian Communities

Aswan, Egypt — Representatives from Nile basin countries including Sudan have travelled to Egypt as part of an international project to improve cooperation on water management issues.

More than 25 participants from riparian communities are in Aswan to attend the inaugural event, organized by the Nile Project.

They have been joined by activists from around the world, including the United States, Canada, Germany, the U.K and Japan.

The so-called Nile Gathering in Aswan is the first in a series of events organized by the advocacy group as part of a broader three-year program to address cultural and environmental challenges facing the Nile basin.

The Nile Project is the brainchild of Egyptian ethnomusicologist Mina Girgis and Ethiopian-American singer Meklit Hadero.

The Nile River runs through 11 countries, including Sudan and South Sudan, linking numerous communities and cultures.

However, despite the interdependence of these communities, no attempt has been made to bridge communal and cultural gaps.

"These issues have been ignored in past centuries by politicians and governments," says one expert, who is interested in how to better strategize the role of communities in the Nile river ecosystem.

The gathering encompasses a four-day strategic planning workshop that builds on the project's mission to connect the people of the Nile basin through cultural dialogue, followed by a two-week residency program to develop music that can inspire cultural and environmental awareness.

Continuing until January 29, the workshop brings together expertise in the fields of environment, culture, agriculture, finance, education, development, nonviolent communication, cross-cultural dialogue, conflict resolution and intercultural learning



The event is being hosted at the Fekra Cultural Center, a choice which reflects the group's deep awareness of the historical developments that have taken place in Nubia.

The center is located on the east side of the Nile between the High Dam and the Old Aswan Dam near the Greco-Roman Philae Temple.

The area is the former site of the first cataract of the Nile before it was flooded a century ago.

In the past it also served as the main river harbor between Egypt and Sudan, as well as the African interior before the construction of the Aswan High Dam in 1971.

"We were rich and happy," laments Fekra Center founder Abdel Khalek El Betiti, pointing towards a deserted railway station.

"Trade between Egypt, Sudan and other parts of Africa passed through the railway station. Now there is nothing."

The area now stands as a stark example of how human attempts to harness nature impact on the lives of local communities and their social and economic ties.

Their daily 15 minute trip from the their hotel in Aswan to the Fekra Center serves as a reminder for event participants of how the first human civilization came to be cut short by modern technologies which have forever altered the landscape and transformed human activity.

Construction of dams along the Nile River by Sudan and the Egyptian government has seen large tracts of Nubian land along with numerous archaeological treasures submerged.

During the 1960s thousands of Nubians were displaced and forcibly relocated to Eastern Sudan, some 700 kilometers from their ancestral homeland.

Sudan is highly dependent on flows from the Nile for domestic and irrigation use and has constructed a number of dams along the river and its tributaries.

Today tensions over water allocations and management issues continue to strain relations between the different Basin countries.



It's hoped the project will inspire, educate and empower Nile citizens to work together to strengthen the sustainability of the river's ecosystem.

Girgis says he is excited about exploring new approaches of understanding the Nile as one system where fishing, irrigation, tourism, and transportation are intricately related to climate change, floods, droughts and dams.

"Most of us who live within this system have no idea what these relationships mean", explains Girgis.

"How do all these worlds affect one another? How do they come together to affect the Nile? And what can we do to help restore the equilibrium of this complex system?"

"Sudan: Nile Project Aims to Unite Riparian Communities", 16/01/2013, online at: <u>http://allafrica.com/stories/201301160276.html</u>

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* Is it time to rethink water and energy links in Middle East?

Some 30,000 people from 150 countries have converged this week in Abu Dhabi to discuss energy, water, and how to build a more sustainable and climate-resilient future.

The Arab nations have not historically led on this front, yet this is the third time in nine weeks that they've stepped into the spotlight.

In November, Qatar hosted the International Conference on Food Security in Drylands, which highlighted the importance of sustainable water resource management.

Then, while hosting the UN Climate Change Conference in Doha, the government of Qatar <u>announced plans</u> to build 1.8 GW of solar power by 2020. Abu Dhabi, home since 2011 to the International Renewable Energy Agency (IRENA), has set out to produce 7% of its power from renewables by 2020.

Ambition is catching, and countries all across the Middle East and North Africa are setting <u>renewable-energy goals</u>: 5% of by 2020 in Kuwait, 5% by 2030 in Dubai; one-third by 2032 in Saudi Arabia; 12% by 2020 in Lebanon, 20% by 2020 in Egypt. But will they make it happen?

A great deal of our work at the Stockholm Environment Institute entails helping policy-makers envision the future, grapple with uncertainties, and find solutions that are both sustainable, and robust under diverse scenarios of climate change and socio-economic development.

We build models for water and energy systems, looking decades ahead, and evaluate multiple options to achieve the desired goals.

In most places, water and energy are governed separately, but one fundamental lesson of our work is that almost invariably, the <u>two sectors are closely linked</u>.

Water is essential to producing energy: growing bioenergy crops, processing fuels, cooling thermal power plants, generating hydropower. At the same time, energy is essential to water systems: for pumping, transporting and treating.

In water-scarce regions such as MENA, those linkages are even tighter and more challenging. Desalination, a key adaptation measure in the region, for example, is very energy-intensive and can



increase Co2 emissions if it uses fossil fuels, as is now the norm; Saudi Arabia alone uses <u>1.5 million</u> <u>barrels of oil</u> per day for desalination.

Renewable energy sources, including biofuels, hydropower and solar thermal may use large quantities of water, depending on the context and technology.

As part of the GIZ (German Agency for International Cooperation) programme Adaptation to Climate Change in the Water sector in the MENA region, which supports the League of Arab States and national water ministries, SEI is examining linkages between climate, water and energy in these countries.

Our initial analysis, focused on Jordan, Egypt and Lebanon, found many potential tradeoffs *and* synergies, highlighting how an integrated, "nexus" approach to water and energy planning – and to climate change adaptation and mitigation – could lead to smarter, more resilient development solutions.

Innovative thinking

Take Lebanon, a water-rich country by MENA standards.

Much of Lebanon's water comes from snow that falls on its mountains and then melts gradually, yet that snowfall could decline sharply: by 40% with 2°C of warming, and 70% with 4°C, according to the country's Second National Communication to the United Nations Framework Convention on Climate Change.

Because Lebanon is narrow, water also quickly runs off from the mountains into the sea. And coastal aquifers are threatened by seawater intrusion from over-pumping and sea level rise.

Lebanon wants to tap its extensive hydropower potential, but building dams – the most common approach – could divert water from irrigation and urban uses, losing significant amounts of water through evaporation from the reservoirs.

Multi-functional reservoirs (e.g. hydropower, plus irrigation, plus recreation) might help to increase water productivity.

Hydropower is also important for Egypt, supplying 13% of the country's power, mostly from the Assuan High Dam.



Climate change could seriously compromise storage and hydropower production; Egypt also wants to increase its energy efficiency by 20% by 2022, which will help – but it's unlikely to suffice given that Egypt's population is growing by 20% every 13 years.

One promising option for Egypt and other MENA countries is solar-powered water pumps, which are both climate- and energy-smart and take advantage of the fact that highest demands for water pumping (for irrigation) coincide with highest solar insolation in summer.

Treating and reusing wastewater and recovering energy from the sludge would also yield significant benefits; Egypt is ahead of the pack in this regard – the Al Gabal Asfar water treatment plant is nearly energy self-sufficient.

Regional planning

In Jordan, meanwhile, 15% of energy demand comes from the water sector, and desalination would increase this.

While some proposed future energy pathways (e.g. nuclear or mining of oil schists) would be very water-intensive, Jordan has also been proactive in addressing the water-energy nexus, with strategies such as energy-smart water pumping and energy recovery from wastewater treatment plants.

The Jordan National Water Strategy specifically calls for increased energy efficiency in the water sector and sets a goal of supplying 20% of the power for water pumping from alternative energy sources.

A key first step for the MENA countries is thus to embed "nexus" thinking in their policy-making and resource management, fundamentally changing their approach to water, energy and climate.

A pair of tools from SEI can support integrated analysis and planning: the Water Evaluation And Planning (WEAP) system and Long-range Energy Alternatives Planning (LEAP) system, both of which are well known and used in the region, and can now be used together.

There is also great potential for regional cooperation, in knowledge and technology sharing, joint resource management (as within the Nile basin), and joint initiatives to promote nexus-based solutions.



