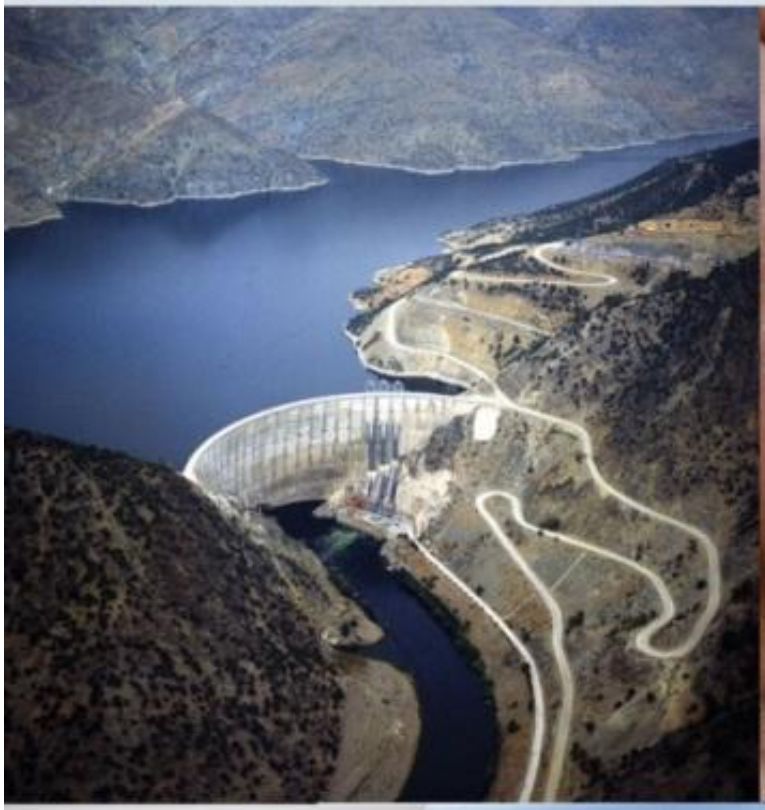


# ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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





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## ORSAM WATER BULLETIN

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## ❖ Iraq to Build $48 Million Water Treatment Plant in Dialeh

The Iraqi government this week unveiled plans to build a $48 million USD treatment plant in Dialeh governorate.

"The new plant will produce 2,000 cubic meters per second, which will provide enough potable water for all the cities of Dialeh," said Sallam al Quraishi, economic adviser to the Iraqi government. He said the plant would be completed within two years.

It will provide better potable water for some 40,000 residents in the area, according to water officials in the governorate. Potable water coverage is currently at 80 percent.

However, officials say that around 30 percent of water produced in Dialeh is currently being wasted.

"Around 20 percent of water production is wasted in pipelines and 10 percent is wasted by misuse," said Mortada al Makdami, director of the Dialeh Water Department.

To address this, the governorate will also launch a major awareness campaign to reduce waste.

The Iraqi government last month approved a total budget of $3.4 billion USD for drinking water and sanitation projects in 2013. The funding is considered insufficient, since many parts of the country have been experiencing water shortages, especially in the summer.

According to statistics from the Ministry of Municipalities and Public Works, around 10 percent of the population experienced drinking water shortages in 2012, down from 23 percent in 2011.

However, independent surveys have found that about 60 percent of Iraqi households lack access to improved drinking water sources and sanitation facilities.

The government is implementing 95 major projects during the current fiscal year in hopes of ending water deficits.

Most Iraqi governorates have old and dilapidated mains and treatment plants, many of which were built in the 1930s and 1940s.

"Iraq to Build $48 Million Water Treatment Plant in Dialeh", 21/06/2013, online at:
http://www.ooskanews.com/story/2013/06/iraq-build-48-million-water-treatment-plant-dialeh_156500

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## ❖ Prince El Hassan inaugurates regional stakeholders' workshop of the Blue Peace Project

AMMAN (Petra) --Under the Patronage of HRH Prince El Hassan bin Talal, the Chairman of UN Advisory Board on Water and Sanitation (UNSGAB), the Royal Scientific Society in cooperation with the World Meteorological Organization and the Swiss Agency for Development and Cooperation, jointly held a regional stakeholders' workshop of the Blue Peace Project – "Water Security in the Middle East: Strategic Management of Hydrological and Meteorological Data and Information Product Generation through Assessment of Weather, Climate and Hydrology Service and Capacities in Lebanon, Jordan (and Syria) with engagement of Turkey and Iraq."

In his keynote opening speech, attended by HRH Princess Sumaya bint El Hassan, the President of the Royal Scientific Society (RSS), HRH Prince El Hassan bin Talal said: "The good news is that the world has met the Millennium Development Goal of halving the proportion of people without access to improved sources of water, five years ahead of schedule. But that does not mean that the work of UNSGAB is done. Indeed, in many ways it has only just started. Despite this encouraging progress, the not so good news is that 2.5 billion people in developing countries still lack access to improved sanitation and 11% of the global population – 783 people – remains without access to an improved water source." HRH continued: "We live in a region where water has always been an issue. But today, people have no affinity with the water that they use. Is it possible to consider a community of water, energy and the environment? HRH Princess Sumaya bint El Hassan added in her welcoming remarks: ""Water truly is our greatest shared challenge in the modern age, and solutions may only be found through committed and cooperative efforts." HRH added: "The Royal Scientific Society has long tried to place water in the national and regional spotlight. We have sought to set an agenda for discussion and to spearhead research and engagement." The Blue Peace Project aims at strengthening the delivery of weather, water, and climate services in Middle Eastern countries, in order to support economic development and disaster risk management.

As the climate change and variability will lead to change in the regime of the hazardous hydrometeorological events, such as floods and drought that affect societies and economic productivity, the Project focuses on water management issues to help key national stakeholders to

improve regional coordination in monitoring and sharing climate and water related data on regional level. As well as, enhancing the regional coordination and collaboration in addressing water management and climate change adaptation, where the Middle Eastern countries of Lebanon, Jordan (and Syria) are vulnerable to climate change due to their food production and water availability.

The workshop was attended by a group of experts in water, weather, climate and hydrology from Jordan, Lebanon, Iraq, Turkey, Saudi Arabia and Egypt in order to discuss and agree on a prioritized plan, a memorandum of understanding (MoU) and exchange relevant experiences in the issues related to the regional cooperation in these fields.

"Prince El Hassan inaugurates regional stakeholders' workshop of the Blue Peace Project", 17/06/2013, online at: http://en.ammonnews.net/article.aspx?articleNO=21605#.UcadtNKe_PY

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### ❖ The water problem in the Middle East

While the Middle East covers 10 percent of the world's surface area, 5 percent of the world population is found here.

On the other hand, 2 percent of the world's precipitation falls on Middle Eastern countries, which account for 3 percent of the annual average water potential worldwide. The main water resources in this region, which has some 25 rivers, are precipitation, rivers and groundwater. Two-thirds of current renewable water resources in the Middle East originate outside of the region; these resources are called transboundary waters. With an arid climate prevailing, 80 percent of the region is desert. Semi-arid zones are found in small areas of the region. The arid region's precipitation rate is less than 5 millimeters annually. The annual average evapotranspiration rate is 2,000 millimeters.

The average annual water supply per capita in the world has been calculated at 7,000 cubic meters. To get this figure, researchers assumed an equal distribution of water among the world population. However, global water resources are not, in reality, equally distributed, and in regions where semi-arid climatic zones prevail, water is scarce. In the Middle East, which is the most important of these regions, the average annual water supply per capita is currently some 1,200 cubic meters. The majority of the countries in the Middle East are predicted to suffer water shortages after 2015.

In a region where water is rare, the water problem has been worsened by deteriorating water quality in recent years. The use of water in salt extraction and for industrial, domestic and agricultural purposes leads to pollution. In addition to quantitative and qualitative aspects of the water problem in the Middle East, there is also an equity problem. The region has water problems at the local, national and international levels. Water resources affect relations between states, cities, tribes and ethnic groups, and the use of water resources is affected by the aforementioned relations.

Water use in the Middle East and North Africa has a direct impact on the economy. In the Middle East, 60-90 percent of the region's water is used for agriculture, 1-10 percent for industry, 3-10 percent for human consumption, and 3-20 percent for hygiene.

The main causes of the water problem in the Middle East are commonly thought to be the following: the semi-arid and arid climate, rapid population growth, low precipitation rates and falling


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precipitation in recent years: drought, intense evaporation, unequal distribution of water resources regarding population density, mismanagement of water resources, insufficient water storage units, insufficient technical infrastructure, conventional irrigation methods and excessive water loss. Sudden changes in sociopolitical structures threaten food insecurity (poverty, hunger and malnutrition).

Moreover, conflicts are frequent and often long-lasting in the Middle East. It is often said that religion and ethnicity are major factors leading to these conflicts. Cooperative institutionalization is weak in the Middle East, so the balance of power directly affects the water supply. In fact, water resource management -- a technical problem -- becomes a political issue. One of the reasons for this is the scarcity of water, a security issue that can threaten the survival of states.

Although progress in water management has recently been made, the problem cannot yet be solved in economic and environmental terms. Intense use of regional aquifers and pollution are serious public health, water quality and environmental concerns. Agricultural water use has a serious negative impact on other sectors. Some countries in the region experiencing water shortages use fossil aquifers, desalinate water and strive to find alternative solutions with unconventional methods by reusing waste water. Also, the Middle East uses more than 60 percent of the world's desalination capacity.

The prerequisites for finding a solution to the Middle East's water problem are political will from interested countries, cooperation, treaties and legal arrangements. However, instabilities in the region prevent government bodies from becoming more professional and also hinder cooperation between and the sustainability of these agencies. Meanwhile, ideas for technical solutions to the region's water problem are being put forward. In agriculture, where water resources are used most intensely, modern irrigation methods and the rehabilitation of damaged infrastructure could make water use more efficient. Some other solutions that have been suggested: wastewater treatment to reuse water, virtual water, storing rainwater, the direct use of hard water or treating hard water, building underground dams to minimize evaporation losses, aquifer alimentation, the desalination of seawater, inter-basin water transfers and cloud seeding.


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Furthermore, some are suggesting developing technologies to increase energy capacity to meet the requirements of desalination, to ensure the safe and low-cost use of water of marginal quality, and to improve water management. Beyond technological developments and cooperation, political will, institutional structures and government support are also important for the productive use of water.

"The water problem in the Middle East", Tuğba Evrim Maden, Todays Zaman, 23/06/2013, online at: http://www.todayszaman.com/news-318959-the-water-problem-in-the-middle-east.html

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### ❖ Israel to build artisan well on Palestinian land in Jerusalem

The Israeli water company Mekerot announced on Monday its plan to carry out a joint project with the Israeli municipality of Jerusalem to construct a new artisan well on 30 dunams of Palestinian land in Silwan, the Wadi al-Hilwa Information Centre said.

Based on an advertisement for the project, the information centre said the municipality is planning to change the area from an open space into a place for organised projects and to build an artisan water well.

The information centre said that residents in the neighbourhood have the right to appeal against the project with 60 days.

In addition, the information centre said that as a part of the project, a road from the middle of the 'The National Park' is going to be opened in order to afford access to the well.

A Palestinian resident who lives in the area, Shadi Samareen said: "Residents in Wadi al-Rababa' a, part of what Israel calls 'The National Park,' are prevented of renovating their homes and planting their lands under the pretext of being in 'Public Spaces,' while Israeli companies do whatever they want."

Samareen added: "Residents hold Othmani documents which prove their ownership of their lands."

He said that the documents were approved by the Israeli Land Authority and the Israel Justice Ministry.

The information centre said the Israeli municipality of Jerusalem placed water tanks in Wadi al-Rababa one year ago. The tanks are filled with water from two wells in the area and supply the Israeli settlers. However, Palestinians in the area are prohibited from using this water.

In addition, the information centre warned of more land confiscation for projects serving settlers. The centre pointed out a proposal to open a restaurant suggested by settlers, but residents appealed against it.

"Israel to build artisan well on Palestinian land in Jerusalem ", 18/06/2013, online at: http://www.middleeastmonitor.com/news/middle-east/6314-israel-to-build-artisan-well-on-palestinian-land-in-jerusalem

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## ❖ Israel's water crimes

The International Women's Peace Service (IWPS) Deir Istiya Human Rights Report No. 479 [1] contains a vivid account of a typical Israeli war crime in Occupied Palestine. On Sunday, 16 June in the village of Asira, settler militants, accompanied by about 30 Israeli soldiers, stoned Palestinian workers who were building a reservoir and reticulation to connect surrounding villages and ordered the workers out of the area. They were aided by the Israeli Army which opened fire with stun and tear gas grenades on both the workers and other villagers who had gathered to support them. Criminal behaviour such as this is an almost daily occurrence in Asira with illegal Occupation settlers and the Israeli Army having already destroyed around 100 of the pipes originally purchased for the project. Asira [al Qibliya] is an ancient village of 3500 souls that dates back to Roman times. The growing theft of Asira's land and water began in the mid-1980s with the establishment of the Occupation settler colony of Yitzhar. Until then, the area had been the local bread-basket, thanks largely to a natural spring that has now been taken by settlers who, with the help of the Israeli Army, have completely blocked Palestinian access to it. Thanks to the Israeli Occupation, villagers are forced to rely on water tanks that, in an area of high unemployment, are painfully expensive. One tank will hold just enough water to last a family one week. Israel's water theft policy does more than serve the settler greed for water, it is designed to drive the indigenous population off the land altogether.
The illegal settlers represent the worst aspects of Zionist fanaticism and mob behaviour. They physically assault Palestinian villagers (the victims often include children) and settler arsonists ruin villagers' hard-earned crops, olive trees and property. Nothing is safe from these attacks against which, because of Israeli Army complicity, there is no hope of defence. The world community does nothing to defend the indigenous Palestinian population and fails to acknowledge Israel's manifest malevolence towards them. Our leaders effectively grant the Zionist state impunity by continuing to insist that the only path to peace is through the futile so-called "peace process" that has so successfully bought Israel the time to expand and consolidate its belligerent occupation of Palestinian land.

"Israel's water crimes", 18/06/2013, online at: http://www.deliberation.info/israels-water-crimes/

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### ❖ Israeli Company To Provide China With Cleaner Water

Blue I Water Technologies to ensure safe water conditions for cities across China

Water contamination is a serious worldwide concern. Particularly in China, it is becoming an increasingly dangerous issue. Chemical waste and trash have already forced the government into extensive cleanups and legislating more stringent laws. But despite these efforts pollution continues unabated in many areas; just earlier this year thousands of pig carcasses were found floating in the Huangpu River, Shanghai's main source of drinking water.

Residents and visitors to China are advised to use tap water for hygiene purposes only, and to either boil water or buy bottled water for drinking. This can be a considerable expense and extreme inconvenience. It also means that Chinese households are constantly looking for a way to ensure that their tap water is fit for domestic use.

Blue I Water Technologies, an Israel-based provider of water analyzers, is trying to supply the solution. The company's devices, which are meant for both residential and industrial use, can identify, quantify and analyze the chemical components of water. They measure parameters such as Chlorine, pH, conductivity, etc. This allows users to adjust and clean water for varying purposes, including, and most importantly in China's case, ensuring safe drinking water.

Blue I is currently promoting their new water analyzing device, Prizma, in Chinese cities in which many residential buildings supply water to homes via rooftop water tanks. These tanks further contaminate municipal waters because they can develop mold or bacteria, or even become infected with bird droppings or dead fowl. Though they are usually emptied, inspected and cleaned about once every year, this is not enough to ensure the water's cleanliness or chlorine levels.

Blue I's device uses electro-optic test strip technology to monitor the water's chemical levels. The system automatically tests the water in the residential tank at regular intervals (usually once a day) and assures there is an ideal chemical balance. Alerts of inadequate disinfection are sent to those in charge via real time, online reports allowing for prompt responses.

Importantly, maintenance of this technology only requires switching the test strip cartridge and does not involve training or technical know-how. This will allow easier keep-up and management.

Blue I Water Technologies is currently exhibiting Prizma and other water testing solutions at the Aquatech China show in Shanghai.

"Israeli Company To Provide China With Cleaner Water", 18/06/2013, online at: http://us.shalomlife.com/business/19605/israeli-company-to-provide-china-with-cleaner-water/

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## ❖ Influx of Syrian refugees stretches Jordan's water resources even more thinly

UM ESSERB, Jordan — In the best of times, the solitary well that services this parched border town produced only enough water to let each household run its taps for a few hours a week. That was before civil war broke out in Syria, and before 180,000 thirsty refugees took up residence in a vast city of tents and trailers next door.

Today the town's antique water pump whines and strains round the clock, but the flow of life-giving liquid for tiny Um Esserb has been reduced to a trickle. With refugees still arriving, the local water manager is bracing for the day when the well gives out altogether.

"The pressure is dropping, dropping," said Ali Summagah, eying the pump's rusty gauges during a recent visit. "We need a new well, now. We needed it last week."

The same plea is being sounded in towns across northern Jordan, where a perennial problem of water scarcity is turning into a crisis. Already ranked as one of the most water-poor countries in the world, Jordan now is forced to share its meager supply with an estimated 500,000 Syrian refugees, a human tide that has increased Jordan's population by 10 percent in less than two years.

Government authorities have been forced to dig more and deeper wells to supply Jordanians as well as tens of thousands of their new neighbors. Prices for delivered water are spiking, driving local resentment against the newcomers. Budget managers are scrambling to find the extra dinars to pay for more pumps, pipes and drilling gear.

More ominously, water levels in underground aquifers — the region's most important source of liquid for drinking and farming since Roman times — are beginning to plummet.

**Poor in surface water**

"We're on the edge of a cliff, and if it continues this way, we will fall," said Hazim el-Naser, Jordan's minister of water and irrigation. "We are in a water crisis, and it is spreading."

By some estimates, Jordan was slipping over the precipice before conflict erupted in neighboring Syria more than two years ago.

Situated on an arid plateau bounded by deserts to the south and east, the small Arab kingdom is exceptionally poor in surface water. Its two largest rivers — the Jordan, with headwaters in Israel, and the Yarmouk, which originates in Syria — are nearly depleted before they enter Jordan. The country's only seaport, Aqaba, at the tip of the Red Sea, is hundreds of miles from the country's population centers, making desalinization impractical.

The kingdom recently embarked on a joint project with its neighbors to construct a Red Sea canal that could alleviate some of its water problems, but completion is years away. Until more resources become available, the Jordanian government had been seeking to stretch the limited supply through intensive water management, including wastewater recycling and highly efficient irrigation practices.

**Refugee influx**

The outbreak of fighting in Syria changed everything. Within months, tens of thousands of Syrians were spilling across the border, swelling Jordan's already sizable and semi-permanent refugee population of ethnic Palestinians, Iraqis, Yemenis and Libyans. U.N. relief organizations provide food and shelter for many of the newcomers, but it has fallen mainly to Jordan to supply water for the camps as well as for the legions of Syrians who have taken shelter in Jordanian border towns and in Amman, the capital.

Residents of border towns such as Um Esserb complain about the sheer number of refugeesand say they don't seem accustomed to conservation.

"Syrians are consuming 35 liters per day — six times more than the average Jordanian," said one regional government official who requested anonymity because of his frequent dealings with refugee communities. "You see them washing cars or even hosing the streets. Meanwhile, some villages in Jordan are down to two water deliveries a week."

Some of the resentment is being directed at the government, adding to concerns about stability in a country that was rocked by a week of rioting in the fall over higher energy prices.

Summagah, the water manager for the border district that includes Um Esserb, said angry customers sometimes show up at his house when promised water deliveries don't materialize. At least once, during a hot spell last summer, angry patrons burned tires in front of the district water office where he works.

"When people don't have water, they get upset," Summagah said as he toured a line of sun-bleached villages near the Syrian border. "They think the government should do whatever it needs to do to get water for them."

Summagah is trying to oblige, using whatever short-term remedies are available. He rents private wells from local farmers. He digs new wells when he can and tweaks existing ones to coax up as much water as possible. But the demand constantly outstrips his ability to pay for improvements, he said.

"We don't have the money to drill," he said. "Our budgets were written before we had the refugee problem."