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A regional approach could also open up new finance options, such as enhanced access to global climate funds or the creation of a dedicated MENA climate fund, perhaps through the OPEC (Organization of the Petroleum Exporting Countries) Fund for International Development.

"Is it time to rethink water and energy links in Middle East?", 17/01/2013, online at: <u>http://www.rtcc.org/rethinking-water-and-energy-links-in-middle-east/</u>

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***** OSCE Interested in Small Hydropower Engineering in Tajikistan

A memorandum of cooperation between the Energy and Industry Ministry of Tajikistan and the Organisation for Security and Cooperation in Europe (OSCE) was signed last Friday in Dushanbe, AsiaPlus reported on Monday.

According to the Tajik Energy and Industry Ministry, the document was signed following a meeting of Energy and Industry Minister of Tajikistan Gul Sherali with OSCE Ambassador to the country Ivar Vikki.

According to the report, during the meeting discussions covered the state and prospects of bilateral cooperation in the energy sector and in particular, on the reconstruction and modernisation of existing small hydropower plants in regions of Tajikistan.

By 2015 it is planned to build 70 more small HPPs in Tajikistan.

"OSCE Interested in Small Hydropower Engineering in Tajikistan", 14/01/2013, online at: http://amudaryabasin.net/news/osce-interested-small-hydropower-engineering-tajikistan

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* Chemical dump affects water supply in Shanghai

Authorities in Shanghai have been offering emergency water supplies to residents of asouthwestern suburb after a discharge of chemical waste into a river required the waterto be cut off to about 30,000 people.

Firefighting departments were organized to deliver clean water in fire engines forresidents living along the lower reaches of the contaminated river, and three largesupermarkets and bottled water suppliers have been asked to shift more products to the affected districts — Jinshan and Songjiang.

Police said they had detained 10 suspects from a local logistics company linked to theillegal discharge of pollutants containing styrene — a chemical hazardous to theintestines, kidneys, and respiratory system if ingested — from a tanker into the river inJinshan.

Urban areas of Shanghai have remained unaffected so far, said the authorities, but it is stimated it will take two days to resume normal water supplies in the affected areas.

The incident, coming shortly after the major chemical contamination of a river in NorthChina's Shanxi province, has highlighted the country's toughening battle to ensureresidents have access to safe drinking water.

Residents in the two districts affected started smelling a strong odor at around 7:40 pmon Thursday with some reporting dizziness or other discomfort.

Inspectors later found that the source of the pollutants came from the river in Jinshan, which contained high levels of styrene. Water supplies from two plants in Maogangtownship in Songjiang were cut off early on Friday morning as a result, and water plants nearby regions were also watched closely.

We have mobilized 14 fire engines to dispatch fresh water to eight villages in thetownship," said Wu Jianliang, the head of Maogang, according to a report oneastday.com.

"Supermarkets and small shops were also contacted to deliver 5 liters of clean water toeach household to ensure residents have access to drinking water," he added.



Bottled water at local supermarkets was still sold out on Friday, with residents standingin long lines to fetch water dispatched from fire engines.

Authorities in nearby neighborhoods were also ready to offer clean drinking water, once their water sources had been tested.

"We have launched an emergency plan and are standing by," said Bao Linjun, anofficial with the Lindong neighborhood committee in Jinshan district.

"We have notified Hualian supermarkets to offer bottled water if required. But currentlythe water source remains unaffected in our region."

Authorities, meanwhile, have intensified their inspections at rivers in Songjiang, Minhang, Jianshan and Qingpu districts, taking tests every hour.

The environmental protection department said the air quality has improved, though the pollutants had drifted to Jiashan and Pinghu in nearby Zhejiang province by earlyFriday.

Police said they are still investigating the incident.

"Chemical dump affects water supply inShanghai", 14/01/0213, online at: http://english.peopledaily.com.cn/90778/8090445.html?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_ca mpaign=a21d69d42d-RSS_EMAIL_CAMPAIGN&utm_medium=email

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Digging for Water, But Striking Oil

ABU DHABI, Jan 16 2013 (IPS) - The volatile politics of the Middle East have long been dominated by the fluctuating fortunes of a single commodity: oil.

But when the oil-blessed region runs out of water, there could be a change in the political landscape, triggering potential conflicts. The world's future wars, experts predict, will be over water, not oil.

U.N. Secretary-General Ban Ki-moon warned last year that water shortages contribute not only to poverty but also cause social hardships and impede development.

More importantly, he warned "they create tensions in conflict-prone regions" (Read: Middle East). "And too often, where we need water, we find guns." (Read: Gulf nations, whose arms purchases, mostly funded by oil earnings, keep skyrocketing).

The lingering economic paradox was perhaps best described by an unnamed Kuwaiti official who once remarked, "Whenever we dig for water, we strike oil."

At the first <u>International Water Summit</u> (IWS) in Abu Dhabi Wednesday, over 30,000 participants, including political and business leaders, met to formulate a strategy to underscore the importance of water for the political and economic stability of the region.

As Crown Prince, General Sheikh Mohammed bi Zayed Al Nahyan said Tuesday: "For the United Arab Emirates (UAE), water is (now) more important than oil."

Munqeth Meyhar, chairman/Eco Peace, at Friends of the Earth Middle East (FoEME), told IPS the region has experienced many environmental concerns lately, including climate change. Water resources are becoming increasingly scarce, especially for the millions there who already lack access to fresh water.

He pointed out that some of these countries, including Yemen, Saudi Arabia, and Iraq, are facing unique problems that require immediate attention.

"One shared factor of all the countries in the Middle East is their lack of water resources and poor water management," said Meyhar, who closely monitors the growing water crisis in the region.

The Middle East has some of the world's largest oil reserves, which produces most of the area's wealth. Even so, the region's climate and environment make living harsh, he said.



The Middle East requires water resources and suitable land for agriculture. But much of the land available for producing food is destroyed by increasing desertification.

Desertification is a sweeping environmental problem, with vast effects in countries such as Syria, Jordan, and Iraq, said Meyhar.

Universal causes for a spread of arid environment are unsustainable agriculture practices and overgrazing. Agriculture uses 70 percent of water in this region.

It is common to misuse land by heavy irrigation in the Middle East. Droughts are more frequent, and contribute to the changing landscape, he noted.

The overuse of water in agriculture is affecting the countries' already undersized water resources.

As the world faces possible water scarcities in the next two to three decades, the U.S. intelligence community has portrayed a grim scenario for the foreseeable future: ethnic conflicts, regional tensions, political instability and even mass killings.

During the next 10 years, "many countries important to the United States will almost certainly experience water problems – shortages, poor water quality, or floods – that will contribute to the risk of instability and state failure, and increased regional tensions," stated a National Intelligence Estimate released in March 2011.

And in July of the same year, Chris Kojm, chairman of the National Intelligence Council, predicted that by 2030, nearly half of the world's population – currently at more than seven billion – will live in areas of severe water stress, increasing the likelihood of mass killings.

Meyhar of the Friends of the Earth Middle East said the mostly arid Jordan, endures severe water scarcity.

The cost of water in Jordan increased 30 percent in 10 years, due to a shortage of groundwater, he said. And in recent years, Jordan has not been able to produce enough food to sustain its populations.

Meyhar said water scarcity has damaged the standard of living for inhabitants of the countryside, causing a big flux of movement towards major cities. This is a problem facing all Middle Eastern countries.



Asked where desalination was an answer, he said desalination plants are an overuse of water resources in the Middle East. Seventy percent of desalination plants in the world are located in this area, found mostly in Saudi Arabia, the UAE, Kuwait, and Bahrain. Israel is joining this club on a fast track, he noted.

While the plants produce water needed for the arid region, they can cause problems for health and the environment.

The seawater used most in desalination plants has high amounts of boron and bromide, and the process can also remove essential minerals like calcium.

Also, the concentrated salt is often dumped back into oceans where the increased salinity affects the ocean's environment. The plants harm local wildlife and add pollutants to the region's climate. In addition, desalination is the most energy-costing water resource, said Meyhar.

The high use of energy results in raised energy prices and higher prices on water produced, hurting the consumer. The water produced can be beneficial in easing a lack of freshwater, but these areas have tendencies to overuse their natural resources.

Concerns with the large amount of desalination plants in the Middle East focus on the improper dependency they will cause, instead of encouraging alternate forms of water and energy and conserving freshwater.