Things could be even worse, Jordanian officials concede. The country was lucky to experience an unusually wet winter and early spring, allowing shallow aquifers to recharge and helping fill the large water collection tanks that most Jordanians keep on their roofs.

**'A national security issue'**

Naser, the country's water minister, said his office is borrowing water from provinces with severe water shortages to help meet the needs of towns and cities facing extreme crises.

"I take resources from Amman and give them to Irbid, or take from Zarqa to give to Amman," Naser said.

How the country will ultimately provide for the needs of its residents and guests is unclear, even to him. Naser, an author and former international consultant on water management, contends that water scarcity helped drive many of the Arab Spring uprisings of the past two years by driving up prices for food staples. Jordan, like most countries in the region, is feeling those pressures as well, and the droughts of summer are just beginning.

"For us, water is agriculture. It sustains life. But is also a national security issue," Naser said. "Water scarcity triggers unrest, because when people don't have water they tend to rise up. They will join the next group that comes along and says, 'Let's go to the streets.' "

"Influx of Syrian refugees stretches Jordan's water resources even more thinly", 16/06/2013, online at: http://www.washingtonpost.com/world/national-security/influx-of-syrian-refugees-stretches-jordans-water-resources-even-thinner/2013/06/15/5178a978-d2c6-11e2-a73e-826d299ff459_story.html

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## ❖ Peter Gleick on Syria: Water, Climate and Conflict

In a recent Science Blogs post for National Geographic, water guru Peter Gleick takes a look at the water security dimensions of unrest in Syria. Referencing our work from last year, Gleick states:

One especially disturbing example of a major conflict, with complicated but direct connections to water, has developed over the past two years: the unraveling of Syria and the escalation of massive civil war there. Syria's political dissolution is, like almost all conflicts, the result of complex and inter-related factors, in this case an especially repressive and unresponsive political regime, the erosion of the economic health of the country, and a wave of political reform sweeping over the entire Middle East and North Africa region. But in a detailed assessment, Femia and Werrell noted that factors related to drought, agricultural failure, water shortages, and water mismanagement have also played an important role in nurturing Syria's "seeds of social unrest" and contributing to violence.

The article also goes on to explore the role of water infrastructure, and the targeting of that infrastructure, in the ensuing conflict between the al-Assad regime and opposing forces:

The conflict in Syria has also seen the targeting of water systems. During fighting around the city of Aleppo in the fall of 2012, the major pipeline delivering water to the city was badly damaged. In September the city of about three million people was suffering shortages of drinking water. In late November 2012, anti-Assad Syrian rebels overran government forces and captured the Tishrin hydroelectric dam on the Euphrates River after heavy clashes. The dam supplies several areas of Syria with electricity and is considered of major strategic importance to the Syrian regime. And in February 2013, anti-Assad forces captured the Tabqa/Al-Thawrah dam, which is the largest hydrodam in the country and provides much of the electricity to the city of Aleppo.

And the conflict is not only effecting water resources in Syria. As recently reported in the Washington Post, the influx of Syrian refugees into Jordan, for example, is placing great strains on that country's water systems as well.



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Gleick closes his post with a look at the worrying climate picture for Syria (and the broader Middle East and North Africa region), which is heavily informed by a groundbreaking NOAA study from 2011:

Indications for the future are not promising: the region faces challenges posed by growing populations, the lack of international agreements over shared water resources, poor water management, and the increasing risks of climate change. A research paper published in 2011 suggested that climate change was already beginning to influence long-term droughts in the region by reducing winter rainfall (see Figure 1). That study suggested that winter droughts are increasingly common and that human-caused climate change was playing a role. Martin Hoerling, one of the study authors stated "The magnitude and frequency of the drying that has occurred is too great to be explained by natural variability alone."

"Peter Gleick on Syria: Water, Climate and Conflict", 20/06/2013, online at: http://climateandsecurity.org/2013/06/20/more-on-syria-water-climate-and-conflict/

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### ❖ Water Shortages May End Jordan's Nuclear Power Hopes

Beginning in 2004 the Jordanian government began studying the Kingdom's options to meet its rising energy needs, with nuclear power as one of the possibilities. Three years later King Abdullah II stated that Jordan was "looking at nuclear power for peaceful and energy purposes" and by the end of 2007 the government issued a revised and updated National Master Strategy of Energy, which called for six percent of Jordan's electrical output to come from nuclear power by 2020.

Four years later, in September 2011 the Jordan Atomic Energy Commission (JAEC) issued a "White Paper on Nuclear Energy in Jordan" describing the results of a pre-feasibility study and further elaborating a national policy rationale for nuclear energy.

Now?

Jordan has completed the first stage of a tender for its nuclear energy program and intends to have at least one reactor connected to the grid by 2020. JAEC's proposal is to have a 700-1200 MW reactor operating by 2020, and a second by 2025.

By any measure, Jordan's energy situation is grim. The U.S. government's Energy Information Administration notes, "Jordan, unlike its immediate neighbors, does not possess significant energy resources… As a result of its lack of significant energy resources, Jordan relies heavily on imports of crude oil, petroleum products, and natural gas to meet domestic energy demand.

Not have those imports been immune from the political turmoil sweeping the region. Following the outbreak of the Arab Spring two years ago, the Arab Gas Pipeline, which transports natural gas from Egypt to Jordan, has been attacked numerous times, forcing Jordan to spend increasing amounts of scarce hard currency on back-up fossil fuels for power generation, just at a time when oil prices have been increasing. Over the past two years the country has spent at least $1.4 billion on heavy fuel oil and diesel to replace lost gas from the AGP.

Adding to the allure of nuclear energy is Jordan's discovery of uranium resources, which the government views as a potentially secure, domestic fuel source for its reactors, as well as a revenue source for funding its first nuclear power plant.

But some in the Kingdom are expressing sticker shock at the projected costs of embracing nuclear power, as Jordan's worsening economic situation increases public concerns over how Jordan can

afford a nuclear power program now estimated to cost at least $5 billion, with many arguing that the Kingdom should deploy more renewable energy resources instead.
Accordingly, Jordan's policy makers have come under increasing pressure from the public to justify the enormous expenditure. With decreasing political and financial support, concerns about Jordan's ambitious nuclear program have multiplied.

What may ultimately doom Jordan's nuclear ambitions, however, is a resource even more scarce in the Kingdom than uranium – water.

Jordan's Minister of Water Hazem Nasser has noted, "We live in a chronic water problem. And we are now at the edge of moving from a chronic water problem into a water crisis."
Jordan's Royal Commission for Water noted in its report, "Water for Life: Jordan's Water Strategy, 2008-2022" that the Kingdom has an annual per capita water supply of 145 cubic meters. To put this figure in context, the United Nations describes nations with less than 500 cubic meters per person per year as having an "absolute scarcity" of water.
Fourteen years ago King Abdullah II commented, "Our Water situation forms a strategic challenge that cannot be ignored. We have to balance between drinking water needs and industrial and irrigation water requirements. Drinking water remains the most essential and the highest priority issue."

And the shortages continue. Jordan's Minister of Water and Irrigation HE Raed Abu Saud noted in the strategy report, "Jordan has very limited water resources. In 2007 the Demand exceeded Resources by 638 million cubic meters/year and the Allocations exceeded Resources by 73 million cubic meters… Water is an essential commodity for Municipal, Industrial and Agricultural uses. The increasing water deficit year-on-year poses a serious future threat that will impact all sectors."

And nuclear power plants, whatever their design, are significant users of water for cooling purposes. Safa Al Jayoussi, an activist with Greenpeace in Jordan, succinctly summed up the issue, noting, "Nuclear power plants require large quantities of cooling water, usually from a large river or a large lake. But, in Jordan, we don't really have any sources of water."
While Jordan's nascent nuclear power industry has its advocates, it may well be water, the Middle East's most precious resource, rather than fiscal issues that shoves the country's nuclear hopes farther

into the future. As King Abdullah II noted, potable water "remains the most essential and the highest priority issue" and no one at the Water Ministry has yet advanced a plan how the Kingdom might make up its annual water deficit of 73 million cubic meters.

"Water Shortages May End Jordan's Nuclear Power Hopes",17/06/2013, online at: http://oilprice.com/Alternative-Energy/Nuclear-Power/Water-Shortages-May-End-Jordans-Nuclear-Power-Hopes.html

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### ❖ Moscow Assails American-israel Desalination Pact; Incites Arabs

The Moscow radio today, in an Arab-language broadcast beamed to the Arab countries, assailed the American-Israel desalination agreement, asserting that it would go far beyond the limits of desalination and should, therefore, be a cause of concern to the Arabs. The broadcast said that Prime Minister Eshkol himself had "insinuated" that nuclear cooperation would not be restricted to desalination. "It is clear to what the Israeli Prime Minister refers as the most modern weapons," Moscow claimed. "Obtaining these weapons overtly is forbidden, so Israel found a pretext to hide nuclear cooperation with the United States."

The Moscow broadcast also accused Israel of "provocative conduct" in proceeding with its Jordan waters plans. The broadcast charged that "instead of seeking ways for a peaceful solution to the question of the Jordan waters with all the countries concerned, Israel's ruling quarters are pursuing another course which cannot be described except as 'provocative.' Tel Aviv is in fact defying the Arabs and does not wish to take into account their vital interests."

"The Israeli expansionist policy will only lead to the complication of the situation in the Near East," the broadcast asserted. It said that "these dangerous actions" were started during the Eshkol visit to the United States. It warned "the ruling quarters in Washington" of "the dangerous consequences to which the actions of their allies in Tel Aviv could lead."

"Moscow Assails American-israel Desalination Pact; Incites Arabs", 19/96/2013, online at: http://www.jta.org/1964/06/19/archive/moscow-assails-american-israel-desalination-pact-incites-arabs

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### ❖ Three wells selling untreated water in west Amman closed

AMMAN — The Water Authority of Jordan (WAJ) on Tuesday sealed three wells in west Amman's Al Kursi neighbourhood whose owners were selling the water, which doesn't meet local standards, according to an official.

The three wells are illegal and were drilled for pumping water and selling it to the public via tankers, Ministry of Water and Irrigation Spokesperson Omar Salameh said.

"The wells contain water that doesn't meet our standards and needs treatment before being sold to households," Salameh told The Jordan Times.

Noting that the wells were drilled a few years ago and belong to different people, he said WAJ warned the owners several times in the past.

"The violators were referred to court for drilling the wells, which is against the law, and for jeopardising public health by selling water that doesn't meet local standards," Salameh highlighted.

The ministry has repeatedly urged people who buy water from private wells to ask for a receipt indicating the source of the water and the price to make sure it is clean and safe.

In addition, water tankers must adhere to regulations that ensure safety standards, including the cleanliness of the tanker and pipes, according to the ministry.

Moreover, tankers must be green in colour, with the words "drinking water" visibly printed on them.

Salameh added that the ministry is undertaking a new campaign with the onset of summer to end violations on water networks and close down all illegal wells.

Under Article 30 of the WAJ Law, violators are fined up to JD5,000 and jailed for two years, while Article 456 of the Penal Code stipulates that violators of water networks face three- to six-month prison terms and fines ranging between JD100 and JD1,000.

by Hana Namrouqa | Jun 18, 2013 | 23:17
The ministry said tankers must be green in colour, with the words 'drinking water' printed on them (File photo)

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"Three wells selling untreated water in west Amman closed", Jordan Times, 19/06/2013, online at: http://mideastenvironment.apps01.yorku.ca/?p=7306

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### ❖ Ethiopian Ambassador in Sudan Gives Assurances on "Renaissance Dam"

The Ethiopian Ambassador to Sudan Mr. Abadi Zemo asserted that no damage would be inflicted on Sudan and Egypt due to the construction of the "Grand Ethiopian Renaissance Dam" or "Millennium Dam", which Ethiopia will establish on the Blue Nile 40. Km from the Sudanese borders, at a symposium convened in Khartoum recently and organized by the Middle East &Africa Studies Center.

The Ethiopian ambassador said that the dam will result in many economic benefits to downstream countries and protect them from damages caused by floods ,In addition to providing a constant and cheap electric generation and reducing the amounts of mud.

He said that Ethiopia has no vast cultivation areas that need large quantities of water and the dam will not affect the water shares of both Sudan and Egypt, pointing out that they could not block water behind the dam because that may end up destroying Ethiopia before Sudan.

The ambassador pointed that there are representatives from Sudan and Egypt as members in the technical committee, confirming Ethiopia's goodwill for consultation about problems that might arise in the future. He went to say that South Sudan, Djibouti and Kenya had already approved of the project and expressed their readiness to finance it.

Ambassador Zemo said "My country's annual imports amount to more than 2 billion Euros from the European Union countries, thus turning to Sudan would allow us to utilize from its agricultural wealth after the provision of the regular water supply and easy-obtainable electricity and make use of the Sudanese seaports culminating in economic integration.

In another turn, some Sudanese academics, former-ministers and experts expressed concern over Ethiopia controlling dam water and keeping water stocks behind Sudan's borders. They asserted on the necessity of an agreement to ensure the rights of upcoming generations.

The Professor of strategic studies, Hassan Jaad Ali said that, Sudan would benefit from the Ethiopian dam, thanks to regular water supply and avoiding the destructive floods highlighting the importance of economic integration between Sudan and Ethiopia.

The former-minister of irrigation Dr. Sharif Tohami said that the available information is not enough to form a clear opinion and indicated that an agreement between the states of Blue Nile basin and The Nile River states (Sudan and Egypt) is needed before building such a dam.

Prof. Murganee Al-Haj explained that the timing of the dam building came in very critical conditions which coincided with south Sudan's secession and a new regime in Egypt. He called to prepare studies to determine the future effects on Sudan after building the dam as well as being cautious in case of water levels fluctuating.

"Ethiopian Ambassador in Sudan Gives Assurances on "Renaissance Dam"", 22/06/2013, online at: http://news.sudanvisiondaily.com/details.html?rsnpid=223947

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### ❖ Ethiopia: Amb Berhane - Talks BTN Ethiopian, Egyptian FMs Were Fruitful

The discussions held between Ethiopia and Egypt during the last two days on the Grand Ethiopian Renaissance Dam were successful, the Ministry of Foreign Affairs said.

Foreign Affairs State Minister, Ambassador Berhane Gebrekirstos and other pertinent officials briefed diplomats of different countries on Wednesday on issues related to the discussions and the agreements reached between the two sides.

Ambassador Berhane on the occasion said that at the beginning an international panel of experts in which Ethiopia, Sudan and Egypt are represented was set up to ensure mutual benefits of the countries. He said the recent report presented by the panel, which also includes experts from France, Germany, South Africa and Britain, assessed that the Dam has no harm to downstream countries - Sudan and Egypt.

The panel presented its 800 page report to the respective countries, he said. According to an agreement reached earlier, Ethiopia, Sudan and Egypt were to hold roundtable discussions on further activities to be carried out. However, misunderstanding was created on the part of the Egyptian authorities. Ambassador Berhane said the two-day discussions were held in Addis Ababa with a spirit of mutual understanding and brotherhood, and agreement has been reached to discuss on the panel's report.

Egyptian ambassador to Ethiopia, Mohamed Idris briefed the diplomats that Ethiopia has no intention to harm Egypt. Sudanese Ambassador to Ethiopia, Abdelrahman Sirelkhatim Moh. Osman also lauded the efforts of the two countries to find solution through dialogue. Ambassador of Uganda to Ethiopia, Mull Sebujja Katende for his part expressed belief that Egypt and Sudan would sign the cooperation framework signed two years ago by six riparian countries. Foreign affairs and water ministers of the three countries are scheduled to hold discussions on the matter in the near future.

"Ethiopia: Amb Berhane - Talks BTN Ethiopian, Egyptian FMs Were Fruitful", 19/06/2013, online at: http://allafrica.com/stories/201306201083.html

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### ❖ Ethiopian refugees face dam backlash in Egypt

Persecuted ethnic Oromo demand UN protection amid xenophobic attacks and government hostility over the Blue Nile dam.
Leyland Cecco Last Modified: 19 Jun 2013

Cairo, Egypt – For months, Gutama Gallatobati, a proud farmer and mechanic of Oromo descent languished in an Ethiopian prison over accusations he burned an Ethiopian flag. While inside, guards physically abused him.

Sada Ahmed, a mother of five children and wife of a wealthy husband lived a good life in Ethiopia until she was accused of financially supporting the rebel group Oromo Liberation Front (OLF). Her husband disappeared in Sudan and she was forced to flee to Egypt.

The Oromo make up 40 percent of the Ethiopian population. However, the minority Tigray government has persecuted the Oromo people, jailing more than 20,000 suspected OLF members. As a result, many have been forced to flee, leaving behind family, friends and jobs.

Ahead of World Refugee Day on Thursday, the Oromo who have fled to Egypt are again endangered.

"Our case cannot be resolved with lawyers and judges and courts … We don't want legal protection, we want physical protection."

- Mohamed Zein, Ethiopian journalist

Over the last few weeks, there has been an emergence of xenophobic attacks against Ethiopians on the streets of Cairo, motivated by Ethiopia's goal to build the "Grand Renaissance Dam".

The Ethiopian government is planning to dam the Blue Nile for hydroelectric power, a move Egypt worries will affect its water supply.

In response to the project, Egypt's government has reached a new level of bellicose rhetoric. In a televised meeting of key government officials recently, former presidential candidate Ayman Nour suggested Egypt launch air strikes to stop construction of the dam. Others proposed destabilising the Ethiopian government by funding rebel groups.

The Oromo in Egypt are now caught in the middle here and say they're facing increased hostility from Egyptians.

In response, hundreds of Oromo refugees have staged a sit-in outside the Cairo office of the United Nations High Commissioner for Refugees (UNHCR) demanding safety. They've refused to leave, sleeping on the grass outside the building, near leaking sewage from a surrounding apartment complex.

Jeylan Kassim, head of the Oromo Sons/ Daughters Refugee Association, has played a leading role in organising the protests. "We will not leave until the UNHCR will protect us," he told Al Jazeera.

A heavy silence blankets the Oromo as they sit on scraps of cardboard listening to members of the community discuss in frustration fruitless meetings with UNHCR representatives.

The UN says it cannot provide temporary shelter or food outside the UNHCR building because they do not have authority over the land, nor the resources to supply those camping out for the nearly two weeks.

The UN has offered a phone hotline for refugees to call with their problems, as well as legal assistance.

But the Oromo say this is not enough. "Our case cannot be resolved with lawyers and judges and courts … We don't want legal protection, we want physical protection," says Mohamed Zein, a journalist from Ethiopia.

He fled to Egypt after he was falsely accused of providing secret government information to NGO Human Rights Watch and the Eritrean government.

The UNHCR acknowledges the situation is a difficult one but says its options are limited. "The outcome is not in your hands. As the United Nations, you don't get involved in [internal] politics," says UN press officer Ahmed Aboughazala.

The Oromo in Egypt are united not only by their heritage, but also by a collective sense of uncertainty.

When 33-year-old Gutama Gallatobati arrived in Cairo a month ago, he thought his biggest troubles had been left behind. A week ago, however, his landlord evicted him from his apartment and his belongings were taken. When asked what reason he'd been given, he sighed: "The Nile."

"They said if you take our water, we will take your blood," recounted Abdi Harboury, a lanky youth shy to make eye contact.

According to the Oromo community, Abdi was the first person to have been attacked over the dam issue. He was beaten by three Egyptian youth, they say.

Hussein Ahmed, an asylum seeker who has been in Cairo almost two years, admitted he lies when asked about his origins. "I was at the barber and he asked me, 'Where are you from?' I said Nigeria. I am scared to say I am from Ethiopia."

Even outside the UNHCR office, the refugees say it is not safe. Ahmed said he was beaten recently, and a woman was groped on her way to find a toilet. They claim the police did nothing to stop the attacks.

Some police officers have told locals passing by that the refugees are not suffering, and are being paid by the American government to protest, the Oromo say. "They protest in the day and then at night they're paid and many of them leave," said a young officer, who declined to give his name because he was not authorised to talk to the press.

Egyptian Foreign Minister Mohamed Kamel Amr, meanwhile, arrived last Sunday in Addis Ababa to meet with his Ethiopian counterpart in an attempt to find a political and economic solution over the dam issue.

Ethiopia and Egypt agreed to hold further talks on the impact of a huge Ethiopian dam project to quell tensions between the two countries over water-sharing.