The Middle East has numerous struggles with its current water resources, and the region needs more than one solution to generate an optimistic environmental position for the future.

"In our view, water sector reform in domestic, agricultural, touristic and industrial usage is the first step to be taken towards solving the Middle East water challenges," he declared.

Meanwhile, 'Project Stream', launched during the three day International Water Summit ending Jan. 17, is meant to connect project developers with the world's foremost solution providers.

The countries that comprise the Gulf Cooperation Council (GCC)- including Bahrain, Kuwait, Oman, Qatar. Saudi Arabia and the UAE – are expected to invest over 100 billion dollars in investments in the region.



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"GCC countries have been investing heavily on water sustainability over the last few years", says Peter McConnell, Show Director for the IWS, "and the Project Stream will in essence become a networking platform that will connect solution providers from around the world to project developers from the region."

These projects range from multi-billion dollar government infrastructure ventures to high-tech innovations in areas such as low-energy desalination, water leakage prevention and water efficiency which will all contribute in a significant way to addressing the worldwide challenges surrounding clean water supply, he added.

"Digging for Water, But Striking Oil", 16/01/2013, online at: http://www.ipsnews.net/2013/01/digging-for-water-but-striking-oil/

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***** Zimbabwe: Water Crisis Blamed On Shortage of Chemicals

AN acute shortage of water treatment chemicals, burst water pipes and recurrent power shortages have been blamed for water shortages across Harare. Harare Water director Engineer Christopher Zvobgo confirmed the problems yesterday, but said "adequate measures have been put in place" to allow the city to return to its "normal water supply".

At its maximum, the city produces 620 megalitres but has been producing around 400 million litres of which 60 percent is lost through leaks.

To compound the problem, close to 70 000 households that are not on the council database are illegally connected to the water system.

"Our stocks of aluminum sulphate were low so we reduced water production to stretch the number of days we could have water," he said.

The action has, however, severely affected residents who have had to scrounge for water.

Residents of high-density suburbs were relying on boreholes, some of which have been condemned because they are contaminated with faecal matter.

The city has not alerted the residents of its problems and residents continue to wonder why they do not have running water.

He said Zimphos, which supplies aluminum sulphate, is supposed to deliver five 30-tonne trucks of the chemical daily but failed to do so for an undisclosed number of days.

Zimphos alerted the council about the breakdown of its plant.

The city uses US\$3 million to procure water treatment chemicals each month.

Highdon Investments chairman Mr MacDonald Chapfika said the city was snubbing suppliers with proven capacity to deliver effectively.



"During our time as suppliers we never allowed the situation to deteriorate to such levels. We always had plan B in place," he said.

He said he has secured dealerships from a number of leading South African manufacturers who are willing to set up production factories in Harare.

"Very soon we will be producing the chemicals locally. But the city should look at people who are willing to give them chemicals on credit so that residents are not put at risk," he said.

City spokesman Mr Leslie Gwindi said the chemical problems with Zimphos had forced the city to look at alternative suppliers.

"We are actively looking at sourcing from outside the country. Zimphos is bedevilled with production issues of aluminum sulphate.

"They are failing to meet our requirements," he said.

Zimphos chief executive Mr Misheck Kachere declined to comment.

"I wouldn't want to comment on that as I am out of the country at the moment.

"It would be inappropriate for me to comment without getting the context of what has been said by the city council as there are a lot of factors involved in the supply of the chemical. I will be in office on Friday and will issue a statement after I am apprised of the situation," he said.

The city, with two million residents, has 192 000 households connected to the water system.

Recent assumptions are that Harare is producing enough water but is losing up to 60 percent of it through leaks and thefts.

eThekwini Municipality (Durban) officials who visited the capital recently said they wanted to assist the city with technical skills.

Harare needs skills to tackle issues of burst pipes, creating a customer database, customer care and effective revenue collection.



Only 60 percent of water sales revenue is collected every year.

Last year, the water department collected US\$65 million.

eThekwini customer services manager Mr Teddy Gounden said his municipality wanted to assist Harare in tariff formulation, establishment of a stand-alone water utility and water conservation.

Mr Gounden said they would also assist Harare to reduce levels of non-revenue water, installation of the GIS and telemetry systems.

Council intends to fit pressure-reducing valves along its water network to conserve the resource.

The reduction of pressure would entail that all high-rise buildings have booster pumps to feed to higher levels.

Areas like Mbare hostels where taps are vandalised on a daily basis would also be fitted with the pressure-reducing valves while individual water meters would be fitted in the Avenues area.

"Zimbabwe: Water Crisis Blamed On Shortage of Chemicals", 17/01/2013, online at: http://allafrica.com/stories/201301170475.html

ВАСК ТО ТОР



WATER RESEARCH PROGRAMME -Weekly Bulletin-

✤ Jakarta floods as monsoon soaks Indonesia

Heavy rains bring capital to a standstill, with downpours expected to continue

Heavy monsoonal rains have triggered severe <u>flooding</u> across the Indonesian capital, Jakarta, with many government offices and businesses forced to closed because staff could not get to work. Authorities said four people were killed and 20,000 had to evacuate.

Weather officials warned the rains could get worse over the next few days and media reports said that thousands of people in Jakarta and its satellite cities had been forced to leave their homes because of the torrential downpours this week.

"For the next two or three days it is estimated that there may be increasing activity of the Asian monsoon which could increase weather activity in southern Sumatra and Java," said Soepriyo, an official at the Indonesian meteorological agency.

This year's rainy season has brought some of the heaviest downpours in five years. In the centre of Jakarta, overflowing with cars at the best of times, traffic was brought to a near standstill by waist-high floodwaters.

The city's main airport remained open but many roads leading to it were reportedly blocked. Most commuter train services and the bus system were closed.

The Jakarta Stock Exchange did open but trading was light.

The presidential palace, the finance and agricultural ministries and the central bank were all open, spokesmen said. The trade ministry said it was forced to close because of a power cut triggered by the flooding.

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[&]quot;Jakarta floods as monsoon soaks Indonesia", 17/01/2013, online at: http://www.guardian.co.uk/world/2013/jan/17/jakarta-floods-monsoon-soaksindonesia?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=679d2de12a-RSS_EMAIL_CAMPAIGN&utm_medium=email



* Xayaburi Dam: How Laos Violated the 1995 Mekong Agreement

On November 7, 2012, Laos officially began construction on the controversial Xayaburi Hydropower Project, the first mainstream dam proposed for the Lower Mekong River. The process has not gone smoothly. Construction activities began almost two years before the official announcement. Vietnam and Cambodia called for a delay in construction because concerns over the dam's transboundary impacts remained unresolved. Laos never conducted a comprehensive analysis of the transboundary impacts, instead insisting that the dam was engineered to be environmentally sustainable. The Mekong River Commission's (MRC) Secretariat disagreed with many of Laos' claims, but its advice went unheeded. Although the dam is going forward, its risks remain unknown.

The Xayaburi Dam was the first significant test for the Mekong Agreement, a treaty signed in 1995 by Cambodia, Laos, Thailand, and Vietnam. The treaty is intended to promote shared use and management of the river basin. Instead of cooperating with neighboring governments, however, Laos began implementing the Xayaburi Dam while Cambodia and Vietnam voiced concerns about the project's transboundary impacts. Thailand remained silent through much of the dispute, but quietly financed the project and agreed to purchase its electricity. By November 2012, Laos' and Thailand's implementation of the project had advanced so far that Cambodia and Vietnam had little leverage left to raise concerns.

Laos insists that the Xayaburi Dam complies with the 1995 Mekong Agreement. Few others have questioned this claim.

In a new report, we examine the requirements of the Mekong Agreement in closer detail. On its surface, the text of the Agreement is often ambiguous. In an effort to seek greater clarity, we examine the requirements of the Mekong Agreement in its entirety. We also examine: (i) the historical record of the negotiations that describes what the parties intended when they drafted the Agreement; and (ii) international law that describes the meaning of the words that were carefully placed in the Agreement. In doing so, a clearer picture of the Mekong Agreement emerges. We find that Laos has misinterpreted the Mekong Agreement and failed to comply with several of its key requirements.

The full report is available below, but key findings are summarized here.

Laos is required to seek agreement with its neighbors before beginning the project.