Until it gets resolved, however, the Oromo who fled persecution in Ethiopia say they will continue to face threats to their safety in Egypt.

"Ethiopian refugees face dam backlash in Egypt", AQl Jazeera, 19/06/2013, online at:
http://mideastenvironment.apps01.yorku.ca/?p=7302

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## ❖ Egypt, Ethiopia agree to start political, technical consultations over massive Nile dam

ADDIS ABABA, Ethiopia — Egypt and Ethiopia have agreed to start consultations aimed at resolving their conflict over Ethiopia's huge dam on the Blue Nile River, their foreign ministers said Tuesday.

The ministers said in a joint statement that they had "agreed to embark on consultations at the technical and political levels" and that such talks would be in "a spirit of brotherly relations and mutual understanding." Sudan also will participate in these talks.

Mohamed Amr, Egypt's foreign minister, arrived in Ethiopia on Sunday for talks with Tedros Adhanom, his Ethiopian counterpart, amid a sharp exchange of words between their governments over the dam.

The two ministers met four times on Monday in what they described as "intensive" and "spirited" discussions.

Amr told reporters in Cairo upon arrival from Ethiopia that Egypt will invite the water ministers of Sudan and Ethiopia to meet "as soon as possible."

He said his Ethiopia visit helped "remove what clouded relations between the two countries" even as Egypt's goal is to protect the water resources.

Ethiopia's growing economy frequently suffers from power cuts and needs more electrical capacity, but Nile-dependent Egypt fears the project will diminish its share of Nile River waters.

Ethiopia last month started to divert Nile waters to make way for its massive $4.2 billion hydro-electric dam dubbed the Grand Ethiopian Renaissance Dam, sparking concerns in Egypt.

In a televised meeting on June 3, Egyptian politicians suggested attacks against Ethiopia to sabotage the dam. A week later Egyptian President Mohammed Morsi warned that "all options are open" to challenge Ethiopia's dam project.

Ethiopia's parliament on Thursday unanimously ratified a new accord that replaces colonial-era deals that awarded Egypt veto powers over Nile projects.

Ethiopia's leaders say work on the dam will not stop even as consultations proceed. They say the findings of an experts' panel, which includes four international experts, show the dam will not significantly affect water flow to both Egypt and Sudan.

"Egypt, Ethiopia agree to start political, technical consultations over massive Nile dam", 18/06/2013, online at: http://www.washingtonpost.com/world/africa/egypt-ethiopia-agree-to-start-political-technical-consultations-over-massive-nile-dam/2013/06/18/6ea6d56e-d817-11e2-b418-9dfa095e125d_story.html

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### ❖ Nile Basin nations call for stronger relations

June 22, 2013 (JUBA) – Members of the Nile Basin Initiative (NBI) have been urged to deepen cooperation among them to enable inhabitants of the River Nile basin enjoy its tangible benefits. The call came at the end of a one-day Nile Council of Ministers (Nile-COM) conference, which was held last Thursday in Juba, the South Sudan capital.

The meeting, among others, addressed strategic issues to advance the Nile cooperation as well as operational business issues within NBI countries.

The conference, Nile-COM chairperson in a statement, resolved that cooperation is the only way forward to achieve the shared vision of sustainable socio-economic development, through the equitable utilization of, and benefit from, the common Nile Basin water resources.

"The Nile is one of the world's great assets and its sustainable management and development is essential if the countries of the Nile Basin are to continue to reduce poverty and to gain economic prosperity", Paul Mayom Akec said in a statement.

Nile-COM, Akec further noted, applauded Sudan's resumption in the full participation of NBI activities, after its suspended last year over differences with other countries on the Cooperation Framework Agreement (CFA).

"Nile-COM members call upon the Arab Republic of Egypt to follow the example of Sudan and return to the cooperation platform for Nile issues, the Nile Basin Initiative that it has contributed to building", the statement reads in part.

Akec, also South Sudan's minister for water and irrigation, pledged to strengthen the Nile cooperation and work towards member states' continued support to NBI, which he described as the only viable mechanism for equitable resource utilisation.

The one-day conference, among others, discussed institutional strengths of NBI countries, investment financing, transboundary water resources analysis, donor partnerships and NBI business activities.

Meanwhile, Sudan has been earmarked as host of the next Nile-COM meeting, expected to place, mid-next year.

Established in 1999, NBI serves as a forum through which member states seek to develop the River Nile in a cooperative manner, share substantial socio-economic benefits and promote regional peace and security.

"Nile Basin nations call for stronger relations", 22/06/2013, online at:
http://www.sudantribune.com/spip.php?article47051

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### ❖ Is Egypt's stance on the Blue Nile Dam legally justified?

Egypt and Ethiopia are in a war of words concerning the damming of the Blue Nile. Ethiopia intends the dam to generate 6000 megawatts of electricity, which is equivalent to six nuclear power plants, in order to support and improve its sustainable development standing, thereby increasing the living standards of millions of its citizens, and has already completed 21% of the dam's construction. Egypt opposes the project, fearing that the dam will reduce the flow of the water. Interestingly, Sudan sees the dam as beneficial to all downstream and upstream Nile Basin countries. Egypt has declared that "all options are open" to stop a reduction of "even one drop of Nile water" as a result of the construction of the dam, including involving the military, arming opposition groups and sabotaging the dam, although it says that it does not want to go to war with Ethiopia. This controversy poses several critical legal issues.

The first concerns the legal basis of both sides for using Nile waters and resources. Egypt argues on the basis of "inherent" or "historic" title, as enacted in colonial treaties, including in the 1929 and 1959 Nile Water Treaties between Egypt and Sudan. The latter treaty entitles Egypt to use 87% of the Nile which amounts to 55 billion cubic meters of water per annum, while Sudan is entitled only to 18.5%. The rest evaporates into the air. Ethiopia and other upstream riparian counties including Kenya, Tanzania, Burundi, Uganda, Rwanda, the Democratic Republic of the Congo rely on the principle of "equitable and reasonable use and utilization" of the Nile River waters and resources. This principle has been codified in Article 5 of the 1997 Convention on the Law of Non-Navigational Uses of International Water Courses, which is considered a codification of customary principles. In the River Oder Case of 1929, the Permanent Court of International Justice (PCIJ) explicitly proclaimed that the "community of interest of riparian States" forms the "basis of a common legal right…of all riparian States…" It must be noted that Ethiopia had opposed the colonial treaties on the Nile since their inception, and all upstream countries oppose relying on colonial treaties, considering them unfair and discriminatory.

Egypt argues, however, that colonial treaties must be honoured, including those agreements entered into between the British colony and upstream countries, committing them not to use or "arrest" the Nile waters without receiving permission from Egypt and Sudan. This argument is rather weak, as Ethiopia had persistently objected to the treaties, and all upstream (and downstream) countries were under colonial rule and thus not legally bound by such treaties as newly independent countries; the

"clean state" doctrine, as codified under Article 16 of the Vienna Convention on Succession of States in Respect of Treaties of 1978, states that countries that have gained independence are not obliged to adhere to colonial treaties, excepting those concerning boundary issues.

The exception of "special regimes" such as Article 13 of Rome Statute of the ICC, which imposes obligations on non-party states, is less likely to apply to these colonial treaties which were created to pursue self-interest rather than common values and shared interest among the Nile Basin states. This is why most Nile riparian countries acceded to the Nile Basin Cooperative Framework Agreement in 2010. The agreement is based upon equality and cooperation, rather than the status quo ante, and it will establish a joint commission to oversee the river's management. From this, it can fairly be argued that contemporary international law does not recognize the "inherent" or "historic" use "principle" to exclusively utilize a water course without ensuring the fair share of other riparian states. For that matter the 1997 UN Convention expressly rejects the "inherent" use claim as a bar to the equitable and reasonable use of international waters.

However, as a second legal issue, upstream countries must not inflict significant harm upon downstream states in their use of an international river like the Nile, as stated in Article 7 of the UN Convention 1997 and Article 12 of the Berlin Rules. For example, the "minimum individual water requirements" of the people in upstream countries must not be jeopardized by a dam or other projects in downstream countries. Ethiopia insists that its Blue Nile mega dam project will not affect the flow of the water, and thus not only that it will not significantly affect Egyptian or Sudanese interests but also that will be beneficial to most riparian countries.

Ethiopia also claims that the electricity generated will be exported to neighbouring countries and the project will increase the flow of water to both countries. Conversely, Egypt argues that Ethiopia has not carried out enough studies on the impact of the dam on downstream nations, especially on fishing, crops and developing new and major hydro-electric power plants in Egypt.

This problem seems to be related to the first legal controversy; Egypt is not willing to risk a reduction of "a drop of water" from the Nile as that is contrary to its "inherent" or "historic" title to fully use and utilize the Nile waters. However, the duty not to inflict a significant harm is founded on the principle of "equitable and reasonable use" of a trans-boundary river and thus does not rely on the prior will or permission of one concerned party. It does not allow one party to expand its projects while denying others to use the water for their sustainable development and poverty reduction endeavours. Of course, establishing "a significant harm" is a technical matter, but what seems to be


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clear is that Ethiopia is vindicated by the Tripartite Commission's findings in that its project will not harm Egypt and Sudan significantly.

However, this poses a third legal issue. Egypt appears to call upon Ethiopia to halt its project, without providing a legal ground. It may well be justified to urge halting a significantly harmful project based upon evidence and reason but not based on a threat of violence and intervention. Even if the project will significantly harm Egypt, according to the 1997 UN Convention, Ethiopia may only be required to: "take all appropriate measures…, in consultation with the affected State, to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation."

Finally but most importantly, Egypt vows to use all available options including military force, intervention, sabotage, etc. As the country's economy and livelihood is dependent on the Nile, it may argue, even if remotely, that the Blue Nile dam is a threat to its survival and thus entitled to defend itself under Article 51 of the UN Charter. In light of Article 2 of the UN Charter, however, states can only use force to defend themselves if and when they are militarily attacked. Moreover, using force as a means of national policy including securing water interests is totally banned under current international law.

However, whether Egypt has violated its Charter (or African Union) legal duties is not entirely clear. It may be said that Egypt threatened to use military force in violation of Article 2 of the Charter andArticle 4 of the AU Constitutive Act, and thus responsible for such persistent military threats against Ethiopia, in accordance with Articles 1, 40, 41, and 42 of the International Law Commission Draft Articles on the Responsibility of States 2001.

The opposing, and maybe a more sound argument, is that what (some) Egyptian politicians have done, and are doing, is a sheer propaganda to intimidate and frighten Ethiopia, and thus no concrete breach is committed by Egypt of its duty owed to Ethiopia and the International Community at large. In fact, The Egyptian Nobel Peace Laureate Mohamed ElBaradei called upon the President to make an apology to Ethiopia and Sudan for "the irresponsible utterances" made against them. It cannot be concluded at this point therefore that Egypt has, or has not, violated international law, as this will depend on how the situation progresses.

As the African Union and the USA rightly urged, and as codified in Article 13 of the 1997 UN Convention and related rules, the way forward is to settle all problems peacefully, and to work together to maximize the benefits to all and minimize any possible harm of the dam to downstream

nations and peoples. The solution lies in Egypt accepting the rights and entitlements of riparian countries in accordance with 21st century international law, while Ethiopia making sure that its dam does not significantly impact Egypt and Sudan; if diplomacy fails both parties must opt for judicial or arbitral settlement.

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"Is Egypt's stance on the Blue Nile Dam legally justified?", 22/06/2013, online at:
http://www.dailynewsegypt.com/2013/06/22/is-egypts-stance-on-the-blue-nile-dam-legally-justified/

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### ❖ The swelling storm over the Nile

The armed clashes taking place across the Middle East could soon include Egypt and Ethiopia. Continual attempts to allay the differences diplomatically are being made, but the clouds of war have yet to dissipate.

The crisis is over water. The Nile River is Egypt's life artery, and Ethiopia is threatening to block it. The Nile's origins, as we know, are in eastern Africa, and before the giant river reaches Egypt's parched agricultural fields it passes through other countries, including Ethiopia, which also has vast areas with untapped agricultural potential in need of water. Ethiopia, like Egypt, has a population of some 90 million people.

This is not only about agriculture, but also about independence from foreign energy providers -- a challenge that, if solved, could move Ethiopia from a failed economy to a functioning one, perhaps even to a regional powerhouse. It would be perfect if not for that one small problem.

Ethiopia is building a large hydroelectric dam on the Nile, at a cost of nearly $5 billion, to store most of the water in its territory. Doing this could, in very short order, sentence Egypt to unprecedented famine and regular power outages. Despite Ethiopian assurances that it will take Egypt's needs into account, this growing issue is creating an impossible situation for Cairo, which already has enough difficulties providing for the country's 84 million residents.

The contradictory interests of two countries traversed by one river are a central issue in international law. Even Israel, in the past, has needed to make tough decisions, including military ones (until the Golan Heights were captured in 1967), over Syrian attempts to divert the Jordan River.

The conflict over the Nile is also not new. In 1929, the British, who ruled over most of the area at the time, sponsored a deal that designated how the river's water would be allocated. Because of Britain's special interest in Egypt, Cairo was given access to 60 percent of the water as well as veto power over any project involving the Nile by upstream countries. It is this situation that other countries in the region, which sit along the riverbed, are now seeking to change by signing a treaty that will significantly reduce Egypt's water supply.

In the latest development, the Ethiopian parliament unanimously endorsed the new Nile River Cooperative Framework Agreement, an accord already signed by five other Nile-basin countries -- Rwanda, Tanzania, Uganda, Kenya and Burundi -- making it Ethiopian law. The Egyptian reaction, as expected, was outrage. President Mohammed Morsi declared that even though he did not want war, "all the options are open."

Meanwhile, retired senior Egyptian army officer Gen. Talaat Musallam said, "Even though Cairo's ability to cast influence is at an all-time low, if a diplomatic solution is not found the military commanders in Egypt could decide that it is better to die in battle than to die of thirst."

The plot for Verdi's "Aida" deals with war between Egypt and Ethiopia, from which the Egyptians emerge victorious. Even now, Egypt's military power is apparently greater. But the Ethiopians are tough and brave fighters, and we should not forget that in the two wars they fought against Italy, they won the first and were barely defeated in the second, and then only after Italy employed the use of gas.

Ethiopia, however, is not eager for war either, but it could be that it feels that the current crises battering Egypt are rendering its military threats empty, and that Cairo will have no choice but to accept the new distribution of the Nile's water. Perhaps they are correct, perhaps not.

There is another matter to consider as well: If the Ethiopian initiative takes off, it will cause geopolitical aftershocks in the entire region that will shift the center of power from Egypt to Ethiopia, which will also have diplomatic consequences. The United States, which is in no need of more problems in the Middle East, will do its best to convince Egypt (its ally in principle) and Ethiopia (its ally in practice), to solve the problem peacefully. With that, Washington's diplomatic clout is diminished since the "Arab spring" revolution in Egypt, such that it is not clear its efforts will bear fruit.

Israel also finds itself in a dilemma: The agreements and ties with Egypt are the foundation of its diplomatic and security policy, but its growing and strengthening ties with Ethiopia are also an important part of its considerations. Until now Israel has refrained from any sort of involvement in the swelling storm, and we should hope this continues to be the case.

"The swelling storm over the Nile", 23/06/2013, online at:
http://www.israelhayom.com/site/newsletter_opinion.php?id=4743

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### ❖ Ethiopian weeklies focus on Nile waters, war on corruption

Addis Ababa, Ethiopia (PANA) – "Ethiopia and Egypt cannot afford to go to war over the Nile," wrote The Reporter this week, commenting on a diplomatic wrangle that in recent days filled Ethiopian air waves and newspapers as Egypt voiced opposition to the construction of a giant hydro-power dam on the Blue Nile river.

Regardless of whether Egyptian politicians who suggested hostile acts to stop Ethiopia from building the dam were aware that their utterances were on record or pretended to be unaware, their statements needed to be looked into carefully, the weekly suggested.

"Politicians promote the interests of their country and people as well as other nations when they play their role properly. But, if they lose sight of their duties or veer off track they are bound not only to harm other nations as well as their own country," The Reporter said.

According to the paper, there were "some misguided Egyptian and Ethiopian politicians," who talked about war between the two countries after Ethiopia diverted the Blue Nile as part of the ongoing construction of the Grand Ethiopian Renaissance Dam (GERD).

As a nation, Ethiopia's "response to such myopic rhetoric is unequivocally clear: Don't trifle with Ethiopia! "

"There were voices of sanity though opposing those who tabled preposterous propositions including bombing the dam, declaring war on Ethiopia and barring ships which carry goods destined for the dam from passing through the Suez canal.

"These voices counseled against war and pointed out, among other things, that the dam does not harm Egypt's interest and actually benefits it, that the amount of water that is lost through

evaporation at the High Aswan Dam is much more than the reduction in the flow to Egypt of the Nile waters projected to be caused by the GERD," said the paper.

Furthermore, The Reporter advised Egypt to cooperate with other riparian countries to ensure its water security.

"The governments and peoples of both countries must appreciate and act on the imperative to work together in order to achieve greater solidarity, cooperation and integrity between them.

"Anyone who threatens or collaborates with elements who threaten to prevent the accomplishment of this noble goal by intimidating Ethiopia over the exercising of its right to use the Nile must be told in no uncertain terms to desist from trifling with Ethiopia," said The Reporter.

Meanwhile, Capital weekly reported that the Ethiopian parliament has unanimously ratified a treaty replacing the 90-year-old agreements which gave Egypt and Sudan control over almost all water in the Nile.

The Nile River Cooperative Framework Agreement, signed by six other riparian countries, replaces a 1929 treaty, which gave Egypt veto power over any project involving the Nile upstream countries.

Ethiopia is the first country to ratify this agreement. Uganda, Kenya, Burundi, Tanzania and Rwanda are also signatories to the framework, but have yet to ratify it in their respective parliaments. The outdated pact has been criticised by upstream countries as a colonial relic.

Touching on a different issue this week, Capital, said that Ethiopia "has now joined a select group of countries where grand corruption is considered a minor nuisance."

The business weekly decried the rise of corruption in the East African country, saying that there were educated Ethiopians who used their knowledge and skills to steal millions of cash and bury their loot underground or in properties around cities and towns.


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In the wake of grand corruption in the country, the paper argued that education or knowledge cannot and should not be associated with a person's integrity, because the so-called educated but lacking integrity were "blindly taking the population into an economic cul-de-sac."

"Identifying education with integrity is one big misconception we must soon rectify," the weekly suggested, noting: "Thankfully, this misconception is being vigorously challenged by the enlightened global youth."

In an accompanying story, Capital reported that Ethiopia's Federal High Court has ordered all banks in the country to freeze the accounts of about 544 individuals in relation to the recent corruption crackdown on officials of the Ethiopian Revenue and Customs Authority and prominent business people.

The court order also included the freezing of their shares in different companies.

According to Capital, sources at the Federal Ethics and Anti-Corruption Commission (FEAC) said that the blocked assets and accounts were worth over 11 billion birr. Currently, one US dollar is equivalent to 18.99 birr.

The list of persons whose bank accounts and assets were affected by the court order included former Defence Minister Siye Abraha, his four brothers and a sister.

"Ethiopian weeklies focus on Nile waters, war on corruption", 22/06/2013, online at: http://www.panapress.com/Ethiopian-weeklies-focus-on-Nile-waters,-war-on-corruption--15-874693-31-lang2-index.html

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### ❖ Sudan expresses support for Ethiopia's Nile dam project

*Sudanese President Omar al Bashir expressed his support for Ethiopia's Renaissance dam.*

Sudanese President Omar al Bashir said, "The Renaissance dam will not decrease water flow to Egypt, and will only be used for producing electricity."

Calling on the parties to reach a reconciliation over the dam construction, Bashir said, "Sudan is indebted to Egypt according to the 1959 agreement on sharing Nile's waters. Renaissance's water storage will not have negative effects on Sudan and Egypt."

Bashir also stated he was not concerned with Ethiopia's project, rather concerned with the World Bank's Nile basin projects, and said, "World Bank projects seem in favor of us, but there are other interests hidden in the projects."

The crisis started with the Ethiopian government's announcement of a decision over changing the river bed of the Nile to build the Grand Renaissance Dam.

The Nile River basin covers an area of 2.9 million square meters which is ten percent of African continent. Egypt, Sudan, Ethiopia, Kenya, Rwanda, Burundi, Tanzania, Uganda and the Democratic Republic of Congo are the Nile basin countries.

The World Bank launched its Nile Basin Initiative in February 1999, a regional partnership of Nile basin countries united for the long-term development and management of Nile waters.

"Sudan expresses support for Ethiopia's Nile dam project", 22/06/2013, online at: http://www.worldbulletin.net/?aType=haber&ArticleID=111626

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### ❖ Nile int''l property, no single state has ownership – expert

By Zakariya Badran (with photos) CAIRO, June 22 (KUNA) -- The ownership of the Nile undisputedly is a matter of international law and thus no single state has the authority to claim rights over the river, said an expert here on Saturday.

Dr. Nader Nuriddin, professor of water resources and agriculture at the University of Cairo, told KUNA that no country has the right over the ownership of the Nile River, adding that the 11 countries of Tanzania, Uganda, Rwanda, Burundi, Democratic Republic of the Congo, Kenya, Ethiopia, Eritrea, South Sudan, Sudan, and Egypt could not take measures to restrict or prevent the flow of water from the river.

Dr. Nuriddin claimed that the Ethiopian government's plans to build several dams will affect agriculture in both Sudan and Egypt, noting that Ethiopia, the Nile River's source of origin, could not embark on building any dam until all Nile countries agree upon such a plan in accordance with international law.

Catastrophic events could also occur if one of any dam broke, said the Egyptian expert who indicated that Egypt and Sudan would be at the receiving end in case of a disaster.

In this regards, Egypt initiated diplomatic steps to contain the situation with Foreign Minister Mohamed Kamel Amr visiting Ethiopia to converse on the issue with officials there.

After his return to Egypt, Amr said an agreement with Ethiopia was reached to address the situation according to international law. He noted that the Nahda Dam, a project to be carried out by the Ethiopians, should be built according to specific standards that would prevent any accident from occurring.

The Ethiopian side assured the Egyptian minister that the dam project was not a threat to the interest of Egypt. The Foreign Minister stressed that Egypt was keen on the development of Ethiopia, adding that the government in Cairo would work with its counterpart in Addis Ababa to achieve mutual benefit for all involved parties.

"Nile int"l property, no single state has ownership – expert", 22/06/2013, online at: http://www.kuna.net.kw/ArticleDetails.aspx?id=2318256&language=en

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### ❖ South Sudan will sign Nile sharing agreement

South Sudan will be the seventh country to sign the agreement on sharing the Nile waters, which Egypt opposes

South Sudan plans to sign an agreement that aims to replace colonial-era deals that awarded the lion's share of the Nile waters to Egypt and Sudan.

South Sudan's Minister of Irrigation and Water Resources Paul Mayom Akec described the signing of the Cooperative Framework Agreement of the Nile Basin countries, sometimes known as the Entebbe agreement, as "inevitable."

"The process of joining the agreement has started at all levels of the state apparatus in South Sudan," Akec stated in a press conference.

Akec confirmed that South Sudan will start implementing the agreement as soon as parliament ratifies it.

The state of South Sudan will benefit from the agreement by using the Nile River water to construct projects that will bring "prosperity and welfare to its citizens," according to Akec.

Akec's statement comes following a statement by Mohamed Bahaa Al-Din, the Egyptian Minister of Water and Irrigation, on the agreement. Al-Din stated last Sunday that the agreement is not binding on Egypt, as Egypt did not sign it. The only way Egypt will sign the agreement, according to Al-Din, is if a few points of contention are agreed upon. One of points, for Egypt, is that Egypt be given a decision-making position in the proposed Nile River Basin Commission.

Meanwhile, the Egyptian foreign minister met with his Ethiopian counterpart to discuss their recent row on a hydroelectric dam being constructed by Ethiopia. The dam will be the largest in the continent.

The Ethiopian parliament ratified the Cooperative Framework Agreement last week.

Ethiopia will be able, according to the agreement, to build developmental projects along the Nile without prior consent from Egypt.

In a joined statement, the Ethiopian and Egyptian foreign ministers decided on another round of talks between ministers and experts in a few weeks to further discuss the dam's effect, if any, on Egypt's Nile water share.

Six riparian countries have already signed the agreement: Ethiopia, Rwanda, Tanzania, Uganda, Kenya and Burundi.

"South Sudan will sign Nile sharing agreement", 18/06/2013, online at: http://english.ahram.org.eg/NewsContent/1/64/74363/Egypt/Politics-/South-Sudan-will-sign-Nile-sharing-agreement-.aspx

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### ❖ The Nile belongs to Ethiopia too

*The increasing tensions with Egypt over the proposed dam reveal how fundamental the river is to both nations' identity*

Tensions between Egypt and Ethiopia have grown at an alarming rate since Addis Ababa announced its plans to construct the Grand Renaissance dam across part of the Nile. The project will divert the flow of the river and give Ethiopia greater access.
Egypt claims the dam could lower the river's level in a country that is mainly desert, and reduce cultivated farmland. President Mohamed Morsihas called the river "God's gift to Egypt", and the country's politicians claim the reduced water flow could prove catastrophic. An Ethiopian government spokesman, Getachew Reda, says none of Egypt's worries are scientifically based, and that "some of them border on … fortune-telling".
As the debate continues, I am reminded of an encounter between my mother and an Egyptian man one afternoon in New York. My mother was visiting from Addis Ababa and we decided to go to a pizzeria. One customer, an Egyptian, recognised us as Ethiopians. After brief introductions, he made a passing comment about the age-old conflict between our countries over the Nile. My mother calmly stated there was no conflict: the Nile was ours. The man was not amused. What followed degenerated into verbal sparring that ricocheted between "historic right", ancient civilisations and colonial-era treaties. Finally, my mother, frustrated, claimed full ownership of the river – and he did the same. It wouldn't have ended if the pizza hadn't arrived.

The Nile, at 6,700km, is the longest river in the world. It begins in Ethiopia and ends in Egypt. It moves counter to what one might expect, flowing upwards on the map. This, as much as anything, reflects the river's mythological dimensions. It defies logic, its identity is as much a product of poetry as politics. Homer, in The Odyssey, called the body of water "Aegyptus, the heaven-fed river". The name alone gave Egypt symbolic rights, and bestowed religious qualities upon the water. Despite the fact that 85% of the Nile originates in Ethiopia, we still associate the river with Cleopatra and King Tut, with pyramids and the sphinx, with sophisticated belief systems and advanced scientific knowledge. The Nile is a metaphor for Egypt. It is a geographic location as much as it is shorthand

for one of the most innovative moments in world history. In popular imagination, it is as far removed from poverty as one can get. It is the opposite of devastation and privation.
Perhaps what my mother and the Egyptian man were arguing for was an exclusive cultural identity that was synonymous with the Nile's rich past. Perhaps he didn't realise he was fighting for something he already had, or maybe he was trying to defend what he knew wasn't entirely his. Despite being the source for much of the Nile's water, Ethiopia uses very little of it. By asserting Ethiopia's ownership of the river in such a sweeping and unequivocal manner, maybe my mother was trying her best to redefine what the country had become to westerners: the barren land of begging children and dying cattle. This was not the life she had known – nor had it been mine. Maybe she wasn't decrying a historic wrong as much as trying to co-opt it. Both of them were too mired in pride and nationalism to find a way towards common ground.

Tourists like to speak of Ethiopia as a country of contrasts, as a place where time has stood still. They point to quaint hillside villages and farmers ploughing with oxen, they wave at children in ragged clothes, and photograph women bent beneath bundles of firewood. Somehow this represents a kind of existence free of the hassles of modernity. It feels old, in the way of our oldest stories, and somehow more authentic. But tucked behind those sentimentalised visions of an unfettered life are harsh realities. For as much progress as Ethiopia has made economically in recent years, an overwhelming majority of the population, particularly in the rural areas, still has no access to electricity.

Ethiopia is vulnerable to drought and climate change. It has unpredictable distribution of water. The country's "timelessness" has something to do with the lack of access to basic necessities. There is nothing romantic about this. The dam would generate electricity. It could produce surplus energy for export to neighbouring countries. And controlling water flow in the Nile could bring improved irrigation and water distribution.

Last week Morsi promised to "defend each drop of Nile water with our blood". The language emerging from the two nations evokes epic poetry; the clash of gods in the guise of men.

On a recent trip to Ethiopia, I travelled to Bahir Dar, a picturesque city close to the Blue Nile. I was eager to see this great river, to come as close to its point of origin as I could. As I crossed a bridge, a companion pointed eagerly to a group of young boys playing in a trickling stream of water. "There," he said, almost shouting. "That's our Nile!"

I looked out of the window, surprised. Not by the boys, but by the ordinariness of it all. There was nothing grand or mythic in this snapshot of daily life, but it contained everything that was most important about the debate. Regardless of our poetic allusions and historic references, when we talk about the Nile, we are talking about water: a fundamental right for all people, regardless of geography.

"The Nile belongs to Ethiopia too", 19/06/2013, online at: http://www.guardian.co.uk/commentisfree/2013/jun/19/nile-belongs-to-ethiopia-too

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### ❖ Africa: Sudan, Egypt Told to Reconsider Position On Nile Waters

Juba-The South Sudanese Minister of Water Resources and Irrigation Hon. Paul Mayom Akec has urged Sudan and Egypt to reconsider their position in the affairs of the Nile Waters and membership to the Nile Basin Initiative (NBI).

"I want to appeal specifically to Sudan and Egypt to reconsider their positions and become effective members of the NBI that they participated in founding. They will have more influence in the NBI than in isolation," said Mayom on Tuesday.

The minister made the appeal while briefing the press on NBI's 21st Nile Council Of Ministers meeting scheduled for 20 June 2013 at Juba Grand Hotel.

NBI is a regional bloc within the River Nile basin comprising of Burundi, DR Congo, Egypt, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania and Uganda formed to develop, manage the waters of River Nile in an equitable and sustainable manner to ensure prosperity, security and peace for its entire people.

The minister said Egypt and Sudan cannot settle their variation in views on the management and usage of River Nile waters through isolation.

There is a hovering conflict over the new outlook of the Nile Basin among the other eight member countries of NBI. Egypt and Ethiopia are already in conflict over the plans of the latter to construct a mega hydropower dam on the Nile.

The 1929 Nile Water agreement gives Sudan and Egypt 12 and 66 percent say over the general management and usage of the Nile waters. This however is being opposed by the NBI member countries now.

The South Sudanese Water Minister said construction of a dam by Ethiopia is its legitimate right but called for amicable solution between the two countries.

"For Ethiopia to develop a dam on the Nile, it's their legitimate right as long as the power project does not reduce the water volume," he said.

"We all need the power and preserve our environment. The shift to hydro power serves our environment because instead of using trees for power, we use hydro power," he argued.

On question of whether Egypt will not complain about South Sudan's plans of building a dam at Fulla Falls in Nimule, Eastern Equatoria State (EES), Mayom said Egypt does not have any grounds to reject the project.

He appealed to the members of NBI to give the regional bloc continuous support for the benefit of the people of Nile the Nile Basin.

This month, South Sudan's Minister of Water resources would take over the chair of the Nile Council of Ministers of NBI from his Rwandese counterpart Amb. Stanislas Kamanzi.

"Africa: Sudan, Egypt Told to Reconsider Position On Nile Waters", 19/06/2013, online at: http://allafrica.com/stories/201306191432.html

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## ❖ Reflections on the Grand Ethiopian Renaissance Dam

Somalilandsun – On a recent Sunday morning a friend called and asked me to tune-in to an online discussion forum on one of the Ethiopian Paltalk forums.

500 attendants, the maximum allowed per room, packed the voice chatting room. After several attempts, I was able to join the room, which was managed by a postmaster named Aba Mela whose civil tone was pleasing.

The Internet is serving Ethiopia's version of First Amendment, with unfiltered abuses and insults written as footnotes of the busy site so much that I couldn't keep up reading and listening in tandem. The anonymity afforded by pseudonyms favors excessive diatribe. The topic that captivated so much emotions and interests among Ethiopians of diaspora was the construction of the hydroelectric dam on the Blue Nile River, the Grand Ethiopian Renaissance Dam (GERD).

The outpouring of emotions was triggered by comments made by Egyptian opposition party leaders during a meeting called by Egypt's president Dr. Mohamed Morsi to review the impact of Ethiopia's controversial dam to their country. Unaware that the discussion was transmitted live on Egyptian TV, some of the politicians warmly proposed sabotaging Ethiopia's plan to build the dam. One party leader suggested helping the Oromo Liberation Front while another surmised spreading rumors about purchase of a refueling airplane to fake preparation of attacking the dam. A gentler politician cautioned that this 'dangerous' act neglects the fact that Israel and America are Egypt's real enemies, not Ethiopia – a trajectory which may be more comforting to Ethiopia but less to Israel and the U.S. Another suggested keeping the discussions confidential; at which time they were told that the event was being transmitted live on Egyptian TV. Laughter followed.

President Morsi's comment came precipitously after he knew the discussion is certainly headed for an international consumption. He interjected that Egypt will not engage in any aggressive act out of respect for Ethiopia and its people. But he also stated that Egypt would not allow loss of a drop of Nile's water. A drop will certainly be lost. Unintended exposure of this diplomatic tittle-tattle might have thwarted a real conflict. The coercion could no more intimidate once it was self-exposed, and

Ethiopia capitalized on the idle talk summoning the Egyptian Ambassador to Ethiopia and asking for clarification.

Many in the audience at the packed chat room implied that since the Ethiopian government abuses human rights, arrests journalists, distributes land to international corporations, promotes ethnic favoritism, etc., they therefore oppose construction of the dam. Ironically, a journalist named Muluken Tesfaw was detained on May 4 for reporting on the return of thousands of farmers who had been forced from their lands in the Benishangul-Gumuz region – the same region where Ethiopia is construction the multibillion dam. Another journalist was tried for terrorism and sentenced to two years jail for reporting on alleged coercion to force government employees to contribute to the construction of the dam. One can chronicle these facts and set them as conditions that need to be resolved before a dam of this magnitude is built if one believes freedom and construction of the dam are tightly linked.

The reader may indeed decide to object construction of the dam solely based on the regime's totalitarian governance. I am sympathetic to those who say issues of freedom and human rights shall remain at the forefront of the Ethiopian political discourse, and the rights of the oppressed people must be respected before launching a grand project such as this. Strictly political objections valid but put aside, those who opposed construction of the dam based on its engineering merit did not make their cases. My purpose here is not to debate the political consequences, or speculate on emotional reactions in Egypt or Ethiopia objecting or favoring the project.

I am circumventing altogether issues such as Ethiopian unity, self-determination of the Oromo, warfare in the Ogaden, etc. These are far more important issues than the dam itself, but I prefer not piggy-bagging them with this topic. Instead, I will focus only on the engineering and environmental aspects of the dam to the extent possible, hopefully without the technical jargons, so that the reader will make an informed decision based on facts and a range of views.

Why hydroelectric dam?

Hydroelectric dams are increasingly popular in water-rich countries of Sub-Saharan Africa, especially those less endowed with oil. For example, a 250 MW dam was recently completed on the Nile in Uganda. A 300 MW dam was also built by China and completed in 2009 on the Tekeze River

in Ethiopia. A smaller, 120 MW dam was recently completed on the Wele River in Equatorial Guinea, to mention a few.

As a background to any large hydroelectric dam, one has to take into account the growing global energy demand and weigh this demand with sharply increasing fuel prices and air pollution that causes climate change. The global Carbon dioxide (CO2) content of the air in February 2013 was 397 ppm (parts per million by volume), compared to 280 ppm of the preindustrial level. There is an immutable need to slowdown or reverse the global CO2 generation toabate negative consequences of climate change. On the other hand, facing this sharp increase in CO2 concentration which is threatening the human existence, is a well-established knowledge that social development is strictly tied to energy and electricity supply. A well-respected autonomous intergovernmental organization, the International Energy Agency (IEA) produces annual reports on climate change related issues.

The 2003 report discusses the link between energy use and economic welfare measured in gross domestic product (GDP). This well-sited research paper states that above $3,000 per capita GDP (1995), energy demand explodes as industrialization and personal mobility accelerate. But when GDP reaches $15,000, energy demand grows more slowly as services begin to dominate. After $25,000, economic growth can continue without significant increases in energy use. Countries like S. Korea, Malaysia, and China are following this path. In fact, China's CO2 emissions from power plants and transportation surpassed that of the USA's emissions in 2006 by 8%. Ethiopia, (with a skeptically received rate of growth that resulted in GDP of $1200 by 2012) or any other country is no exception. Recognizing the fact that large hydro dam is less of a threat than nuclear energy, an option cordially discussed recently in countries like Kenya, and also acknowledging the fact that hydroelectric dams have near zero emissions, the World Bank, after years of refusal, has now started funding large dam projects.

The critical question that seems to overwhelm all development strategists seems to be 'how can a country develop without adding significant air pollution?' The international mood of the day is such that, this strategic question will be given priority over the next several decades while other environmental concerns such as population displacement or wildlife damage will certainly be reviewed but as secondary. There is no completely benign method of power production; it is a matter

of negotiating and accepting adequate penalties of development, and identifying the ones where negative impacts can possibly be mitigated.

In my opinion, hydroelectric dams of any size are better than nuclear power or fossil fuel power plants. The political challenge to build internationally agreeable share of resources is vital, but it is a political matter to be settled by governments that share the resources. But in the end, at least in the case of sub-Saharan Africa, news of building a dam is certainly far better than news of a vexing barren poverty that leads a barely walking skeletal child to death, again and again for decades. The talk of a microclimate change or environmental impact as a result of a hydroelectric dam is a luxury that Ethiopian politicians would relish, the international community would cherish, and most in Ethiopia would ignore.

Challenges and benefits of a large hydro project:

Generally large hydroelectric dams such as the GERD are not considered renewable. An energy resource is considered to be renewable when its impact on the environment is negligible. Wind and solar energy are regarded renewable despite some arguments that these resources also inflict some damage to the environment. For example, wind turbines are blamed for killing migratory birds, and the Altamont Pass Wind Farm in California is shut down for several weeks every winter just for this reason. Noise from the turbines is another issue that keeps their installation away from populated areas. This in turn necessitates laying transmission lines to transport the power to cities where the demand for electricity is abundant. Solar energy too has its share of complains.

In 2011, environmental groups brought a string of lawsuits to stop construction of large solar plants in the Mohave Desert of California, a region said to have demonstrated extreme vulnerability to climate change. Desert that Africans try to wet is protected here. There is a growing objection to interfering with the desert climate, and increasing voices to protect the ambience of flora and fauna of these arid regions. Thus, there is no perfect system that leaves no trace in the environment to recover energy. And energy is a key component of development. The option to build a hydroelectric dam for the development of a society is therefore inherently controversial. The dams displace people and animals, kill vegetation, and may change the microclimate of the region. Most critics of large hydro favor many smaller dam instead, a concept known as distributed generation. Distributed generation

may or may not be better for the environment; - the sum of overtaken land and people can be more or less scattered than those overtaken by the mega projects.

Small-scale hydro, which is promoted by many journalistic scholars, requires more trained cadres to man each site. More importantly, it requires construction of extensive transmission networks to pull the lines into urban areas where demand is guaranteed. Electrification of rural areas is a very expensive business since the houses are often scattered, and the farmer may not afford to pay for the installation cost. This can be done with government subsidy in the economy allows, as is the case in several Latin America countries. The telephone industry is an excellent example of failure of infrastructure to network in African rural. In the developing countries, even after several decades, land-based phone lines simply did not penetrate into the rural areas. Phones are today more accessible in rural Africa simply because landlines are made obsolete by wireless technologies.

Cost: Cost and return on investment are critical components of power generation. On installed capacity basis, wind energy costs $2100 per kW, whereas energy from solar – large Photovoltaic (PV) costs about $7000 (2010 California price), more than three times higher. The price of PV cells is dropping gradually, but it will likely remain inaccessible to most African countries for years to come. Besides, solar energy is available only during half of the day, requiring expensive and often-unsafe storage systems. Construction cost of hydroelectric dam on a per kW basis, according to the U.S. Department of Energy, varies from $735 to $4,778, whereas the average capital cost is estimated at about $2,000 per kW. The construction cost of GERD is about $800, which is the result of dividing the $4.7 billion cost by 6000 MW output. For the engineer reader, I realize that comparison based on kW-hr would have been more useful.