To balance the rights of upstream and downstream countries, the Mekong Agreement requires all four governments to make a "good faith" effort to reach agreement on whether a project goes forward. Instead of trying to reach agreement on the Xayaburi Dam, Laos claimed that it only must consider comments of the other governments. Laos made no efforts to compromise on its position or to reach a mutually agreeable solution.

Laos must provide other governments with opportunity to evaluate the project's impacts.

The MRC's "prior consultation" is the process where the four governments try to reach an agreement. The primary purpose of the prior consultation is to provide the governments with an opportunity to evaluate the project's transboundary impacts. Yet for the Xayaburi Dam, Laos did not provide neighboring governments with an opportunity to evaluate the project's transboundary impacts. In particular, Laos did not assess the transboundary impacts before starting the prior consultation in September 2010.

Laos is not permitted to implement the project while consultations are still underway.

International law and the Mekong Agreement prohibit the governments from implementing a project while the governments are still discussing it—this is part of the obligation to negotiate "in good faith." Laos and developer Ch. Karnchang began implementing the Xayaburi Dam in late 2010 before the Mekong governments even met to discuss the project. Later, Laos incorrectly claimed that "preparatory work" was allowed under the Mekong Agreement while the consultations are underway. Laos is required to study the project's transboundary impacts before consultation can take place.

Under international law, governments are required to prevent significant harm to other countries, which includes setting aside enough time to assess the project's transboundary impacts. After failing to assess the Xayaburi Dam's transboundary impacts in 2010, Laos refused to delay project implementation after Cambodia and Vietnam requested these studies during the prior consultation. Instead, Laos claimed that untested technologies proposed by consulting company Pöyry were sufficient to mitigate any harm.

Cambodia, Vietnam, and Thailand have a right to extend the prior consultation's timeframe.



WATER RESEARCH PROGRAMME -Weekly Bulletin-

The default timeframe for the prior consultation is six months, but under international law the downstream governments have a right to extend it. Laos claims that the Xayaburi Dam's prior consultation ended automatically after six months. During this initial six month period, Laos failed to provide the information that other governments needed to evaluate the project's impacts. This undermined the primary purpose of the prior consultation. Laos also began project implementation during this initial period.

Cambodia, Thailand, and Vietnam have a right to seek compensation for any harm caused.

Laos has an obligation under international law to stop the project immediately if it causes harm to neighboring countries. Downstream governments Cambodia, Thailand, and Vietnam can seek compensation for any harm that the dam causes. Cambodia, Thailand, and Vietnam will have difficulty seeking compensation, however, because there is insufficient baseline data at this time to measure how the Xayaburi Dam will change the Mekong River. All three countries now face the difficult task of closely monitoring the impacts caused by the dam.

The Xayaburi Dam has set a dangerous precedent that could undermine future cooperation. In 2013, work might advance on two other Mekong mainstream dams—the Don Sahong and the Pak Beng Dams. Unless reforms are made quickly, disagreements over the Mekong dams could escalate into a conflict with serious economic and political implications.

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[&]quot;Xayaburi Dam: How Laos Violated the 1995 Mekong Agreement", 13/01/2013, online at: http://www.internationalrivers.org/blogs/267/xayaburi-dam-how-laos-violated-the-1995-mekong-agreement



A River Trickles Through It: Laos' Mekong Dam Draws Ire From Downstream Neighbors And Environmentalists

Laos' construction of a hydropower dam on the Mekong River has angered its downstream neighbors and raised concerns about the project's social and environmental impacts.

Construction of the \$3.5 billion Xayaburi Dam began last November. It is the first of 11 projects the Laotian government plans to build along the lower portion of the river, which passes through Cambodia, Vietnam and Thailand.

Laos has drawn criticism from its Southeast Asian neighbors for beginning construction on the Xayaburi Dam without completing the consultation process through the Mekong River Commission, or MRC, an inter-governmental agency comprised of representatives from the four countries that manages the usage and development of the river.

Vietnam's Deputy Minister of Natural Resources and Environment Hong Ha Tran spoke Wednesday at an MRC Council Meeting in Luang Prabang, Laos, and he questioned the wisdom of beginning the Xayaburi project before a thorough analysis of its impact was completed.

"The launching of the first mainstream hydropower project recently in the Lower Mekong Basin is causing concerns of the governments of the riparian [river-adjacent] countries in the region and the international community about its adverse impacts on downstream areas," he said. "While we are still trying to do the research to understand its impacts, each riparian country should show their responsibility by assuring that any future development and management of water resources proposed in the basin should be considered with due care and full precaution based on best scientific understanding of the potential impacts," he added.

Vietnam has demanded that Laos halt construction on the Xayaburi dam, pending the completion of an environmental impact review agreed upon by the MRC in December 2011.

The MRC Development Partners, which is comprised of donor governments -- including the U.S., Japan, Germany and France -- that have invested in the Mekong River's management, released a joint



statement expressing concern about any damming of the river's main channel, upon which the Xayaburi damn is being built.

"It is our consensus that building dams on the mainstream of the Mekong may irrevocably change the river and hence constitute a challenge for food security, sustainable development and biodiversity conservation," the statement read, <u>according to a press release from International Rivers, a global NGO that advocates for the conservation and sustainable development of river systems</u>. Extensive research has already shown that dams are extremely disruptive to river ecosystems and riparian communities on multiple levels.

Damming prevents fish migrations, which downstream communities depend on for food. It also prevents rivers from transporting sediments, "which are critical for maintaining physical processes and habitats downstream of the dam (including the maintenance of productive deltas, barrier islands, fertile floodplains and coastal wetlands)," <u>according to International Rivers</u>. This has negative implications for farmland and fresh water wells used by communities along river systems.

While these impacts are being considered with the Xayaburi Dam, Laos is relatively free to continue construction unhindered. Under the statutes of the MRC, Laos is obligated to hold consultations with member governments on such projects, but members have no legal framework to prevent it from moving forward with any given one.

"In the absence of an agreement, other countries can disagree if they like, but this can't stop Laos," said Jian-hua Meng, a specialist in sustainable hydropower at the World Wildlife Fund, the Guardian reported. "The role of the MRC is now being questioned along with the level of investment put in the organization."

[&]quot;A River Trickles Through It: Laos' Mekong Dam Draws Ire From Downstream Neighbors And Environmentalists", 19/01/2013, online at: <u>http://www.ibtimes.com/river-trickles-through-it-laos-mekong-dam-draws-ire-downstream-neighbors-environmentalists-1026360</u>



* Cambodia, Vietnam Voice Concern at Mekong River Commission Meeting

BANGKOK — Representatives from Southeast Asia countries are meeting in Laos this week to discuss development projects on the Mekong River. A key issue for the Mekong River Commission has been evaluating a planned hydropower dam in Laos that environmentalists worry could damage river ecosystems that millions of people downstream depend on.

During this weeks talks, representatives from Vietnam and Cambodia objected to how Laos carried out the consultation process before starting construction on the Xayaburi dam - the first to obstruct the main stem of the Mekong river.

Officials from the nations are not commenting on the record, but others who attended the talks say Vietnam requested a 10-year moratorium on decisions over mainstream dams, saying authorities have not sufficiently studied how they can impact people downstream.

Construction on the Xayaburi dam was officially announced last November, more than a year after actual construction had begun - without member state consensus, and in violation of the 1995 Mekong agreement

Pianporn Deetes is the Thailand campaign coordinator for International Rivers, a non-governmental organization that monitors the Mekong.

"Concerns raised by member countries have not been addressed comprehensively. Important to also recognize the concern raised by affected communities which represent 60 million people in all four countries," he said. "It's not just lives of a few people but 60 million and we applaud Cambodia and Vietnam for upholding their responsibility in the 1995 Mekong Agreement."

Although the Lao government has grand plans to become the "battery" of Asia, and the power produced by the \$3.5 billion hydroelectric dam would mean critical income for an economy with an annual GDP of roughly \$8 billion, environmentalists worry the project could threaten the lives and livelihoods of communities downstream.



International Rivers estimates over 70% of the protein consumed by Cambodians is sourced in the Mekong River.

Former Thai MP Kraisak Choonhavan believes the responsibility for the rush to construction lies with Thai corporations who have chosen to disregard the social impacts of their investments. "The Xayaburi project is all financed by Thais and Thai banks and Thai construction and Thai corporate interests. That is putting Laos on the brink of a social disaster. Tens of thousands of people have been moved and there's no representation," he said.