The intermittent nature of wind also requires a large backup to cover the base load when wind is not available. This will drive the cost higher. European countries as well as the USA have large base-power supplies from nuclear, natural gas, and coal to mitigate supply discrepancies in the power industry. In fact, the power supply deviation as a result of wind energy is negligible on the US power industry. However, a country such as Denmark that relies on wind for up to 25% of its electricity has to import as much from neighboring countries when the wind dies. The decision to import power is often made as abruptly as the wind disappears, making it vulnerable to on-the-spot market volatilities.

Hydroelectric dams may also be susceptible to seasonal water levels and drought, but the daily or even weekly variation is suppressed by the reservoir, which to some extent serves as mass as well as energy storage. The seasonal variation also gives more time than wind to prepare. Nonetheless, seasonal water level ups and downs are very important parameters in hydroelectric economy. For example, the world's largest dam, the Three Gorge, has a capacity of 24 GW. The second largest, the Itaipu is 14 GW – just over half of Three Gorge's capacity. On an annual basis however, Three Gorge produces only about 85 billion kW-hr, whereas Itaipu, with a more consistent water flow, produces about 94 billion kW-hr. Despite such variations, the life cycle of hydroelectric dam is generally assumed to be 100 years, i.e., they remain one of the most stable, and eventually very affordable forms of energy supply. I have visited the Itaipu dam, the Three Gorge dam, as well as the Hoover dam, and I am always impressed by these breathtaking engineering accomplishments.

Searching for published materials, I came across an interesting research paper entitled "Integrated Management of the Blue Nile Basin in Ethiopia" published in 2007 by The International Food Policy Research Institute through University of Colorado Ethiopia. The study indicates that the project would typically produce benefit-cost ratios (the ratio of the benefits of the project relative to its costs, both expressed in monetary terms) from 1.2 - 1.8 under historical climate regimes. The economists may expand on the quality of this numbers.

Selection of the GERD site

Selection of the site was one of the highly debated topics during my visit to the Paltalk site. I too didn't understand why such a large dam is placed almost on the border. So, I investigated the 2013 Google map attempting to identify why this location was selected. The detailed review of the map (Google allowed reading within a hundreds of meters scale) shows that the dam is between two narrow hills rising to 1200 meters on the far northern bank, and 600 meters on the southern.

The 600-meter southern bank elevation stretches far inland up to the Dabus River, close to 100 km west. The Northern bank also drops to 600 meters quickly and expands to the immediate north where the reservoir will likely extend, and then rejoins the riverbank narrowing the strip as far inland as Western Shewa. Despite its proximity to the border, the reservoir will therefore be contained within Ethiopia, and will not expel over the 600-meter high banks that escorts it for several dozen km inland.

Average slope of the Blue Nile inside Ethiopia drops about 2 meters for every kilometer distance, a huge drop by all accounts. This drop is sure to exert tremendous pressure on the dam. The typical slope of the Nile in Egypt, for example, is about 8 centimeters per km. The location of the dam has to take into account several such factors including the possibility to contain the new reservoir.GERD

I have come across few fairly informative papers related to exploitation of Blue Nile. However, the United States Bureau of Reclamation (USBR) at the request of the Ethiopian government conducted the most comprehensive early study in 1964. This event coincided construction of the Aswan Dam, and also the Fincha dam in Western Wollega. USBR conducted a thorough study of the hydrology of the upper Blue Nile basin with a simple feasibility study that listed some latent projects.

The study recommended four major hydroelectric dam sites along the Blue Nile with accompanying preliminary designs for irrigation and hydroelectric power along the Blue Nile and the Atbara Rivers. The four sites were 1) the Karadobi Dam located just upstream of the Guder River confluence, 2) The Mabil Dam on the Birr River, 3) The Mendaia dam 175 km from the Sudan border, and the 4) the near-border site which is the current location. Of the four sites, only the Mandaja and the near border sites offer some potential for irrigation because of relatively easy access to flat land and lower escarpments than upstream.

Karadobbi Escarpments rising well over 1200 meters that fortify Karadobbi and Mabil sites rendered the two sites less useful for irrigation purposes. Thus, the choice of the current site is legitimate if the parallel development of irrigation and power generation are taken as criteria. The California experience makes it obvious that withdrawals of water from deep reservoirs involve significant pumping costs.

Can it be maintained?

Any mechanical machine requires maintenance, and this is a highly neglected factor of the design process even here in industrialized nations. Soil deposition must be removed continuously, and the turbines need about yearly preventive maintenance. This can be built into the design process. The Itaipu dam, for example, has 12 turbines, producing 2 GW each. At least one turbine is under maintenance most of the time – reducing power output by 2 MW. However, The Three Gorge dam has 32 generators, - about 700 MW each. The preventive maintenance at Three Gorge is less

disruption to the power output because it will drop only 700 MW for each turbine under maintenance. An Internet site mentions that the GRED will contain 16 x 350 MW generators; a number that positively suggests the system is designed for maintenance.

Why is Egypt worried?

One of the issues that concern down-stream countries, especially Egypt, is the amount of water that will be trapped to fill the 150 meters high dam. Opening the bypass gates, which will allow more water to pass through, can easily regulate the length of time it takes to fill a dam. If for example, more water is needed to supply the downstream countries because of the drop in the flow rate during the Ethiopian dry season, more water can be released to ensure supply. This will drop the reservoir level, and also the power output. Such mode of operation is common for the Hoover dam where a drop in water level is strongly contested by Mexico, although the Colorado water level is impacted more by irrigation than the reservoir for power production. In fact, the US government has a desalination plant near the border with Mexico to clean runoff and waste water, and replenish the Colorado River to supply the minimum amount to Mexico as agreed bilaterally.

The Yangtze river of the Three Gorge dam has a winter flow rate of about 345 million (cubic meters per day jumping to well over 3000 cubic meter per day in summer, less than 9 times the seasonal swell. Iguasu has a swell of just over 7. The water level in China's Three Gorges dam reached full capacity in October 2010. It began generating power in 2008. Thus, it took merely two years to fill Three Gorge compared to the 17 years it took to fill Lade Meade on Hoover dam of the Colorado River. The Nile River swell is among the highest in the world from about 50-60 million cubic meters per day in April-May, to over 700 million in September, a more than 10 times swell. Countries along the Nile expect a large and destructively excessive flow in the rainy season, the excess of which will also fill the reservoir fairly quickly. Rate of evaporation in the reservoir will probably be less of a concern than that of the existing dams in the Sudan and Egypt.

Legal, Environmental and local use Issues

Legality: The 1959 Agreement allotted 55.5 and 18.5 billion cubic meters to Egypt and the Sudan, respectively, through the Blue and Atbara Rivers. Ethiopia has limited rights to use these resources. In May 2010, upstream states of the Nile signed a Cooperative Framework Agreement pronouncing

the 1959 Agreement no longer valid and claiming rights to more water from the River Nile while Egypt and Sudan refused to sign. Thus, there is no mutually accepted water treaty between upstream and downstream countries. Flourishing irrigation projects and dam constructions in the Sudan and Egypt, while these same countries object the use of Nile by upstream countries, will have little convincing power in Africa and the rest of the world, even if it can't convince Arab countries whose firm solidarity remains with the Sudan.

Environmental impact study: as stated above like any major project of its kind, the GRED should have had environmental impact study to address costs and benefits of the project. Perhaps the greatest weakness of this project is that no environmental study was conducted, or if it was conducted, it was not made public. In the USA, no such project would be allowed without environmental impact analyses. As such, the project was kept highly confidential (code named Project X) perhaps to avoid adverse and premature reactions from Egypt before the dam is started.

In my opinion, the resolution wouldn't have been much different even if the process was made transparent and the community was involved opening the matter for public debate. In a country where the in-house expertise is very poor - to the extent that even simple model analysis was outsourced to the University of Denver, the tangled petty politics would only render the project another bogus venture of perpetual talk. The 1250 MW dam in the Sudan overtook parts of the historic sites of Merowe, displaced 15,000 families, and flooded a 174 km of fertile land; and the project was not slowed down by these obvious shortcomings. The Bui Gorge dam in Ghana was known to create a reservoir that will flood a quarter of the Bui National Park, but the dam was built anyway. All the talks of looming disasters of the Three Gorge dam that saturated the cyber waves dissipated once the dam became operational. Scary talks of imminent environmental disasters never stopped any of the hydro projects in a developing country.

In fairness, the above-mentioned paper entitled "Integrated Management of the Blue Nile Basin in Ethiopia" covers at least briefly some aspects of environmental study as an impact analysis. The study developed hydrological models to assess transient stages of large-scale reservoirs, relevant flow retention policies and associated downstream ramifications, and the implications of stochastic modeling of variable climate and climate change. Climate change scenarios including historical frequency of El Niño events are included.

Domestic use of the power: The Internet debate also raised several issues. One speaker was concerned that the power will not be used for domestic development. In light of significant talks of power purchase agreements with neighboring countries, there is a legitimate concern that the project is meant for cash than for the people. Ethiopia has set up the 'Eastern African Power Pool', an intergovernmental authority promoting the transmission of power across the region. The line links Ethiopia to Kenya, Tanzania, Eritrea, Uganda, and the Sudan. A high-voltage link between Ethiopia and Kenya funded by the World Bank is expected to wind up by 2019. Such decisions are temporal by nature, and future governments can change them, preferably based on the will of the people. They are valid concerns nonetheless.

Lack of transparency: The GERD is being built by Salini Costruttori, the third Italian General Contractor group with turnover cash of € 1.1 billion (FY 2010) and total budget of € 15.7 billion. It has about 14,000 employees worldwide. It is one of the foremost players in the construction of hydroelectric power plants. It has completed a number of projects in Ethiopia, including the Chida Sodo Road Project, the Emergency Dire Dam, parts of Gilgel Gibe I, Gilgel Gibe II, Gibe III, and the Beles Multipurpose Project. At least Gilgel Gibe II and the Nile dam contracts were awarded with non-competitive biding. Lack of transparency has triggered a lot of opposition to the project, its fundraising aspect in particular. Will the money that is collected be used for the dam? Will corrupt officials pocket some of the fund? Can Ethiopia by itself fund the $4.7 billion dollar project? These are questions that remain to be answered.

"Reflections on the Grand Ethiopian Renaissance Dam", 19/06/2013, online at: http://somalilandsun.com/index.php/regional/3154-reflections-on-the-grand-ethiopian-renaissance-dam

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### ❖ Ethiopia urges Nile states to ratify controversial deal

*Ethiopia has called on the Nile riparian countries to ratify a controversial deal opposed by Egypt.*

Speaking on Thursday at the annual Nile Basin Initiative (NBI) conference held in South Sudan, Ethiopia's Minister for Water and Energy Alemayehu Tegenu called on "all countries of the basin to finalize the process of ratification as soon as possible," adding that it was a "very critical time in the history of the Nile basin."

Last month, Ethiopia said it had begun diverting the flow of the Blue Nile for the construction of the Grand Ethiopian Renaissance dam, a USD 4.2-billion hydroelectric plant that sparked outrage in Egypt. The dam is feared to cause serious water shortage in the country.

On June 13, Ethiopia's parliament approved a measure to push ahead with the project, while changing a colonial-era deal that gave Egypt and Sudan majority stake in the great river.

Ethiopia's 547-member parliament unanimously agreed to ratify NBI's Cooperative Framework Agreement (CFA), which states that a committee must be established to oversee Nile projects, including the controversial hydroelectric dam in Ethiopia.

The agreement was previously endorsed by five other riparian states -- Rwanda, Tanzania, Uganda, Kenya and Burundi.

On June 6, a senior Egyptian government aide said Cairo would demand Addis Ababa stop the construction.

On the same day, Dina Mufti, a spokesman for the Ethiopian Foreign Ministry, said that Egyptian Ambassador to Ethiopia Trek Ghoneim had been summoned to give an official explanation regarding the Egyptian officials' "hostile remarks" about the dam project.

Earlier this month, the Egyptian officials warned against a diminished share of the Nile River, while proposing a plan to sabotage or aid rebels against the Addis Ababa government.

Egypt faces a water crisis as its population increases. In the 1960s, the average water share per person was 2,800 cubic meters. Now, the figure has dropped to 600 cubic meters, much below the poverty line, which is 1,000 cubic meters per person.

On June 2, Egyptians gathered outside the Ethiopian Embassy in Cairo, calling for a halt to the

construction of the dam.

The Nile, located in northeast Africa and the longest river in the world, supplies water to Egypt and Sudan. It is formed from two rivers: the Blue Nile and the White Nile. Egypt is dependent on the Blue Nile, which starts in Ethiopia.

"Ethiopia urges Nile states to ratify controversial deal", 23/06/2013, online at:
http://www.presstv.ir/detail/2013/06/20/310033/ethiopia-urges-nile-states-to-ratify-deal/

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### ❖ Ethiopia urges Nile nations to ratify deal opposed by Egypt

JUBA — Ethiopia used a regional meeting Thursday aimed to promote cooperation over the Nile river to urge other nations to ratify a controversial water deal fiercely opposed by Egypt.

Addressing water ministers and officials from the 10-nation Nile Basin Initiative (NBI), Ethiopia's Minister for Water and Energy Alemayehu Tegenu challenged Egypt's historical majority control usage of the river water.

"We will not allow a single country to have full control over our shared resources," Alemayehu said, speaking at the annual NBI conference held in Juba, the capital of its newest member South Sudan.

The countries have been embroiled in a heated row after Ethiopia began diverting the Blue Nile River last month for the construction of the 6,000 megawatt Grand Renaissance Dam, sparking concern in Cairo about the impact on downstream water levels.

Ethiopia's parliament last week was the first to ratify the NBI's Cooperative Framework Agreement (CFA), a deal that replaces a colonial-era agreement that granted Egypt and Sudan the majority of water rights.

It allows upstream countries to implement irrigation and hydropower projects without first seeking Egypt's approval.

"It is therefore my duty to call on all countries of the basin to finalise the process of ratification as soon as possible," Alemayehu said, adding it was a "very critical time in the history of the Nile basin."

Egypt and Sudan have not signed the agreement.

But in addition to Ethiopia, five other upstream nations have signed -- Burundi, Kenya, Rwanda, Tanzania and Uganda.

Democratic Republic of Congo and newly independent South Sudan have said they also would like to sign, although the deadline to ink the CFA deal expired in 2011.

The deal would come into effect once ratified by six states, but it is not clear how it would impact those states who choose to remain outside.

Ethiopia is building the $4.2 billion (3.2 billion euro) Grand Renaissance Dam in order to generate electricity, including for export to neighbouring countries.

Ethiopia insists it will not hamper downstream flows.

It is set to become Africa's biggest hydroelectric dam, with completion earmarked for 2017, and is being funded entirely from internal resources.

Politics over Nile waters are complex, with its basin including 10 countries and the river travelling some 6,695 kilometres (4,160 miles) from headwaters in Rwanda and Burundi to the Mediterranean, according to NBI.

"Ethiopia urges Nile nations to ratify deal opposed by Egypt", 21/06/2013, online at: http://www.google.com/hostednews/afp/article/ALeqM5gvOCWnQ0qdHXUl6N69ks-QyX4QPQ?docId=CNG.98124c256b50b25f919c2789df583844.11

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### ❖ Egypt's threats over Nile waters backfire

*Egypt's threats towards Ethiopia and its Grand Renaissance dam project on the Blue Nile seem to be backfiring on all sides. On June 3rd, President Mohammed Morsi, beset by growing internal problems, had a clever idea. His government would drum up an external threat, and call for internal unity.*

He invited leading Egyptian politicians to a meeting to discuss the issue of Ethiopia's "diversion" of the Blue Nile - the source of most of Egypt's water. Never mind that the supposed "diversion" was simply a temporary rerouting of the river by some 500 meters from its normal channel.President Morsi called the meeting to review the impact of the dam (if any) on Egypt's water supply. Strangely enough, he failed to inform the politicians that their meeting was being broadcast live on TV, which encouraged them to engage in a favourite pastime - the repetition of old myths of their ownership of the Nile waters and willingness to fight for Egypt's right to control them.He may have also failed to inform his politicians that three days earlier an independent panel of experts (including members from Egypt, Ethiopia and Sudan) had reported the findings of a yearlong study, that the hydropower dam would not significantly reduce the flow of water reaching Sudan and Egypt.

With Egypt's senior politicians discussing a potential military response, Ethiopia was not amused. President Morsi then appeared to put on a statesmanlike show of conciliation and calm. Later, however, Egypt issued a demand that Ethiopia stop construction of the dam, and warned on June 10th that "all options are open."Ethiopian Prime Minister Hailemariam Desalegn responded, vowing that "nothing and no one will stop the dam's construction" and downplayed the threat of conflict.

Ethiopia's Parliament also voted unanimously to ratify the new Nile Cooperative Framework Agreement (CFA), already signed by six Nile basin states. Congo and South Sudan have also announced plans to join the new pact - the result of decade-long negotiations, which will create a commission to oversee Nile projects and ensure the equitable allocation of Nile waters among the basin states.Ethiopia had earlier postponed ratification for a year to accommodate Egypt's request for time until an elected government was in place, and to allow the team of experts, including those from Egypt and Sudan, to inspect the dam and satisfy themselves that it would not reduce their water supply.

Meanwhile, efforts to mobilise the Egyptian public behind Morsi have had mixed results, kicking off an uproar in the country's independent media. Critics have argued that carrying the meeting live on

TV showed Morsi's mismanagement of a national security issue. Reform campaigner and opposition leader, Nobel Peace Laureate Mohamed El Baradei, called on Morsi to apologise to Ethiopia and Sudan on behalf of the Egyptian people for what was said during the meeting.Egyptian Foreign Minister Mohamed Kamel Amr also got in on the act, saying he would go to Addis Ababa, Ethiopia to discuss the dam and, according to Reuters, vowing not to give up "a single drop of water from the Nile."

Ethiopia, however, had already refused Egypt's request to stop work on the dam as a "non-starter, and dismissed threats from Cairo of 'sabotage' and 'destabilisation' noting that such attempts by Egypt under its previous military rulers had failed.The countries that share the Nile have long disagreed over the use of its waters. This has led to fears, largely promoted by Egypt, that the disputes could boil over into war. Since the late 1970s, when Egypt signed a peace treaty with Israel, it was permitted to place senior Egyptian officials in strategic positions in the World Bank and other international agencies. These included those concerned with international water issues such as the UN Environment Programme, and of course, international peace issues.This enabled Cairo to implement a strategy of discouraging international loans to upstream Nile basin countries for development of water infrastructure without Egyptian permission. The justification was always that such loans would endanger peace as Egypt might be forced to take action in view of its "total dependency" on the Nile waters. If Egypt said it needed all the Nile waters, it was not for the international financial institutions to question.

This of course encouraged Egypt's verbal bellicosity, as did the international financial community's habit of accepting, or pretending to accept, this verbal bellicosity at face value.In the meantime, Getachew Reda, a spokesman for Ethiopian Prime Minister Hailemariam Desalegn, was quoted by Associated Press in Addis Ababa, pointing out that "If there are people who still think they can do the kind of things which leaders in the past such as former Egyptian President Hosni Mubarak were not able to successfully launch, then they are entitled to day-dreaming." In 2010 when the late Ethiopian Prime Minister, Meles Zenawi, accused Egypt of aiding rebels against his government, Cairo denied the accusations, which Getachew described as "hard facts."That Egypt would engage in open warfare is most unlikely. Egypt's long time ally Sudan has expressed its support for Ethiopia's Renaissance Dam which, besides not reducing the amount of water for the downstream countries, would actually benefit them. In effect, the dam's location in the depths of the Blue Nile Gorge, some 50 kms from the Sudanese border, cannot be used for irrigation within Ethiopia, with no irrigable land within


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reach. The Renaissance Dam therefore poses no threat to Egypt's water supply. The threat it poses, is to Egypt's supposed hegemony over the Nile waters

Egypt's foreign policy has long been shaped by its quest for hegemony over the Nile and the Blue Nile in particular. It is based on the premise that Egypt must be strong enough to either dominate Ethiopia or to create conditions that prevent Ethiopia from building dams on the Blue Nile. With that aim, Egypt occupied the port of Massawa for some 20 years, during 1865 and 1885, having leased it from the Ottoman Sultanate. In 1875 and 1876 Egypt's ruler launched a series of military expeditions against Ethiopia, led by Swiss and American mercenary officers resulting in humiliating defeats for Egypt at the battle of Gundet. Some four months later, during March 1876, some 12,000 Egyptian soldiers were annihilated by Ras Alula's Ethiopian forces at the Battle of Gura.

Egypt may need to be reminded that regimes may change, with military, economic and other capacities too, but geography remains the same. Egypt will always be the downstream country. It may also need to be reminded of the limitations of its economic and military capacity and particularly its ability to project that military capacity over long distances and provide it with the necessary economic and logistical support. So far, its capacity appears to be greater using the tactic of destabilisation with non-state actors

In recognition of its somewhat vulnerable strategic position, Egypt has used its political, economic and military strength to influence developments within other riparian states. This has included attempts to exert pressure on upper riparian states proposing to develop their Nile water resources, through threats of military action, and providing support to rebel groups.

While a war over the Nile waters was always unlikely, the recent political and economic turmoil in Egypt and the Arab region has made it still less feasible. There is a need for new faces to come forward, for a new dialogue, and to seek the win-win solutions needed by all the Nile basin peoples.What is certain is that to support their rapidly growing and youthful populations, all of the basin states need to focus on urbanisation, industrialisation and job creation. This will require rapid development of their sustainable energy resources and acceptance of the reality that water is an economic resource that they cannot afford to waste. The Renaissance Dam and the 6,000 megawatts of power that it will produce will make an important contribution to all the Nile basin states, and ultimately, to regional economic integration, peace and security.


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*Seifulaziz Milas is author of Sharing the Nile: Egypt, Ethiopia and the Geo-Politics of Water forthcoming from Pluto Books, London, July 2013. (**African Arguments)**

"Egypt's threats over Nile waters backfire", 21/06/2013, online at:
http://www.mmegi.bw/index.php?sid=6&aid=950&dir=2013/June/Friday21

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### ❖ South Sudan set to sign new Nile agreement

New treaty would replace colonial-era law that gave Egypt control of most of the Nile as power dynamics shift in region

South Sudan is set to sign an agreement that would replace a colonial-era law that gave most of the River Nile's waters to Egypt and Sudan, local media have reported.

The signing of the Cooperative Framework Agreement of the Nile Basin countries, sometimes known as the Entebbe agreement, is likely to be signed and ratified at the Nile Water Summit in Juba on Thursday.

Paul Mayom Akec, South Sudan's Minister of Irrigation and Water Resources, said earlier in the week that the signing of the agreement was "inevitable".

"The process of joining the agreement has started at all levels of the state apparatus in South Sudan," Akec stated in a press conference on Wednesday.

Akec said South Sudan would implement the agreement as soon as parliament ratifies it.

If signed, South Sudan will be the seventh riparian country to sign the agreement on sharing the Nile waters.

Six other countries have already signed the agreement: Ethiopia, Rwanda, Tanzania, Uganda, Kenya and Burundi.

**Prosperity and welfare**

Akec said South Sudan would benefit from the agreement by using the Nile River water to construct projects that will bring "prosperity and welfare to its citizens".

Akec's statement comes after Mohamed Bahaa al-Din, the Egyptian minister of water and irrigation, said that the agreement was not binding on Egypt, unless and until it became a signatory.

Egypt will only sign the agreement once they were able to settle a few points of contention, al-Din said.

On Tuesday, the Egyptian and Ethiopian foreign ministers met in **Addis Ababa** to discuss their recent row over a hydroelectric dam being constructed by Ethiopia.

The countries have been embroiled in a heated dispute after Ethiopia began diverting the Blue Nile River last month for the construction of the 6,000 megawatt Grand Renaissance Dam.

About 86 percent of Nile water flowing to Egypt originates from the Blue Nile out of Ethiopia, and Cairo has said the construction of the dam is a security concern

In a joined statement, the Ethiopian and Egyptian foreign ministers decided on another round of talks between ministers and experts in a few weeks to further discuss the dam's effect, if any, on Egypt's Nile water sharing.

The 1929 Nile Water agreement gave Egypt 66 percent control over the general management and usage of the Nile waters.

Egypt's subsequent deal with Sudan in 1959 divided the Nile waters between the two countries with Egypt entitled to 55.5bn cubic metres of a total of 74bn after evaporation.

This, however, is being opposed by the Nile Basin Initiative (NBI) member countries and, according to the controversial treaty, Ethiopia will be able to build developmental projects along the Nile without prior consent from Egypt.

Established in 1999, the NBI serves as a forum through which member state seeks to develop the River Nile in a cooperative manner, share substantial socio-economic benefits and promote regional peace and security.

"South Sudan set to sign new Nile agreement", 20/06/2013, online at:
http://www.aljazeera.com/news/africa/2013/06/201362075235645727.html

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### ❖ Nile can be a source of bilateral cooperation: Ethiopian minister

Ethiopian officials look to soothe Egyptian fears over Nile dam project, while Egyptian expert warns that the dam will dramatically reduce Egypt's water share

thiopia strongly believes that Egypt's and Ethiopia's interests are highly compatible and that the Nile River can be source of cooperation between the two countries, Ethiopian State Minister for Foreign Affairs Berhane Gebre-Christos said.

The Ethiopian minister stated in an interview published by the Ethiopian Herald newspaper that the Nile water, if used according to the principle of joint benefit, is more than enough for all of the Nile Basin countries.

"Ethiopia completely understands Egypt's reliance on the Nile River water. We expect that Egypt will understand that Ethiopia has the right to use its resources," he added.

Ethiopia, according to the minister, has in the past lost millions of its citizens to famine and it is now looking for new ways forward.

Ethiopia diverted the Blue Nile, a tributary of the Nile, in May as part of the preparations for the building of a hydroelectric dam, which if completed will be the largest in the continent. Egypt, downstream from the planned dam, expressed concerns that the completed dam will decrease its share of the Nile waters.

According to the state-run MENA agency, Egyptian dam expert Alaa El-Zawahry stated in a lecture on Wednesday that the technical reports on the effects of the dam carried out by Ethiopia are conflicted and did not follow the standard procedures.

El-Zawahry, who is also a member of the tripartite committee tasked with studying the potential impact on downstream states of the dam project, stated that Ethiopia failed to provide any proof that the dam will not harm Egypt.

According to El-Zawahry, if Egypt goes ahead with building the dam, Egypt's Nile water share will decrease from 55 million cubic metres to 40 million, preventing Egypt's High Dam from generating electricity.

"For every acre Ethiopia plants, an acre will be destroyed in Egypt because of the decrease in Egypt's water share. Agricultural land in Egypt will decrease by thirty percent," El-Zawahry declared.

El-Zawahry ended his lecture saying that Egypt might approve the building of a dam by Ethiopia if it were to hold 14 billion cubic metres of water, which will generate more electricity than the Egypt's High Dam. However, according to El-Zawahry, Egypt will not approve the 74 billion cubic metre dam which is currently in the early stages of construction, as it will diminish Egypt's share of the waters.

Egypt's foreign minister visited Ethiopia earlier this week to discuss the issue with his Ethiopian counterpart. Reports suggested that talks were positive, and both foreign ministers have agreed to another series of talks to further investigate the effect of the Ethiopian dam on Egypt.

Egypt has been trying to reduce diplomatic tensions between the two countries, which reached a height after a televised meeting between President Morsi and Egyptian political figures shed a negative light on Egypt's stance towards the Grand Ethiopian Renaissance Dam. At the meeting, some political figures suggested covertly funding Ethiopian rebels to destroy the dam and other forms of espionage against the African state.

"Nile can be a source of bilateral cooperation: Ethiopian minister", 20/06/2013, online at: http://english.ahram.org.eg/NewsContent/1/64/74510/Egypt/Politics-/Nile-can-be-a-source-of-bilateral-cooperation-Ethi.aspx

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### ❖ Alert Issued in UP Due to Heavy Rains, Flooding of Rivers

A high alert has been issued in Uttar Pradesh as water level in most of the rivers have touched the danger mark, while three persons lost their lives in Maharajganj district due to heavy rain which lashed most part of the state during the last 24 hours.

A report from Bahraich said that with the release of four lakh cusecs water from Nepal at the Banbasa barrage, threat of floods loomed large in the district.

Sharda river was flowing above the red mark at Palia Kalan and directives have been issued to shift people in 44 villages of Mahsi area of Bahraich.

According to Central Water Commission sources, water level of Sharda, Rapti, Ghaghra, Burhi Rapti, Rohin and the Kuano river was constantly on the rise even as the Sharda river which had crossed the red mark yesterday registered one meter rise today.

The Burhi Rapti river was close to the danger mark at Kakrahi area, sources said.

In Farrukhabad, 100 villages on the banks of the Ganga river and the Ram Ganga river faced threat of flooding following incessant rains and release of water in Narora.

According to Meteorological department, chief amount of rainfall recorded in cms are Bansi (Siddhartnagar) 20, Palia Kalan (Bahraich) 16, Cornelganj (Gonda) and Kaisargnaj (Bahraich) 13, Elginbridge (Barabanki) and Nagina (Bijnore) 12 each.

Met sources forecast rain and thundershowers at many places over the west UP and most places in east UP, though they sounded a bright note that there could be a decrease in rainfall.

Meanwhile, in the wake of continuous downpour during the last 24 hours and heavy rain and incidents of cloudburst in Uttrakhand and Nepal, a high alert has been issued for the officials of flood control to maintain vigil.

Principal secretary irrigation, Deepak Singhal said that on Monday eight lakh cusec water was released in the Yamuna river from Hathinikund barrage and report was also received regarding discharge of five lakh cusec water passed in the Ganga river in Bheemgaur.

Similarly, more than four lakh cusec water was discharged in the Sharda river in Banbasa, he said.

The principal secretary said that in the wake of the current situation, all divisional, district magistrate and other officers have been directed to remain vigilant and take necessary action.

From flood point of view, 23 districts are very sensitive and 11 are sensitive, he said.

45 flood control rooms have been set up and with the help of police 110 wireless centres have also been set up, Sighal said.

Meanwhile, IG (Law and Order) RK Vishwakarma told reporters that a team of NDRF was sent from Delhi, which along with PAC, evacuated 250 people in Rawli village of Bijnore district last night.

The teams are still at work to shift some 500-550 people of other villages in the surroundings, Vishwakarma said adding that flood control rooms have been set up in Saharanpur, Pilibhit and Kheri to extend help 24X7.

Vigil is being maintained as more villages might be affected with rainfall continuing in Nepal and other areas, he said.

The IG said that more flash flood companies have been shifted to the affected areas in Kheri, Shamli, Aligarh, Bijnore and Sahranpur where the city areas are still submerged.

There are also reports of breach in Bhamore embankment in Shamli which was being repaired with the help of locals, he said.

"Alert Issued in UP Due to Heavy Rains, Flooding of Rivers", 18/06/2013, online at: http://news.outlookindia.com/items.aspx?artid=801103

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### ❖ The Great Water Challenge

ROME, Jun 19 (IPS) - The Middle East and North Africa is the region most affected by water scarcity in the world, and for the moment, the situation seems set to worsen.
"In Yemen, we do not have many sources of fresh water and rain water is certainly not enough for our needs," Gunid Ali Abdullah, planning director at Yemen's Ministry of Agriculture, tells TerraViva in Rome. "We are all the time having to dig deeper and deeper to get water from aquifers."[pullquote]3[/pullquote]

In Yemen's capital Sana'a, tap water is rationed, and farmers close to the city have deepened their wells by tens of metres over the past decade but are nevertheless extracting less water than before.

Yemen is certainly not unique in a region where per capita water consumption in many countries stands well below the U.N.'s water scarcity mark of 1,000 cubic metres yearly. To compare, the global water consumption average is above 6,000 cubic metres.

Countries in the region are already tapping non-replenishable water resources, or fossil aquifers.

"At the end of this year, we should be able to start using water coming from the Al-Disi Basin, at the border with Saudi Arabia, which we hope will come a long way in meeting the needs of our capital, Amman, which hosts 3.5 million people, almost half of our total population," Feisal Alargan, deputy permanent representative of Jordan to FAO, tells TerraViva.

The Al-Disi aquifer is thought to be about 320 kilometres long, the largest of its type in the Arabian peninsula. It has already been exploited by Saudi Arabia, and its resources are thought to be non-renewable.

Jordan is ranked third in the world when it comes to water scarcity, relying mostly on rain and underground water as well as on a supply quota of the river Jordan agreed with Israel.

In such conditions, figuring out how to use non-replenishable water resources, despite the unsustainability of the solution and despite some doubts over the quality of the water, seems like a miraculous way out for Jordanian leaders and others in the region.

Yet such approaches resemble a race to the bottom: a NASA report published in March this year showed that, between 2003 and 2009, the Middle East lost a quantity of water equivalent to the volume of the Dead Sea.

And things might get worse: the World Bank predicts that water demand in the region is expected to grow by 60 percent by 2045.

The region's water problems are caused by a natural lack of water resources combined, according to experts, with poor management of the existing resources at both the national level and regionally.

The lack of intra-regional cooperation is most noticeable when it comes to sharing water from transboundary rivers: outdated accords make it so that Egypt uses most of the Nile's potential; Turkey, upstream from other countries on the course of the Euphrates and the Tigris, is sucking up most valuable resources via its intensive use of dams; the use of river Jordan remains an issue of controversy between Israel and neighbouring Arab countries.

Governments in the region are of course struggling to find solutions to the problem of water scarcity.

"We're working on the construction of small dams in the highlands in order to harvest water," explains Yemen's Gunid Ali Abdullah. "We're also trying to modernise irrigation methods in order to use less water for agriculture, which currently takes up about 90 percent of our precious water resources."

But the challenges are high and cooperation is key to overcoming water scarcity in the region.

International organisations have been trying to tackle water issues in the region in the past with technical assistance programmes and grants, with limited success.

This year, the U.N. FAO is attempting to change the approach to the issue: throughout 2013, it is conducting a thorough assessment of water resources and use in the whole region, trying both to treat the region as a whole and to pay close attention to the multiple interactions between water and all other aspects of human life.

"The Near East region has to meet half of its food needs via imports because of lack of water to produce enough food itself," explains Mohamed Bazza, FAO's focal point for national drought policies.

Bazza stresses that the central role of water for achieving food security makes water scarcity issues crucial for FAO, which explains why water scarcity features among the five new strategic objectives to be pursued by the institution.

"Numerous efforts have been made in the past to improve food security in the region on different aspects, including water use, but something has not been working, meaning that the potential of the region is not being met," Bazza says.

FAO's comprehensive assessment will this year look for the reasons behind the region's water crisis, as well as try to identify what should be priority areas of action to address these problems.

Solutions not emphasised much until now could become more prominent: for instance, shifting agricultural production towards less water-intensive crops or even reducing food waste on the fields as wasted crops also mean wasted water.

"The Great Water Challenge", 19/06/2013, online at: http://www.iede.co.uk/news/2013_2232/great-water-challenge

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### ❖ The imminent water war

Asia is a water-deficient continent when it comes to fresh water

The battles of yesteryear were fought over land, those of today centre around energy, and it will not be long before the focus shifts to water. In fact, water will be a political tool in the years to follow.

Recent days saw Bangladesh win a longstanding maritime dispute that has been making the rounds since the 1970s. The maritime boundary in the Bay of Bengal has been neglected by India, Myanmar and Bangladesh for decades.

Then why was there a sudden interest in the Bay and its demarcation involving a naval standoff between two of the world's poorest nations? The answer lies in the hydrocarbons, which are hidden out in the depths. Bangladesh requires the hydrocarbons to contend with its own energy shortage, while Myanmar requires the minerals for export purposes.

We have already seen that there are issues regarding water bodies, as is evidenced by the example above. But these disputes are not only limited to the ocean. We have already seen some examples of this phenomenon in our country, and things are likely to get much worse.

Asia is a water-deficient continent when it comes to fresh water. Home to more than half of the world's population, Asia has the smallest proportion of fresh water (excluding Antarctica), according to a 2006 United Nations report.

Fresh water, a necessary resource, is bound to become a source of tension in Asia. The probability of global warming sweeping away glaciers in the Himalayan range over the next couple of decades could pose a serious water threat not only in the South Asian region, but also for Asia as a whole.

Conflict caused by water shortage could arise when upper riparian states would want to capitalise on their position, depriving the lower riparian states, especially during times of low rainfall. Disagreements regarding fresh water territories have been a concern in the South Asian region since British rule.

Although there is an international law on distribution of trans-boundary river water, the law is not comprehensive and does not confront the various issues regarding water sharing in the delta.

The rise of water-conflicts is likely to increase due to enhanced irrigated farming, the rise in water-intensive industries and an expanding middle-class consuming more water for less necessary functions.

In this context, that urbanisation will take a toll on fresh water bodies is a point to be noted. Climate change and degradation in the form of shrinking forests as a result of deforestation, overuse of

groundwater, contamination of water sources and fading swamps are the other facets of urbanisation that also have effects on the availability of fresh water.

Moreover, inland water bodies have been the lifeline of many South Asian countries including Bangladesh. Many rivers cut through national borders in the sub-continent.

With the majority of the work force still employed in agriculture in the delta, water demand is ever increasing. The demand for water will continue to increase given enhanced economic activity and the ever-increasing population in this part of the world, with less and less water availability per capita.

Everyone has the right to have the access to fresh water and none should be deprived of this basic right. One day the divide between rich and poor will be literally based on access to fresh water. The South Asian region will likely share the same fate, or may even be the pioneer in this new system.

A strategic way out would be a cooperative framework amongst the basin states to work towards an agenda regarding common ownership of resources.

Institutional cooperative river basin mechanisms encompassing every single one of the riparian neighbours would hold the key to the predicaments arising from sharing this necessary resource.

To be more particular, river commissions including China, India, Bangladesh, Nepal and Pakistan would at least address the water sharing issue in the sub-continent. Sharing is not what any nation would want to pursue, but this seems the only available long run option.

"The imminent water war", 22/06/2013, online at: http://www.dhakatribune.com/op-ed/2013/jun/22/imminent-water-war

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### ❖ Uganda Awards Sinohydro Contract to Build Karuma Hydro Project

Uganda awarded Sinohydro Group Ltd. (601669) of China the contract to build the country's biggest electricity plant on the Nile River after years of delays.

"The contract was awarded," State Minister for Energy Simon D'Ujanga said today by phone from Uganda's capital, Kampala, declining to provide further details.

Construction of the 600-megawatt Karuma hydroelectricity dam will begin next month and it will start producing power by 2018, the Kampala-based New Vision newspaper reported today, citing Energy Minister Irene Muloni. The contract is worth $1.65 billion and involves building a transmission line to Kawanda, outside the capital, Kampala, the newspaper said.

Uganda's government announced a plan in 2009 to construct the Karuma plant on its own after talks for Norway's Norpak Power Ltd. to develop the site collapsed a year earlier.

The project has since missed multiple stated deadlines to commence as the government sought investors. Uganda announced March it had canceled the winning bid for the project after discovering irregularities in the procurement process.

China has offered $500 million of credit on concessional terms for the project, Uganda's Finance Ministry said last week.

Uganda, East Africa's third-biggest economy, has installed capacity of 810 megawatts, while peak demand is estimated at 509.4 megawatts, according to the Electricity Regulatory Authority.

Industrial consumers, including the domestic units ofCoca-Cola Co. (KO), the world's biggest beverage company, Lafarge Cement SA (LG) of France and the government, use at least 70 percent of all power, according to Umeme Ltd., the power distributor.
Uganda discovered oil in 2006. London-based Tullow Oil Plc (TLW) and partners China National Offshore Oil Corp. and France's Total SA (FP) are jointly developing the country's oilfields, which they estimate as having 3.5 billion barrels.

"Uganda Awards Sinohydro Contract to Build Karuma Hydro Project", 21/06/2013, online at:
http://www.businessweek.com/news/2013-06-21/uganda-awards-sinohydro-contract-to-build-karuma-hydro-project

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### ❖ Nazarbayev, Karimov seek water solution

It was not the first time Central Asia's water disputes have taken a prominent place on the summit agenda of the presidents of Kazakhstan and Uzbekistan, Nursultan Nazarbayev and Islam Karimov, respectively. But the meeting in Tashkent on June 14-15 attached particular importance to water management, as it became part of the new Strategic Partnership Agreement between the two countries.