Although Thailand's demand for electricity, and the economic benefits of the dam are undeniable, activists believe it is not yet too late to halt the project.

Mark Goichot, who works for the World Wildlife Fund on sustainable hydropower projects in Laos, says the Lao government may not fully realize the impact this dam could have on its ecosystem and neighbors, but that the Vietnam and Cambodian governments have made demands that cannot be denied.

"Yes in principle it would be difficult not to follow this very strong recommendation. It will go on unless studies demonstrate that the impacts are significant," said Goichot. "We do not think it is too late to stop it. Concerns are growing and opposition is still very strong to the project so it is more and more difficult to justify it."

Donors and member countries of the commission visited the construction site of the Xayaburi dam Friday to inspect its progress. In the past, the MRC has been criticized for lacking the means or the ability to make the Lao government adhere to the organization's recommendations

"Cambodia, Vietnam Voice Concern at Mekong River Commission Meeting", 18/01/2013, online at: <u>http://www.voanews.com/content/cambodia-vietnam-voice-concern-at-mekong-river-commission-meeting/1586393.html</u>

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Vietnam and Cambodia tell Laos to stop \$3.5bn Mekong River dam project

Food security issues lead to disagreement over concerns that dam will hit livelihood of tens of millions

<u>Vietnam</u> urged <u>Laos</u> to halt construction of a \$3.5bn (£2.2bn)<u>hydropower</u> dam on Mekong River pending further study, environmental activists said on Friday.

<u>Cambodia</u>, downriver from the <u>Xayaburi dam</u>, accused Laos of failing to consult on the project, activists said. The Mekong River commission (MRC), made up of member states Vietnam, Cambodia, Laos and <u>Thailand</u>, held a three-day meeting in northern Laos to discuss river development projects.

The dam in northern Laos, the first of 11 planned for the lower Mekong River running through southeast Asia, threatens the livelihood of tens of millions who depend on the river's aquatic resources, activists say.

"Vietnam requested that no further developments on the Mekong mainstream occur until the ... dams study agreed upon at least year's council meeting is completed," International <u>Rivers</u>, an NGO devoted to river conservation, <u>said in a statement</u>.

"The Cambodian delegation asserted that Laos had misinterpreted the Mekong agreement." Officials from Cambodia and Vietnam were not available for comment.

The MRC is bound by treaty to hold inter-governmental consultations before dams are built. But members have no veto.

"In the absence of an agreement, other countries can disagree if they like but this can't stop Laos," said Jian-hua Meng, a specialist in sustainable hydropower at the World Wildlife Fund. "The role of the MRC is now being questioned along with the level of investment put in the organisation."

In December 2011, <u>MRC member states agreed to conduct new environmental impact</u> <u>assessments</u> before construction proceeded, but last August Ch Karnchang PCL, the Thai construction company behind the project, said it had resumed work.

A groundbreaking ceremony in November signalled the formal start of construction, said Meng.



Ch Karnchang's 50%-owned subsidiary, Xayaburi Power Co, has received a 29-year concession from the Laotian government to operate the dam's power plant and Thailand is set to buy 95% of the electricity generated.

Milton Osborne of the Lowy Institute, an Australian foreign policy thinktank, said Xayaburi marked a turning-point that would enable others to build their own dams, including Cambodia.

He described as a "monstrous disaster" <u>a proposal for a Chinese power company to build a dam at</u> <u>Sambor</u> in northeastern Cambodia, on a tributary of the Mekong. "It would be so disastrous, blocking one of the main fish migratory systems," he said.

Laos, Thailand, Vietnam and Cambodia share the lower stretches of the 2,500-mile (4,000km) Mekong. Activists say dams could threaten <u>food</u>security in Cambodia and Vietnam. The river provides up to 80% of the animal protein consumed in Cambodia and sediment and changes to river flow threaten the Mekong Delta, which contributes half of Vietnam's agricultural GDP.

Cambodia approved its own hydroelectric dams in November.

A second Cambodian project, the Lower Sesan dam in northern Stung Treng province, is a joint venture between Cambodian, Chinese and Vietnamese companies. Campaigners say it would reduce the fish catch in a country with malnutrition issues.

"Vietnam and Cambodia tell Laos to stop \$3.5bn Mekong River dam project", 18/01/2013, online at: http://www.guardian.co.uk/environment/2013/jan/18/vietnam-cambodia-laos-mekong-dam

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* Donors raise concerns about Xayaburi dam on Mekong River

Bangkok - International donors to the Mekong River Commission on Thursday raised concerns about Laos' decision to go ahead with the Xayaburi Dam on the Mekong and the commission's refusal to invite the World Wildlife Fund to its meeting.

"We remain concerned about the social impacts and environmental risks associated with the construction of the Xayaburi hydropower plant in Laos," the donors said in their Joint Development Partners Statement to the inter-governmental Mekong River Commission (MRC), which held its annual ministerial meeting in Luang Prabang, Laos, on Wednesday and Thursday.

The donors, who contribute the lion's share of the MRC's annual budget, also said they were "highly concerned that WWF, a partner organisation which has participated in MRC council meetings since2001, have not been invited to this meeting." Laos in November decided to go ahead with the 3.5-billion-dollarXayaburi hydropower project, a joint venture between the Lao government and Thai firms, despite requests from MRC members for a comprehensive environmental impact study.

Cambodia and Vietnam, which lie downstream and are likely to be most impacted by the Xayaburi dam, have opposed its construction and continued to raise questions about the project Thursday, sources at the meeting said.

The issue has raised questions about the effectiveness of the Mekong River Commission, set up in 1995 between Cambodia, Laos, Thailand and Vietnam to jointly manage economic developments on the river.

The dam would be the first to be built on the lower Mekong. China has built four dams on the upper Mekong. Another 10 dams are planned on the lower Mekong.

"It is our consensus that building dams on the mainstream of the Mekong may irrevocably change the river and hence constitute a challenge for food security, sustainable development and biodiversity conservation," said the donors' statement.



Past commission meetings raised concerns about the impact of the Xayaburi Dam on fish migration and sediment flows.

In December 2011, the MRC agreed that a comprehensive environmental impact study of developments on the river would be conducted over the next 10 years, but Laos insisted on proceeding with the Xayaburi project in the meantime.

"Donors raise concerns about Xayaburi dam on Mekong River", 17/01/2013, online at: <u>http://www.nationmultimedia.com/business/Donors-raise-concerns-about-Xayaburi-dam-on-Mekong-30198142.html</u>

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* Laos Dam Project Tests Credibility of Mekong River Commission

BANGKOK — Ministers of lower Mekong River nations gather in Laos this week for annual meetings of the Mekong River Commission. The MRC, which facilitates management of the river's resources, says they are likely to discuss the controversial Xayaburi Dam project - a key worry of environmentalists.

Water and environment ministers from Cambodia, Laos, Thailand and Vietnam are in Luang Prabang Thursday for meetings of the Mekong River Commission.

The commission was formed in 1995 to better manage the river's resources, but environmental activists say its relevance is being tested by a controversial hydropower dam.

Laos' dam in Xayaburi province would be the first on the mainstream of the lower Mekong and environmental activists worry it could damage the river and affect the millions of people who live alongside it.

At the last MRC meeting, Cambodia and Vietnam asked for a delay to study its environmental impact. Instead, Laos moved ahead with project-related construction and signed a power purchasing agreement with Thailand.

MRC spokesman Surasak Glahan says since then, Cambodia and Vietnam have not pushed the issue within the MRC.

"And, up until now, the MRC secretariat has not received further update from the member countries on their view regarding the status of the project consultation," he said.

Lao authorities say they made adjustments to the designs of the dam to improve fish migration and sedimentation, but have yet to make the plans public. Regardless, Cambodia and Vietnam seem to be accepting the changes and that the project will go ahead.

Previous MRC-commissioned environmental studies recommended that no dams be built on the mainstream Mekong for at least ten years.

Aviva Imhof is campaign director at environmental group International Rivers. She says that puts the Mekong River Commission's relevance in question.

"If it's not already experiencing a crisis of purpose and confidence, it certainly should be. Because, this commission was set up to negotiate and ensure that there was balanced and fair development of



the river and management of the river and yet one country appears to be moving forward without really following the procedures that were agreed upon," she said.

Almost all the electricity from the Xayaburi will be sold to Thailand. A group of Thai activists are suing Thai energy authorities in hopes of stopping the project.