The long-standing problem with water is evidently considered by both leaders to be one of the biggest security risks to the region, along with terrorism, drug trafficking, separatism and organized crime. The two presidents called for a United Nations review of two major hydropower projects in Tajikistan and Kyrgyzstan at a time when the World Bank is preparing to finalize its feasibility study for one of them, the Rogun Dam in Tajikistan.

Plans by Tajikistan and Kyrgyzstan to build two dams upstream on Central Asia's main rivers - the Amu Darya to the south and Syr Darya to the north - are aimed at resolving their energy problems. However, these dams would threaten the water supplies for irrigation downstream in Uzbekistan, Kazakhstan and Turkmenistan. Both rivers flow into what remains of the Aral Sea, which was devastated by the expansion of irrigation canals during the Soviet period.

Tajikistan wants to build the Rogun Dam on a tributary of the Amu Darya; the 3.6-gigawatt hydropower facility would be the world's tallest dam at 335 meters. The hydropower plant would supply electricity to Tajikistan and its neighbors, including the northern regions of Afghanistan and Pakistan. The prospect is attractive to the West, because it promises to boost economic development in Afghanistan. However, President Emomalii Rahmon is unable to secure the US$3 billion needed for the dam's construction, and a dispute over the project with Uzbekistan has intensified.

Kyrgyzstan, for its part, would like to proceed with building the 1.9-gigawatt Kambarata-1 dam on the Naryn River, a tributary to the Syr Darya. Both of these upstream countries' planned hydropower facilities, conceived during the Soviet time, are slated to be built with Russian help.

The Soviet system of exchanging water from the upstream republics for oil and gas from the hydrocarbon-rich lower lands no longer exists, and the Amu Darya and Syr Darya now cross several interstate borders. Consequently, conflicts between the five Central Asian countries are persistent.

Uzbekistan's President Islam Karimov warned during his 2012 visit to Kazakhstan that water problems "could deepen to the extent of causing not just serious confrontation, but even wars". Tashkent has vehemently opposed the building of Rogun and Kambarata; to discourage their construction, it has interrupted energy supplies to Dushanbe and Bishkek, disrupted transportation routes, and even placed mines on its border with Tajikistan.

According to the United Nations Development Program's 2013 Human Development Report, Uzbekistan leads among Central Asian countries in fresh water consumption as a percentage of its renewable water resources, using more than can be replenished: it consumed 118.3% of its available renewable water supplies in 2012. Turkmenistan's level is also slightly above 100%.

Tajikistan and Kyrgyzstan, hosting the most water resources in the region, had fresh water consumption rates as compared to their renewable water resources of 74.8 percent and 43.7 percent in 2012, respectively. The lowest fresh water consumption percentage of renewable water resources was in Kazakhstan - 28.9%.

At a joint press conference with his Kazakhstani counterpart in Tashkent on June 15, President Karimov said: "Today, we formulated a common position in regards to fair water use in Central Asia, based on the solution of water and energy problems exclusively through strict observance of generally recognized norms of international law and taking into account the interests of all states in the region."

Karimov stressed that any hydroelectric facilities planned for construction upstream, such as Rogun and Kambarata, should undergo an international and independent expert examination under UN auspices and should be agreed with the downstream countries along the Syr Darya and Amu Darya rivers. Karimov pointed out that the two plants would be constructed in earthquake-prone areas and they endanger the lower lands with flooding.

Kazakhstan's President Nursultan Nazarbayev proposed a dialogue and offered concrete help to Kyrgyzstan and Tajikistan in solving their energy problems: "We want to send a friendly message to our neighbors that we ourselves need to address these issues together. There are no unsolvable problems and issues. ... We are ready to meet you halfway. Kyrgyzstan and Tajikistan have transport and energy issues. We are also prepared to deal with these issues."

Astana is obviously concerned by Kyrgyzstan's plans to build the Kambarata Dam since Kazakhstan's southern regions depend on the Syr Darya for irrigation. But the common position with Tashkent on the use of trans-border waters will also serve Astana in addressing China's intensified use of rivers flowing into Kazakhstan's north.

According to experts, China's development plans for its northern and northwestern regions, if completed, threaten the north of Kazakhstan with drought. The environmentally focused non-governmental organization EcoSOS estimates that Kazakhstan could face an ecological disaster in the next 10-20 years if it fails to solve the issue of joint use of the Ili and Irtysh rivers with China.

According to Ainur Kuatova, adviser to Kazakhstan's minister of the environment, China plans to

increase water supplies in its northwestern provinces from the current 555 billion cubic meters to 888 billion by 2030, thus reducing water flow to Kazakhstan from the Ili and Irtysh rivers, which supply Lake Balkhash. In December 2012, negotiations with China turned sour after Beijing proposed a water division scheme according to the number of inhabitants living along the river in each country. Astana turned down the proposal and is seeking regional alliances to address the problem.

Nazarbayev's recent trip to Tashkent shows that Kazakhstan is clearly working to apply a regional approach to resolving the water security problems throughout Central Asia.

"Nazarbayev, Karimov seek water solution", Margarita Assenova, 20/06/2013, online at: http://www.atimes.com/atimes/Central_Asia/CEN-01-200613.html

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## ❖ Water, The Real Wild Card

Water is the "real wild card for political and social unrest in the Middle East over the next 20 years" and not war terrorism or revolution, according to the comprehensive CSIS study of water as a strategic resource in the Middle East, titled "Clear Gold," by Jon Alterman and Michael Dziuban. The report said, "Conventional security threats dominate public debate and government thinking, but water is the true game-changer in Middle Eastern politics." In March Lucien Zeigler, writing for the Saudi-US Trade Group's News Review ["A Kingdom's Thirst: The Saudi Water Challenge"], explored the water issues in the Kingdom, noting that Saudi Arabia's lack of water was a looming crisis, "Saudi Arabia receives only four inches of rainwater a year and has limited underground and other reserves. What has accelerated the need for more, sustainable water sources is the rapid growth of the Saudi economy and population in the last decade." He added that depletion of natural water supplies could come as early as 2050 by some estimates.

To meet its needs for fresh water Saudi Arabia has developed the world's largest network of desalination plants to provide about 70% of the country's requirements. Other sources for water include large aquifers that face depletion, water captured by dams after flash floods – there are no permanent rivers or lakes, and recovered water from urban domestic usage. The desalination plants, which also serve to generate electrical power, consume an increasingly large portion of Saudi Arabia's fossil fuel production. The network is operated by the Saline Water Conversion Corporation (SWCC) .

The SWCC's annual report, released last week, showed that desalinated water production was up 7.8 percent compared to last year. Of the 955 million cubic meters of water produced overall, the Eastern Province accounted for 52 percent (520M cm) and plants in the west contributed 47 percent (451M cm), according to *Arab News*. The SWCC report noted the total expenditure on its projects exceeded SR100.4 billion ($26.76B) until the end of the 2012-2013 fiscal year, and operation and maintenance costs of the plants and its facilities stood at more than SR42.3 billion ($11.27B).
Meanwhile, the National Water Company (NWC) is planning a capital expenditure of SR50 billion ($13.32B) on new projects from 2013 to 2017 to improve and expand the Kingdom's water and wastewater infrastructure according to a NWC official. It currently provides about 2.7 million cm/day

service in major cities including Riyadh, Jeddah, Makkah and Taif – a combined population of 10.6 million people – and is working to add service for Madinah, Dammam and Al-Khobar by the end of next year, according to NWC asset director Yahya Al-Yousef. The *Saudi Gazette* reported he told the Saudi Arabian Energy Projects 2013 conference the majority of the 243 new projects – worth SR19.8 billion ($5.2B) – under way as of April were in Riyadh and Jeddah. NWC also plans to add 8 million cm of water storage in Riyadh and 6 million cm in Jeddah as well as new wastewater services aimed at recycling domestic usage.

The SWCC has a number of desalination projects in progress including the Ras Al-Khair plant with a capacity of 1.025 million cm/d, phase three of the Jeddah plant, with 240,000 cm/d, phase three of the Yanbu plant with 550,000 cm/d and a series of water transportation projects across parts of the Kingdom. The Saudi Gazette report noted projects under bidding include five plants at Rabigh at phase three, with a capacity of 20,000 cm/d, Haql (phase three), Dhubaa (phase four), Wajh (phase four), each with a capacity of 9,000 cm/d and Rabigh (phase four) with 600,000 cm/d. The perspective of the SWCC on the challenge of producing water and electricity in Saudi Arabia was shared in a comprehensive briefing at the US-Saudi Business Opportunities Forum (click here for slide brief). [The next Forum is set for September 2013.]

When SUSRIS spoke with Alterman, the Zbigniew Brzezinski Chair in Global Security and Geostrategy and Director, Middle East Program at CSIS, about the "Clear Gold" report he commented, "Water is used with the assumption that it is cheap. When you open a tap you don't think that's costing you five cents or a dollar. But when you're desalinating water, manufacturing it, and the government is putting energy into creating water and then distributing it, that water has a cost. Governments aren't charging and people use the water as if it is endless and free. It is neither endless nor free, and the governments have been making up the difference. "

"Water, The Real Wild Card", 19/06/2013, online at: http://www.susris.com/2013/06/19/water-the-real-wild-card/

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### ❖ Environmental Protests of the Middle East Show Eco Awareness in Arab World

During the last six years, the words energy security, water security, and food security could be found a lot in the Arab media. Since most of the Arab media is controlled by the Arab regimes, the appearance of these items shows that the environmental awareness of the Arab regimes has been on the rise.

Indeed, as a result of climate change and global warming the Middle East has been facing five major environmental security challenges: water security, food security, energy security, desertification, and land degradation.

These issues have been further aggravated by other socio-economic processes, which characterize the Middle East and include: the huge population growth, the rapid urbanization process and the development of mega-cities on the expense of rural areas.

The urban infrastructures, such as sewage and waste disposal, which have been inadequate anyway and are in dire need for modernization, could not stand the ever-growing human pressure and in a few cities, some of them have totally collapsed.

Moreover, the natural resources, such as water and food, which were just sufficient for the cities' residents, have been stressed to the limit due to the huge population density within the cities. In addition, green spaces within the cities have given place to gray buildings which have been built whenever possible in order to supply the lodging needs of the incessant stream of new immigrants and local citizens.

While the natural resources in the urban areas have been stressed to the limit, the situation in the rural areas has not been much better. The people in the rural areas have been suffering from desertification, the expansion of desert areas, and, as a result, from the degradation of the land and the lack of natural resources to sustain themselves, which has forced them to move to the urban areas in search of a better future. In addition, due to the rapid urbanization process and the influx of more and more people to the urban areas, the rural areas have been diminishing in a very rapid pace.

Most Middle Eastern regimes have not been able to deal with the situation. That is why, in recent years, environmental issues have come to the fore in the region. Whereas until recent years environmental issues were often viewed as secondary in the political agenda, now they have become central within political debates concerning representation, accountability and social justice.

The people have resented the inability of the governments in the region to deal with their urgent needs. Even more so, they have resented the fact that the governments have ignored them and their rights to use and enjoy access to basic natural resources as well as to health and other essential services and goods.

This feeling of resentment felt by many people has just added fuel to an ongoing fire, which was initially fed by other resentments, such as political and ethnic discrimination, socio-economical hardships, political oppression, lack of basic freedoms (freedom of speech), and so on.

Thus, in recent years, the region has witnessed an ever-increased environmental activism and mass environmental protest movements whose aims have been to alter the policies of the governments so that they will take more care of the people's needs as well as to protect the environment and to ensure that the people will enjoy access to basic natural resources, health and other services.

Indeed, protests about environmental issues (like Gezi Park in Istanbul) are also political and social claims about rights, access, livelihoods, and power, as can be seen very clearly in the current protest taking place in Turkey these days as well as in protests elsewhere. Mass environmental protest movements in the local and national level have been organized all over the region, from Morocco and Mauritania to Iran and from Turkey to Somalia.
Not all mass environmental protest movements have proven themselves to be successful. Its success has often depended on the ability of its organizers to mobilize the media, some of the politicians, and the civil society. When one or more of these players has not been present, it has usually meant failure to achieve the goals.

It should be mentioned that these environmental protest movements have served not only as a proof to the rise of environmental activism in the Middle East but also as a proof for the rise of civil society within the region.

To sum up, especially following the revolutionary wave of demonstrations, protests, riots and civil war in the Middle East, nicknamed the Arab Spring, which was originated and triggered, at least partly, by environmental issues, the environmental mass protest movements throughout the Middle


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East, including the current one in Turkey, should be taken very seriously. For the first time in the history of the Middle East, the people feel powerful and feel that they have the power to influence policies and to topple long-ruling dictators. They want that the governments in the region will hear them and take note of their demands and needs. In case the governments will not do so, the people have the power to replace or topple the current regimes.

Thus, for example, in the case of Turkey and Gezi Park at Taksim Square, even if the current mass environmental protest movement does not achieve its aims in the short run, it might still have the power to ignite a chain of reactions which will cause the downfall of Erdogan's government in the long run.

"Environmental Protests of the Middle East Show Eco Awareness in Arab World", 18/06/2013, online at: http://www.greenprophet.com/2013/06/environmental-protests-middle-east/

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### ❖ Dams could signal death knell for Mekong giant catfish

**Bangkok, Thailand** – Damming the mainstream of the lower Mekong River would represent a significant new threat to the survival of the Mekong giant catfish, one of the world's largest and rarest freshwater fish, according to a new study commissioned by WWF.

The study sheds new light on the status of this elusive species, including data on its numbers, distribution, threats and measures needed to prevent its disappearance. While the exact population size is unknown, there could be as few as a couple of hundred adult Mekong giant catfish fish left.

According to the study, the Xayaburi dam on the Mekong mainstem in northern Laos would prove an impassable barrier for the migratory giant catfish – which are capable of reaching up to three metres in length and weighing as much as 300kg – and risks sending the species to extinction.

"A fish the size of a Mekong giant catfish simply will not be able to swim across a large barrier like a dam to reach its spawning grounds upstream," said the study's author and associate research professor at the University of Nevada, Dr. Zeb Hogan.

"These river titans need large, uninterrupted stretches of water to migrate, and specific water quality and flow conditions to move through their lifecycles of spawning, eating and breeding."

#### Species in steep decline

Numbers of Mekong giant catfish are already in steep decline due to overfishing, habitat destruction and dams along the Mekong's tributaries. In the Mun River, the largest tributary to the Mekong, a dam already blocks the migrations of the Mekong giant catfish and has isolated the Mun River from the remainder of the Mekong river basin. The study claims that the controversial Xayaburi dam could disrupt and even block spawning, and increase mortality if the fish pass through dam turbines.

"It's likely the Mekong giant catfish use the stretch of river of the Xayaburi dam as a migration corridor, with adult fish likely passing through this area on their migration from floodplain rearing

areas to upstream spawning sites," added Dr. Hogan. "It is also possible the giant catfish spawn in the area where the dam is now located."

Environment and water ministers had agreed at the Mekong River Commission meeting in 2011 to delay a decision on building the Xayaburi dam pending further studies on its environmental impacts. This agreement was swept aside last November when Laos decided to forge ahead with construction.

## Dam fish passages unproven

Criticism of the US$3.5-billion Xayaburi project has been growing with concerns centred on the serious gaps in data and failures to fully account for the impacts of the dam, particularly concerning fisheries and sediment flows.

Pöyry, the Finnish firm advising Laos on the dam construction, argues that "fish passages" can be built to enable fish to get past the dam's turbines and swim up and down the river. But this claim has never been successfully put into practice.

"You can't expect fish ladders to work without understanding your target species, their swimming capabilities, and the water current that will attract these fish toward the pass entrance," said Dr. Eric Baran with the World Fish Centre. "Research is still needed to ensure mitigation efforts will work."

Mekong giant catfish were once widely distributed through the Mekong river basin, possibly as far as Myanmar and south-western China, and were relatively abundant up until the early 1900s. Their numbers have since plummeted and the species is now limited to the Mekong and its tributaries in Cambodia, Laos and Thailand.

Catch figures also offer sobering evidence of the species decline, with numbers dropping from thousands of fish in the late 1880s, to dozens in the 1990s, and only a few in recent times. Despite laws being in place in Thailand, Laos and Cambodia to regulate fishing for Mekong giant catfish, with a ban on fishing the species in Thailand and Cambodia, the species is still fished illegally and caught accidentally in fisheries targeting other species.

"Catches should be monitored to ensure that Mekong giant catfish are not being illegally targeted by fishers," added Dr. Hogan. "Incidental catch should also be monitored since it is one of the best and only sources of information about the distribution, life history and abundance of this river giant."

## Urgent efforts needed to save the species

The study identifies key measures to prevent the river giant's disappearance, including urgent efforts to safeguarding migratory corridors and critical habitat, and increased international cooperation, such as basin-wide management planning, since the species occurs in an international river and crosses country borders to complete its life cycle.

"The Mekong giant catfish symbolizes the ecological integrity of the Mekong River because the species is so vulnerable to fishing pressure and changes in the river environment. Its status is an indicator of the health of the entire river, and its recovery is an important part of the sustainable management of the Mekong basin," said Dr. Lifeng Li, Director of WWF's Global Freshwater Programme.

"The Mekong giant catfish can be saved, but it will take a level of commitment from all lower Mekong countries, as well as international organizations and donors, that currently does not exist."

"Dams could signal death knell for Mekong giant catfish", 20/06/2013, online at:
http://wwf.panda.org/wwf_news/?208993/Dams-could-signal-death-knell-for-Mekong-giant-catfish

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## ❖ Dams Threaten Mekong Basin Food Supply

**BANGKOK, Jun 20 2013 (IPS)** - The future of food security in the Mekong region lies at a crossroads, as several development ventures, including the Xayaburi Hydropower Project, threaten to alter fish migration routes, disrupt the flow of sediments and nutrients downstream, and endanger millions whose livelihoods depend on the Mekong River basin's resources.
Running through China, Myanmar (formerly Burma), Laos, Thailand and Cambodia to the Mekong Delta in Vietnam, this is Asia's seventh longest transboundary river.

An estimated 60 million people live within the lush river basin, and nearly 80 percent depend on the Lower Mekong's waters and intricate network of tributaries as a major source of food.

But if all goes according to plan, 88 dams will obstruct the river's natural course by 2030. Seven have already been completed in the Upper Mekong basin in China, with an estimated twenty more either planned or underway in the northwest Qinghai province, the southwestern region of Yunnan and Tibet.

Construction of the 3.5-billion-dollar Xayaburi Dam on the Lower Mekong in northern Laos is the first of eleven planned dam projects on the main stem of the Mekong River, with nine allocated for Laos and two in Cambodia.

Construction began in 2010 and as of last month the project was 10 percent complete.

At best these development projects will alter the traditional patterns of life here; at worst, they will devastate ecosystems that have thrived for centuries.

Over 850 freshwater fish species call the Mekong home, and several times a year this rich water channel is transformed into a major migration route, with one third of the species travelling over 1,000 kilometres to feed and breed, making the Mekong River basin one of the world's most productive inland fisheries.

Large-scale water infrastructure development projects such as hydropower dams have already damaged the floodplains in the Lower Mekong and in the Tonlé Sap Lake in Cambodia, affecting water quality and quantity, lowering aquatic productivity, causing agricultural land loss and a 42-percent decline in fish supplies.

This spells danger in a region where fish accounts for 50 to 80 percent of daily consumption and micronutrient intake, Ame Trandem, Southeast Asia programme director for the non-profit International Rivers, told IPS.

Locating alternative protein sources such as livestock and poultry is no easy task and would require 63 percent more pasture lands and more than 17 percent more water.

"Cambodia is the largest fish eating country in the world. Get rid of the fish and you're going to have serious problems because there is not enough livestock in Cambodia and Laos to compensate for the loss," Trandem said.

With a total population of over 16 million, the Mekong Delta is known as the 'rice bowl' of Vietnam. It nurtures vast paddy fields that are responsible for 50 percent of national rice production and 70 percent of exports.

This low-lying delta depends on a natural cycle of floods and tides, with which Vietnamese farmers have long synchronised their planting and harvesting calendars.