Laos plans to build several more dams on the Mekong in hopes of becoming the so-called "battery of Asia."

Downstream countries worry the dams could affect key industries. Vietnam's rice production is tied to the river while Cambodians source about 80 percent of their protein from the Mekong.

Some estimates say as many as 20 or more fish species could be wiped out if the dam goes ahead, although most would be larger fish so food security would not be drastically affected.

Marc Goichot is with the World Wide Fund for Nature and based in Laos. He says iconic species such as the Mekong Giant Catfish could become extinct.

"There are so many species in the Mekong and some of them are not even described yet. And, we might lose them before we describe them. It is also very important because the Mekong is probably also one of the places in the world where there is the strongest link between biodiversity and livelihood," he said.

Goichot says the WWF is not against hydropower, but encourages Laos to pursue less risky projects to meet its energy needs.

Impoverished Laos says selling hydropower to its neighbors will help it get out of poverty.

However, International Rivers' Imhof says dam projects almost always leave people worse off as they are deprived of natural resources.

"And, there's been very little evidence so far that the benefits of the revenue that's been generated from these projects is actually trickling down to those communities that have been most effected," he said.

Environmental activists say part of the problem with dam construction is that not much is not known about the effect on a river until it is completed.



China is the only country that has built hydropower dams on the mainstream of the upper Mekong. Beijing has faced criticism for sharing little data with downstream neighbors or discussing plans for future dam construction.

Ed Grumbine is a guest specialist on biodiversity at China's Kunming Institute of Botany. Speaking via Skype, he tells VOA lower Mekong countries seem to be following China's model, regardless of future consequences.

"The data that we have right now shows that there will be significant impacts from the cumulative operation of China's hydropower dams. The Chinese government does not agree with those surveys. But, then, China has not played ball with the lower Mekong states up to this point," he said.

Grumbine says, to meet their energy needs, Lower Mekong nations should focus on improving energy efficiency, reducing demand and developing alternative energy.

"Laos Dam Project Tests Credibility of Mekong River Commission", 16/01/2013, online at: http://www.voacambodia.com/content/laos-dam-project-tests-credibility-of-mekong-river-commission/1584749.html

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Will Himalayan Dams Solve India's Energy Woes?

The Indian government believes so, and plans to build 300 in the coming decades. Last July a power outage in India <u>left 600 million people without power</u>, showing just how much strain the nation's bursting population is putting on its power grid. India's government needs an infusion of electrical capacity, and the cleaner the better—the country is the world's third-leading emitter of carbon dioxide.

To meet the demand, India's considerable legacy of building dams will turn into the stuff of legend: The country plans a new dam-building effort that could see as many as nearly 300 new dams near the majestic Himalayan mountain range in the next two decades. It's an enormous infrastructure endeavor that has plenty of observers asking just how many dams is too many.

Michael Kugelman, senior program associate for South and Southeast Asia at the Woodrow Wilson Center in Washington, D.C., says the energy crisis "has gotten to the point where the officials in India are willing to look beyond the resistance to building dams and push forward given how urgent the situation is on the ground." While exact estimates are fuzzy, Kugelman says the best guess is that the Indian government plans about 290 dams in the Himalayas, which would produce enough electricity to double the country's hydropower capacity by 2030. The increase of about 100,000 megawatts may provide only about 6 percent of the country's energy needs, but it could play a major role is stabilizing India's power supply, Kugelman says.

Samir Mehta, International Rivers' India program coordinator, says there's no way to know just how wide the impact of so many dams would be, especially considering the fact that the majority of them will be "large," higher than about 50 feet, under the International Commission on Large Dam standards. One thing is for sure, though. Adding 300 dams in the Indus, Ganges, and Brahmaputra river basins means there will be a dam roughly every 20 miles, which represents 62 percent more density than the global average. And Mehta says there could be hundreds more dams coming even after the first 300.

"That's a lot," Kugelman says. "Given how intensive this construction is supposed to be, I worry



about an oversatiation point."

The Indian government says something needs to be done to grow power resources in the country. Along with hydro, India is expanding its coal production, but the hydro option appears to be less dirty. "Hydro, from a polluting and global warming perspective, is a clean energy relative to coal, and you do hear that argument being made by government folks," Kugelman says. "It is a good argument to make, but hydro power is still an environmental risk. It can cause damage to forests and soils."

But Maharaj Pandit, a University of Delhi environmental studies professor who authored <u>a recent</u> <u>study on Indian dams</u>, says the environmental process is lax and that environmental concerns are being brushed aside. For example, Mehta claims that Indian officials are skipping siltation studies, which can quantify the possible adverse effects on not only the environment, but also power generation when river and silt conditions change—such as when sediment builds up behind a dam and reduces the flow of water. That means the official estimates for power-generation potential might be too optimistic.

Then there are the untold impacts of climate change, downstream impacts, changes to livelihoods, and environmental and ecological impacts, Mehta says. Even though the majority of dams constructed in the upper Himalayan region will be run-of-river, meaning water gets diverted via tunnels through power-generating turbines and then returned to the river without a major buildup of reservoirs, that still has an effect on fish, wildlife, and river flows.

And that doesn't even take into account the impact on the villages located in the vicinity of the dams. Hydropower projects have displaced somewhere between 16 and 40 million Indians, Pandit says only neighboring China, which has built more dams than any other nation and owns more than half of the world's large dams, has displaced more people.

But India, the only other billion-person nation in the world, wants in. Although dams are massive construction projects, they are cheaper to build and maintain than coal or nuclear power plants, and create less concern for large-scale failure. China built the bulk of its dams in the past 60 to 70 years, including the world's largest, the \$59 billion Three Gorges Dam on the Yangtze River, complete with



32 main turbines. India, then, is simply following its fellow burgeoning power in a dam-building craze.

Rather than playing catch-up with China, Pandit says that a less expensive and less controversial way to find immediate energy help in India could simply involve improving grid transmission and reducing power theft, eliminating the loss of nearly 30 percent of all the power the country creates. But India now seems set on a dam-building binge.

While small communities worry about dams ruining their way of life, the boom in dam-building also raises political tensions. "China is building its own dams that keep river water from flowing to India, and India's dams raise concerns in Pakistan and Bangladesh, preventing water from flowing into those countries," Kugelman says, noting that even run-of-river dams have the potential to interrupt and impact water flows. Legal complaints by the Pakistani government have already suspended at least a few dam projects in India.

Yet India's enormous power needs are real and worsening. "For a number of years, I would have said no [to building dams]," Kugelman says. "What I'm realizing now, given the sheer and immediate need for energy, is that I think these dams, unfortunately, should be pursued. If done right, they can produce a lot of supply. If these large dams are generated, there needs to be an effort to limit the risks by having better laws on the table and to ease displacement so that these projects don't have the bad social and environmental impacts they have had before."

"From a sheer supply-demand perspective, it is the right decision," he says, "but I still worry from a social perspective."

"Will Himalayan Dams Solve India's Energy Woes?", 15/01/2013, online at: http://www.popularmechanics.com/science/energy/hydropower-geothermal/will-himalayan-dams-solve-indias-energywoes-14982175?click=pm_latest

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* Xylem announces expansion plans for the Middle East region and showcases innovative water technologi

Xylem announces expansion plans for the Middle East region and showcases innovative water technologies at International Water Summit, Abu Dhabi

ABU DHABI, United Arab Emirates--(BUSINESS WIRE)-- Xylem Inc. (NYS: XYL), a leading global water technology company focused on addressing the world's most challenging water issues, has announced that it will expand its presence in the Middle East region with the opening of a new office in Saudi Arabia in the coming months, as well as up to three additional offices in other key regional markets later this year. The company already has a presence in the UAE and Lebanon. This expansion is to support the company's growth in the Middle East resulting from the development of its water and wastewater treatment offering to address pressing reuse and desalination challenges. The company is also expanding its dewatering capabilities in the region.

The company will present a broad portfolio of water transport, treatment and testing technologies and dewatering solutions at the International Water Summit (booth #3250) in Abu Dhabi, United Arab Emirates, from January 13-15, 2013.

"In the last year, we increased our capabilities in the Middle East so that we can provide what we call *integrated treatment solutions*," said Mike Kuchenbrod, president of Xylem's Water Solutions business. "What this means is that we can help customers achieve optimum wastewater treatment system performance by combining our extensive process knowledge and controls capability with the world-class, biological treatment, filtration and disinfection technologies in our portfolio."

In addition, as part of its global dewatering expansion, Xylem will present its enhanced offering for the Middle East region during the International Water Summit. "We have expanded our dewatering or water removal capabilities in the region, and now offer a rental fleet that includes the two leading drainage pump brands in the world - Flygt and Godwin - together with Xylem services to provide complete dewatering solutions in the Middle East," said Kuchenbrod. Xylem boasts the world's largest global dewatering rental fleet of 20,000 products, including diesel-driven, self-priming Godwin pumps and Flygt submersible electric pumps.



Other featured highlights of Xylem's presence at the International Water Summit include:

- Xylem will launch its award-winning wastewater pumping solution, Flygt Experior, for customers in the Middle East. This new wastewater pumping solution is a break-through technology that offers up to 50 percent in energy savings compared to conventional wastewater pumps. This significant reduction in energy consumption has been demonstrated at a number of pump stations around the world where the system has been installed. The Flygt Experior wastewater pumping system combines state-of-the-art hydraulics, premium efficiency motors and intelligent controls in a unique concept that the company believes sets a new standard for premium wastewater pumping.
- Making its debut in the Middle East market is Xylem's new open channel ultraviolet (UV) disinfection system, called WEDECO Duron. The WEDECO Duron UV disinfection system delivers clean, safe treated wastewater of the highest standard using a minimum of energy and eliminates the need for chemical-based disinfection. A key benefit of the WEDECO Duron system is its small footprint and ease of maintenance. An innovative 45 degree vertical incline design, combined with Xylem's expertise in vertical lamp arrangement, means that the Duron system requires less space than other UV systems.
- Xylem's analytical instrumentation portfolio, marketed under the WTW, YSI and Aanderaa brands, is used across the Gulf region for water testing and analysis applications. Xylem will present to customers new products, including YSI's EXO multi-parameter water quality testing product and Xylem's custom-built coastal monitoring platforms. These products are used to address challenges and provide solutions to customers' environmental application needs.

Xylem's commitment to the Middle East region extends to its corporate citizenship and social investment activities as well. Xylem's signature citizenship program, Xylem Watermark, was created to provide and protect safe water resources in communities around the world. Xylem works with leading international non-profit organizations to provide water through community-based and emergency response projects, and to protect water resources through disaster risk reduction efforts.

Xylem and Mercy Corps, the disaster relief organization and Xylem Watermark partner, have been working in partnership in Jordan to secure a sustainable water supply for Syrian refugees in the Zaatari refugee camp. Through Watermark, Xylem has provided funding and technical expertise to



facilitate the construction of a deep well capable of providing a daily supply of clean water for up to 130,000 people in the camp.

This Xylem Watermark program will be presented in the Sustainable Solutions Village during the International Water Summit.

Note to Editors:

Xylem's Mike Kuchenbrod will take part in a high-profile panel discussion at the International Water Summit that will explore water and energy as catalysts to economic growth. Other panelists taking part in the January 16 discussion include Joppe Cramwinckel, Water Director, World Business Council on Sustainable Development; Thani Al Zayoudi, Head of Directorate of Energy and Climate Change, Ministry of Foreign Affairs; and Karl Rose, Director of Policy and Scenarios, World Energy Council.

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[&]quot;Xylem announces expansion plans for the Middle East region and showcases innovative water technologi", 15/01/2013, online at: http://www.dailyfinance.com/2013/01/15/xylem-announces-expansion-plans-for-the-middle-eas/



The high value of water

Study: People willing to pay more for running water report much higher levels of happiness when they have it.

If you're reading this, odds are you've already used running water in your home today. But you're in a minority: Globally, at least a billion people have no nearby source of water, while of the remaining six billion or so, only 42 percent have running water in their homes or a tap in the yard, according to the World Health Organization.

Now a new field experiment, co-authored by MIT economist Esther Duflo, shows just how much access to clean water matters to people. Residents of Morocco, the experiment demonstrates, are willing to take out loans and pay twice as much for water per month in order to have it piped into their homes. And despite the dent in their bottom-line finances, people in households that gain running water report significant improvements in well-being and happiness.

By linking more homes to existing water networks, "It seems we could improve people's lives fairly easily," says Duflo, the Abdul Latif Jameel Professor of Poverty Alleviation and Development Economics at MIT.

In many developing regions, however, newly built connections to clean water supplies are often communal: It is cheaper to install a single tap serving a village or urban neighborhood. This study specifically analyzes what happens when people in those circumstances suddenly acquire their own water supplies — and suggests that the greater cost of connecting all homes directly would provide major social benefits.

Happiness is a working faucet

The findings appear in a paper, "Happiness on Tap: Piped Water Adoption in Urban Morocco," published in the most recent issue of the American Economic Journal: Economic Policy.

To conduct the experiment, the researchers examined 845 households in Tangier, Morocco, whose occupants could not afford the fee to connect to the city's water supply. In 2008, the researchers randomly selected 434 of these households and conducted an awareness campaign, informing the people in the homes about the opportunity to purchase a connection on credit, and facilitating the paperwork needed to do so. People in the remaining homes formed the control group for the study.



Having a direct connection to water did not improve water quality in comparison to Tangier's public faucets — meaning that the main incentive for having a connection was convenience, not health. This is no small thing: People in the average household without running water in urban Morocco spend seven hours per week collecting water from public taps. Around two-thirds of people in those households say access to water is a major source of concern, while 28 percent of people have experienced a water-related conflict with a family member or neighbor.

The results of the experiment were striking: When offered credit and assistance, 69 percent of households in the study paid for a connection to the water supply within six months, as opposed to just 10 percent of the households in the control group. And 44 percent of people in the households of the treatment group said their overall quality of life had improved in the last year, compared to 23 percent in the control group.

The water bill in the newly connected households roughly doubled, from \$11 per month to \$21 per month. As of mid-2010, 44 percent of the households had repaid all their loan installments, and another 28 percent owed less than 20 percent of the original amount. About 5 percent were late on more than 50 percent of the total due, but no households had completely defaulted.

Intriguingly, the people in those households reported they were not using their newly acquired spare time to compensate for the greater payments by finding additional employment; instead, they were often engaging in community and social activities. One woman told Duflo she was "thrilled" not to have to worry about collecting enough water for her husband, and had found the time to join a religious study group.

The study has impressed other scholars. "This is a superb and important paper," says Cass Sunstein, the Felix Frankfurter Professor of Law at Harvard Law School, who has read it; the paper refers to the program as a "nudge" of the type Sunstein has advocated in his own work. "It shows that nudges can work," Sunstein adds. "It also shows that if you make take-up easy for people, you can have surprisingly large impacts. The key findings can and should inform a lot of domains."

'Our own lives are extremely convenient'

Many efforts to evaluate quality of life globally, including conditions in the developing world, focus on tangible, bottom-line considerations, such as income and net wealth. But as the paper



notes, quality-of-life questions are often more nuanced than a look at a household balance sheet can reveal; things like access to water "can significantly improve welfare, even if they do not result in income gain."

As Duflo sees it, the results "suggest we should also go beyond the broader indicators of welfare that are often used, such as health: There were no health improvements, but people [in households with water] are very happy."

Moreover, the findings illustrate the significance of factors such as convenience when analyzing the impact of policy, Duflo notes.

"This is incredibly important, to recognize the legitimacy of such desires in thinking about what are the important investments," Duflo observes. "After all, our own lives are extremely convenient. From the comfort of our own heated homes we often forget what it would be to have to take care of all those 'details.""

In addition to Duflo, the researchers co-authoring the paper are Florencia Devoto of the Paris School of Economics; Pascaline Dupas of Stanford University; William Pariente of the Universite Catholique in Louvain, Belgium; and Vincent Pons, a PhD candidate in MIT's Department of Economics.

The researchers received funding for the study from Veolia Environment, a French firm that develops water-supply systems, among other activities.

"The high value of water", 14/01/2013, online at: <u>http://web.mit.edu/newsoffice/2013/the-high-value-of-water-0114.html</u>

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* Integrated Water Management in Cities: Can we get it right this time?

While on its path to becoming the largest city in the Americas, Sao Paulo used its<u>natural capital</u> - water - to generate electricity, fuel industry, and satiate its ever-growing population. Natural infrastructure was traded for the concrete form and the city's great rivers paid a high price for industrialization.

The result? Tremendous growth (averaging 5% per annum) that stimulated rapid and unplanned migration to the city and environmental pollution. Urban sprawl generated little to no infrastructure for managing water, sanitation and wastewater, or solid waste. Clearing the land for houses caused erosion and compacted soils, and the resulting increase in runoff has made an already wet city even more prone to floods.

Today, thousands of urban poor people live in flood-prone areas of Sao Paulo, such as in shacks perched at the water's edge of the Billings hydropower reservoir. These same areas also suffer from deteriorating water quality. In these high-risk favelas, the city has been using an Integrated Urban Water Management (IUWM) approach – which sees the entire urban water cycle as an optimizing unit within the wider river basin – to move communities toward resilience.

At the city's <u>IUWM workshop</u> in December, supported in-part by the <u>Water and Sanitation</u> <u>Program</u> (WSP), state officials recounted a \$387 million Bank-financed effort to upgrade 52 slums and another \$238 million currently going toward river restoration and service provision – both aiming to protect watersheds and the poor.

Setting the example for urbanizing Africa

Sao Paolo's experience has become a best practice case for several large cities in other parts of the world. In Africa, <u>population growth</u>, coupled with <u>climate change</u>, will similarly alter the urban landscape. Next year, <u>Lagos is set to surpass Cairo to become Africa's largest city</u>. Sao Paulo and other cities in the <u>Blue Water Green Cities Initiative</u> set an example for reversing the trend of environmental degradation and unplanned urbanization in wet cities like Lagos.

Many of Africa's <u>secondary cities</u> (those growing to 1 million by 2025) are facing the opposite challenge – too little water for too many people. This scenario was at the core of IUWM uptake in <u>Windhoek</u>, <u>Namibia</u> which has invested in water security for five decades and was among one of the experiences presented at the <u>Africities</u> conference in Dakar. Reclaimed wastewater supplies up to 35% of the city's drinking water, and a dual pipe system conveys semi-treated effluent to irrigate



municipal parks and sports fields. The city has also shown willingness to prioritize environmental stewardship over land development by asking the national government to extend the city limits in order to conserve 10,000 hectares for aquifer recharge.

For cities like <u>Nairobi</u> or <u>Dakar</u> that suffer from both weather extremes, <u>Seoul, Korea</u> offers its experience implementing a comprehensive program for green growth. Having suffered \$14 billion in flood damages between 2000 and 2010, this sustainable city now protects against such risks by giving value to the environmental services afforded by land and water resources.

While many practitioners are raising the alarm of <u>water insecurity</u>, the growth of African cities is an opportunity to plan new infrastructure in an integrated manner, or to "get things right" the first time around. But if integrated planning doesn't happen before the masses move in, these countries have a clutch of urban restoration pioneers to turn to for advice.

Cases of successful IUWM show us that poor planning is not necessarily irreversible, but getting it right the first time can save time, money, and human health. The principles of IUWM are not new but they do need to become second nature for city leaders, urban planners, and citizens. History need not repeat itself, especially since great examples of home-grown solutions abound.

This work was made possible by the World Bank's Water Partnership Program (WPP), a global program that supports innovative solutions in water. The WPP has promoted IUWM approaches in Africa, Latin America and the Caribbean, and Europe and Central Asia for the past three years.

"Integrated Water Management in Cities: Can we get it right this time?", 17/01/2013, online at: http://blogs.worldbank.org/water/integrated-water-management-in-cities-can-we-get-it-right-this-time

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Sustainable water solutions

"Matchmaker, Matchmaker, make me a match" – famous words from the musical Fiddler on the Roof. Tevye, Golda and their daughters could articulate their needs for a scholar, a rich man or a handsome man, but they would take whatever Yente the Matchmaker would bring them. Right? Of course right! Today, they could turn to successful websites such as JDate and Jewish Friend Finder to find a matchless match.

So, how do you meet a sustainable solution that's a perfect and cost effective match for your business, community or organization's wants and needs? Who plays the role of matchmaker in the cleantech world? Can the process of need articulation and capability matching be improved? Is the "matchmaker" a real person, a virtual community or an automated process? Does the "matchmaker" get paid for his efforts?

The videos I described in my last column (Dec. 13) are a way of attracting attention to what's going on in Israel in the area of water. They tell you in general terms what innovative companies in Israel are capable of doing, what they've done for others and the quantified benefits they've achieved.

There are LinkedIn social media "groups" that have a focus on water, such as the ones run by Israel NewTech and Cleantech Israel. Such groups expose people who have joined, or who were allowed to join based on specific criteria, to a lot of advertising, promotion and success stories about various Israeli developed Cleantech solutions. Matchmaking here depends on the off-chance that the people looking for the solution can find or see what they need through the inundation of communications.

There are water-focused trade show efforts such as Watec in Israel and the Canadian Water Summit. These national conferences physically bring together buyers and sellers. They need to generate an audience, both from in the country and out of the country, by creating a program of relevant speakers and the ability to show technology in action. The value of these conferences is that they provide opportunities to set up meetings or to enable ad-hoc meetings to occur as needed.

Cleantech trade missions and symposia such as the ones run by the Province of Ontario in 2010, or those sponsored by the Jewish National Fund that brought Manitoba and Israeli water experts



together, physically connected Canadians with water-related needs with various water solutions in Israel.

The recent Water Export Technology Revolution competition gave Israeli companies focused on water an opportunity to highlight their various capabilities. The New England-Israel Business Council, Combined Jewish Philanthropies and five co-chairs from their business communities were then able to put together a productive set of focused meetings in Israel with a selected group of these companies.

David Goodtree, co-chair of the mission and co-organizer of the competition saw the combined information solicitation, competition and trade mission effort as "a way to develop partnerships to advance water innovation globally using Israeli technology and to learn from Israel's enormous success in enhancing its self-sufficiency in the water space."

Ways to match water needs to solutions continue to evolve. Newer and sustainable matchmaking models are emerging. Tevye would be proud.

"Sustainable water solutions", 16/01/2013, online at: http://www.cjnews.com/index.php?q=node/100472

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* The Ice Melt Equation: An Ultimate Geopolitical Calculus

"Do ice sheets have a linear or exponential melt rate?"

This question may not be echoed frequently around the command centers of NATO, streets of Damascus, or ministries of Beijing. But if researchers <u>James Hansen and Makiko Sato</u> are correct in their inkling, then geopolitics, global security, and humanitarian operations just got extremely problematic in the coming decades.

In newly-published analysis, Hansen and Sato explore the melt rates of the Greenland and Antarctic Ice sheets with a perspective that, in our recent paleoclimate history, melt didn't necessarily happen with a smooth, linear curve. Indeed, there is evidence that Earth's climate had sensitive tipping points, with potential "run away feedback loops" throughout its recent history of ice ages and interglacials.

And Hansen and Sato posit that human-prompted climate changes are exponentially forcing this equation in a short period of time. The possibility?<u>Rapid breakdown</u> of the Greenland and Antarctic Ice Sheets much faster than the IPCC predicts, as melt rates potentially double over short intervals of time. By 2090, meters of sea level rise could be entirely possible globally, and some northern climates could then even flip into a <u>nasty deep freeze</u> negative feedback loop accompanied by Sandy-esque super storms This is tough to fathom even by our IPCC conditioned worldview, and certainly it seems that global security policies are ill equipped for such a violent scenario.

It's easy to understand why it is difficult to conceive of Hansen and Sato's possibility. Even in the entire geopolitical history of human civilization, there is no precedent for so many small island developing states being swallowed by the oceans, for millions of potential climate refugees in South Asia, and for every nation on the planet with an ocean coastline having to quickly deal with displacement, economic loss, and parts of their nations disappearing from the map.

Yet human civilization is just a blink of an eye of geologic time, and just a few blinks earlier, our climate may well have gone through rapid and violent transitions from one mode to another.

If Hansen and Makiko's analysis is validated, then we can also ascribe another curve to their analysis. The more rapid the doubling rate of ice melt, the more rapid the coping ability of our global humanitarian community and regional and national security powers decays.


WATER RESEARCH PROGRAMME -Weekly Bulletin-

Indeed, ice melt rate may be one of the most important geopolitical equations we have today.

"The Ice Melt Equation: An Ultimate Geopolitical Calculus", 14/01/2013, online at: <u>http://climateandsecurity.org/2013/01/14/the-ice-melt-equation-an-ultimate-geopolitical-calculus/</u>

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