Now, experts like Geoffrey Blate, senior advisor of landscape conservation and climate change for the World Wildlife Fund's (WWF) Greater Mekong Programme in Thailand, say this delicate ecosystem is vulnerable to changes brought on by global warming and mega development projects.

The telltale signs of rising sea levels and unprecedented salt water intrusion have already put Vietnamese communities on red alert, while sudden changes to the water flow caused by incessant damming has resulted in "increased precipitation and heavy downpours during the rainy season," Blate told IPS.

If all the dams are built, experts estimate that 220,000 to 440,000 tonnes of white fish would disappear from the local diet, causing hunger and leading to a rapid decline in rice production.

**Electricity over sustainability?**

Citing a shortage of energy, Thailand's leading state-owned utility corporation, EGAT, signed an agreement to purchase 95 percent of the Xayaburi dam's anticipated 1,285 megawatts (MW) of electricity.

Six Thai commercial banks comprise the financial muscle of the project, while construction is in the hands of Thailand's CH. Karnchang Public Company Limited, with some support from the Laotian government.

But energy experts like Chuenchom Sangarasri Greacen, author of Thailand's Alternative Power Development Plan, have poked holes in the claim that the dam is required to meet growing energy needs.

Thailand is a net importer of electricity, but a lot of it is utilised wastefully, he told IPS, adding that countries like Laos and Cambodia have a much more immediate need for electricity: the World Bank estimates that only 84 percent of the population in Laos and 26 percent in Cambodia have access to electricity, compared to 99.3 percent in Thailand.

But instead of developing their own generation capacities, these governments have chosen export projects that profit corporations over people.

"Thailand is creating a lot of environmental, social and food issues for local communities by extending its grid to draw power from beyond our borders," Greacen said.

Already, roughly 333 families from villages like Houay Souy in north-central Laos, who were moved to make way for the dam, are feeling the first hints of greater suffering to come.

Once a self-sufficient community that generated revenues via gold panning and cultivated their own riverbank gardens to produce rice, fruits and vegetables, villagers are now finding themselves without jobs, very little money and not enough food.

"The villagers' primary source of food was fishing and agriculture. In their new location, about 17 km away from their old homes, they were given small plots of agricultural land but not enough for their daily consumption needs," said Trandem.

"Ch. Karnchang never compensated them for lost fisheries, fruit trees or the riverbank gardens that were washed away. Their new homes were built with poor quality wood, which was quickly eaten into by termites, so what little compensation they did receive went to fixing their new homes," she added.

These families, numbering about five members per household, are now barely surviving on 10 dollars per month and symbolise the gap between so-called poverty alleviation programmes their impact on the ground.

"The Laos government claims that dams will generate revenue but in reality…projects like Xayaburi basically export benefits and profits away from the host country while smaller projects that are more economically sustainable are being ignored," says Greacen.

She believes the Laotian government should explore small-scale renewable energy projects like biomass and micro-hydro plants that would attract local investment and directly serve local populations.

Blate also suggested building diversion canals for smaller dams, rather than obstructing the main stem of the Mekong River.

"Dams Threaten Mekong Basin Food Supply", 20/06/2013, online at: http://www.ipsnews.net/2013/06/dams-threaten-mekong-basin-food-supply/

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### ❖ Climate change will reshape world 'in our lifetimes' - World Bank president

LONDON (Thomson Reuters Foundation) – In fewer than 20 years, climate change impacts – from flooded major cities to crashing food production – threaten to fundamentally reshape the world economy and dramatically worsen human lives, the World Bank's president warned on Wednesday.

But political will to act on climate change, particularly by major players such as China, is rapidly building, even as U.N.-led climate talks falter, Jim Yong Kim said at a Thomson Reuters discussion in London.

After seeing widespread deaths from pollution last winter, "there's a new spirit in China," Kim said. The Asian giant, the world's largest carbon emitter, is setting "really, really aggressive goals" on curbing climate-changing emissions, and are moving to establish what could be the world's biggest national carbon market, he said.

Right now, "they're more serious than any country I know" in terms of acting on climate change, Kim said. That, combined with what he said was strong political will in the White House to address the problem and moves to curb emissions from New Delhi to New York, could add up to changes that will eventually address "the huge bulk of the issue" – even if it's not happening fast enough, he said.

New Delhi, for instance, now runs its once smoke-belching buses on cleaner – though still not clean enough – natural gas. Hong Kong has halved the number of cars in the city. And in Africa and other regions, climate-smart changes to agriculture are lowering emissions and laying the groundwork to shore up food production.

New York City, which pledged to reduce its carbon footprint by 30 percent by 2030, now is on track to reach its goal by 2017, Kim said. And Germany is leading the world in growing its economy while reducing its carbon footprint.

"Every country in the world has to move in that direction," Kim said.

BANGKOK UNDERWATER

Some of the impetus to action has come from worsening extreme weather that has brought increasingly frequent record-breaking droughts, floods, fires and storms throughout the world.

"I've lost count of the number of once-in-a-lifetime events that happened in the last two or three years," Kim said. Climate change, he said, is particularly playing out in changes in the planet's water cycles, with some regions getting far too much and others far too little.

In a **report** on the regional impacts of climate extremes, released on Wednesday by the World Bank, scientists predicted that by 2030, as world temperatures rise by an expected 2 degrees Celsius, 40

percent of the maize farmland in Africa could become unsuitable for growing the crop. The southern Philippines over the same period could see its fisheries fall by half, the report said.

Stunting from malnutrition "is going to be everywhere", Kim said.

In South Asia, a shifting monsoon is likely to leave some regions underwater, and others in worsening drought, the report said, with major cities like Mumbai, Kolkata and Dhaka also facing increasingly intense cyclones. In Southeast Asia, Bangkok could be underwater by 2030 or 2040, the report said.

"CHANGE IN OUR LIFETIMES"

"It's coming unless world leaders do something about it," Kim warned. "This report should make us lose sleep over what our world will look like in our lifetimes."

"Climate change is a short and medium term risk to the global economy," he said. "People think it's about their grandkids. It's not."

The World Bank, he said, now looks at the effect on climate change of all of its lending decisions, he said, though finding the right answers isn't always easy.

In Liberia, for instance, President Ellen Johnson Sirleaf has begged the bank for help in increasing the country's paltry access to energy, in order to attract investment, start industries and provide jobs for former soldiers who remain a threat to the country's stability while they are unemployed.

That urgency has led the bank to support coal-fired energy projects in Liberia, Kim admitted. "I'm going to try everything I can to avoid investing in coal … but I can't look Ellen Johnson Sirleaf in the eye and say, 'You have to wait'," he said.

HOPE FOR U.N. CLIMATE TREATY

Kim said he believes the slow-moving U.N. climate change negotiations, which aim to build a new global climate treaty in 2015, to take effect in 2020, are crucial but clearly not enough, and that delaying action on climate change until the new treaty takes effect is "a lame excuse in the face of what we're about to hand to our children".

What's needed is hard work to scale up the climate-friendly changes that are happening now but are insufficient, he said, while continuing to "push our leaders to sign global agreements".

China's increasing serious worries about climate change give him some hope for the U.N. process, he said.

"The fact that China is being so aggressive about their own carbon market is a really, really encouraging sign for a global (climate) agreement," he said. If China, the United States and Europe

could form the basis of a world carbon market, then low-carbon investment will surge and "finally, finally we'll have market mechanisms working to help us deal with climate change".

GRASSROOTS MOVEMENT NEEDED

Part of what is necessary to drive political action on climate change, he said, is a genuine grassroots movement, something that is currently missing. Action on HIV/AIDS, he said, came only after activists went into national health institutes, threw blood and demanded change.

"I keep asking: 'Where is the plan for that?' We don't have it yet," he said. "It doesn't feel like a movement."

Scientists and climate experts, similarly, have done a poor job at helping people understand the links between extreme weather and climate change, and providing them with answers about what to do to make a difference, beyond what he called "small-bore answers" like installing solar panels.

"We need to put together a plan that is equal to the challenge, and we have not done that yet," he said. "As extreme weather events continue to happen, I think public opinion is going to change and at that point we need to have a plan."

"Climate change will reshape world 'in our lifetimes' - World Bank president", 19/06/2013, online at: http://www.trust.org/item/20130619113907-3nmrs/?source=hptop

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## ❖ Fatal Floods Hit North India

NEW DELHI—Flash floods in northern India, which have killed at least 70 people over the past four days, have stranded 30,000 tourists and pilgrims in the Himalayan states of Uttarakhand and Himachal Pradesh, government officials said Tuesday.

Rudraprayag, in Uttarakhand, is the gateway to all the major Hindu pilgrimage destinations, like Kedarnath, Badrinath, Joshimath, and June is the peak month for pilgrimages. The floods have made much of Uttarakhand inaccessible by car so the authorities have been using helicopters to evacuate people.

"We haven't had this kind of a flash flood in the last 100 years," said Bhaskaranand, who goes by one name, the state's secretary for disaster management, adding that all of the Ganges River's tributaries were overflowing their banks.

At least 44 people have died in Uttarakhand, and many more are still missing, he said. "At least 30,000 tourists are still stranded at different places. We are dropping essential supplies including tinned food, milk, water and medicines by air," said Mr. Bhaskaranand.

He said that 15 air force helicopters were sent to evacuate 500 people on Tuesday and that another 15 helicopters would be used on Wednesday. Joining the rescue efforts are 500 National Disaster Rescue Force personnel, 1,000 officers from the Indo-Tibetan Border Police and 50 Indian Air Force personnel.

"The road network beyond Rudraprayag is completely damaged," I.S. Negi, inspector general of the Indo-Tibetan Border Police, said by phone. "The damage is so extensive that it will take months to repair it."

In Himachal Pradesh, at least 11 people have died in the districts of Kinnaur and Sirmaur. The state government has sent two helicopters to rescuestranded pilgrims, including some foreigners.

In Kinnaur, the amount of rain was 1,200 percent more than normal, and in Sirmaur, it was 700 percent, said Amandeep Garg, special secretary for disaster management in Himachal Pradesh. "All the tributaries of Sutlej River are overflowing due to flash floods," he said.

In the Saharanpur district of Uttar Pradesh, at least 15 people died as the heavy rains caused the Yamuna River to swell. "The river bank has broken at two places, and we are trying to repair that," said A.K. Singh, district magistrate of Saharanpur.

New Delhi is also facing the threat of floods as the Yamuna River, which runs through the capital, is rising to dangerous levels. Residents near the river bank have been advised by the government to move to higher ground.

Relief agencies were putting up tents for displaced residents,as they expected water levels to keep rising over the next two days.

From the Hathini Kund barrage in Haryana state, 800,000 cubic feet of water per second was flowing into the Yamuna River, which was unprecedented, said Sheila Dixit, the chief minister of Delhi. "We have made all possible preparations and are now praying to God."

India experiences natural disasters every year during the monsoon season, and public safety experts have questioned its emergency management plans. India formed the National Disaster Management Authority in 2005 through an act of Parliament, with the prime minister as its chairman. The country also has a national disaster rescue force.

"A certain level of disaster preparedness is always there," said Mr. Bhaskaranand of Uttarakhand. "But we cannot prepare for nature's fury."

"Fatal Floods Hit North India", 18/06/2013, online at: http://india.blogs.nytimes.com/2013/06/18/fatal-floods-hit-north-india/?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=4507ea4ee2-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-4507ea4ee2-250657169&_r=0

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### ❖ Thailand names winners for $9.5 bln flood management work

(Reuters) - Thailand has selected four winners for water management projects worth around 290 billion Thai baht ($9.5 billion) aimed at preventing a repeat of devastating floods in late 2011.

The flooding cut Thailand's economic growth to just 0.1 percent in 2011 but the water projects and other infrastructure work are expected to drive the economy in the next few years.

"Contracts are expected to be signed in August or September," government spokesman Teerat Ratanasevi told reporters after a cabinet meeting on Tuesday.

The government had managed to push prices down by a combined 6.1 billion baht from the original offers, he said, without breaking down where the savings came.

Korea Water Resources Corporation will get two contracts worth a total of 163 billion baht for floodway construction.

A consortium led by Italian-Thai Development Pcl won five of the nine contracts with a bid of 109 billion baht.

The Summit SUT Joint Venture that groups unlisted Thai contractors won one contract worth 13.9 billion baht. It will manage city planning and land use in 17 river basins throughout Thailand.

A consortium led by Thai company Loxley won one contract for data storage and warning systems worth 3.9 billion baht. ($1= 30.74 baht) (Reporting by Kitiphong Thaichareon and Pairat Temphairojana; Writing by Orathai Sriring; Editing by Alan Raybould and Richard Borsuk)

"Thailand names winners for $9.5 bln flood management work", 18/06/2013, online at: http://www.reuters.com/article/2013/06/18/thailand-economy-projects-idUSL3N0EU17820130618?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=814c335ffb-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-814c335ffb-250657169

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## ❖ World's poorest will feel brunt of climate change, warns World Bank

*Droughts, floods, sea-level rises and fiercer storms likely to undermine progress in developing world and hit food supply*

Millions of people around the world are likely to be pushed back into poverty because climate change is undermining economic development in poor countries, the World Bank has warned. Droughts, floods, heatwaves, sea-level rises and fiercer storms are likely to accompany increasing global warming and will cause severe hardship in areas that are already poor or were emerging from poverty, the bank said in a report.

Food shortages will be among the first consequences within just two decades, along with damage to cities from fiercer storms and migration as people try to escape the effects.

In sub-Saharan Africa, increasing droughts and excessive heat are likely to mean that within about 20 years the staple crop maize will no longer thrive in about 40% of current farmland. In other parts of the region rising temperatures will kill or degrade swaths of the savanna used to graze livestock, according to the report, Turn down the heat: climate extremes, regional impacts and the case for resilience.

In south-east Asia, events such as the devastating floods in Pakistan in 2010, which affected 20 million people, could become commonplace, while changes to the monsoon could bring severe hardship to Indian farmers.

Warming of at least 2C (36F) – regarded by scientists as the limit of safety beyond which changes to the climate are likely to become catastrophic and irreversible – is all but inevitable on current levels, and the efforts of governments are limited to trying to prevent temperature rises passing over this threshold. But many parts of the world are already experiencing severe challenges as a result of climate change, according to the World Bank, and this will intensify as temperatures rise.

Jim Yong Kim, the bank's president, warned that climate change should not be seen as a future problem that could be put off: "The scientists tell us that if the world warms by 2C – warming which may be reached in 20 to 30 years – that will cause widespread food shortages, unprecedented heatwaves, and more intense cyclones.

"In the near-term, climate change – which is already unfolding – could batter the slums even more and greatly harm the lives and hopes of individuals and families who have had little hand in raising the Earth's temperature."

The development bank is stepping up its funding for countries to adapt to the effects of climate change, and is calling for rich countries to make greater efforts at cutting greenhouse gas emissions.

Rachel Kyte, vice president of the World Bank, said it had doubled its aid for adaptation from $2.3bn (£1.47bn) in 2011 to $4.6bn last year, and called for a further doubling. She said the bank was working to tie its disaster aid and climate change adaptation funding closer together.

Aid from the bank to help poor countries cut their greenhouse gas emissions and pursue environmentally sustainable economic development stands at about $7bn a year, and is backed by about $20bn from regional development banks and other partners.

The report's authors used the latest climate science to examine the likely effects of global warming of 2C to 4C on agriculture, water resources, coastal ecosystems and fisheries, and cities, across sub-Saharan Africa, south and south-east Asia.

Kyte said the effects would be to magnify the problems that developing regions experience. More people would be pushed into slums, with an increased risk of disease. "We are looking at major new initiatives [in] cities; cities need billions of investment in infrastructure, but many developing cities are not really creditworthy," she said.

She pointed to Jakarta, where rising sea levels and decades of pumping freshwater from underground sources beneath and around the city were increasing its vulnerability to flooding. Choices would need to be made soon in many cities on how to stem the likely effects, but Kyte warned that the plans must be future-proof, citing Ho Chi Minh City in Vietnam, which has been forced to rethink its flood preparations despite spending $2bn on them.

Green campaigners emphasised the need to try to avoid 2C of warming, which scientists stay is possible if countries bolster their ambitions to cut greenhouse gas ambitions in the near future.

Stephanie Tunmore, climate campaigner at Greenpeace International, said: "Fossil fuels are being extracted in burned in the name of development and prosperity, but what they are delivering is the opposite.

"Some major impacts from climate change are already unavoidable and rich countries must urgently support the poor and vulnerable to adapt. But massive increases in the future costs of adaptation and damage can only be avoided by investing in a clean energy future now."

The World Bank has come under fire in the past for funding coal-fired power plants in some developing countries. However, it said the move was the result of old policies and was being phased out.

"World's poorest will feel brunt of climate change, warns World Bank", 19/06/2013, online at: http://www.guardian.co.uk/environment/2013/jun/19/climate-change-developing-countries-world-bank?CMP=twt_fd&utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=814c335ffb-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-814c335ffb-250657169

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### ❖ Small dam construction to reduce greenhouse emissions is causing ecosystem disruption

Researchers conclude in a new report that a global push for small hydropower projects, supported by various nations and also the Kyoto Protocol to reduce greenhouse gas emissions, may cause unanticipated and potentially significant losses of habitat and biodiversity. An underlying assumption that small hydropower systems pose fewer ecological concerns than large dams is not universally valid, scientists said in the report. A five-year study, one of the first of its type, concluded that for certain environmental impacts the cumulative damage caused by small dams is worse than their larger counterparts.

The findings were reported by scientists from Oregon State University in the journal Water Resources Research, in work supported by the National Science Foundation.

The conclusions were based on studies of the Nu River system in China but are relevant to national energy policies in many nations or regions -- India, Turkey, Latin America -- that seek to expand hydroelectric power generation. Hydropower is generally favored over coal in many developing areas because it uses a renewable resource and does not contribute to global warming. Also, the social and environmental problems caused by large dam projects have resulted in a recent trend toward increased construction of small dams.

"The Kyoto Protocol, under Clean Development Mechanism, is funding the construction of some of these small hydroelectric projects, with the goal of creating renewable energy that's not based on fossil fuels," said Desiree Tullos, an associate professor in the OSU Department of Biological and Ecological Engineering.

"The energy may be renewable, but this research raises serious questions about whether or not the overall process is sustainable," Tullos said.

"There is damage to streams, fisheries, wildlife, threatened species and communities," she said. "Furthermore, the projects are often located in areas where poverty and illiteracy are high. The benefit to these local people is not always clear, as some of the small hydropower stations are connected to the national grid, indicating that the electricity is being sent outside of the local region.

"The result can be profound and unrecognized impacts."

This study was one of the first of its type to look at the complete range of impacts caused by multiple, small hydroelectric projects, both in a biophysical, ecological and geopolitical basis, and compare

them to large dam projects. It focused on the remote Nu River in China's Yunnan Province, where many small dams producing 50 megawatts of power or less are built on tributaries that fall rapidly out of steep mountains. There are already 750,000 dams in China and about one new dam is being built every day, researchers say.

Among the findings of the report as it relates to this region of China: The cumulative amount of energy produced by small hydroelectric projects can be significant, but so can the ecological concerns they raise in this area known to be a "hotspot" of biological diversity. Per megawatt of energy produced, small tributary dams in some cases can have negative environmental impacts that are many times greater than large, main stem dams. Many dams in China are built as part of a state-mandated policy to "Send Western Energy East" toward the larger population and manufacturing centers. Small dams can have significant impacts on habitat loss when a river's entire flow is diverted into channels or pipes, leaving large sections of a river with no water at all. Fish, wildlife, water quality and riparian zones are all affected by water diversion, and changes in nearby land use and habitat fragmentation can lead to further species loss. The cumulative effect on habitat diversity can be 100 times larger for small dams than large dams. Policies encouraging more construction of small dams are often developed at the national or international level, but construction and management of the projects happen at the local level. As a result, mitigation actions and governance structures that would limit social and environmental impacts of small hydropower stations are not adequately implemented.

"One of the things we found generally with small dams is that there was much less oversight and governance with the construction, operation and monitoring of small hydropower," Tullos said. "On the large, main stem dams, people pay attention to what's going on. On a small hydropower project, no one notices if minimum flows are being maintained. Or if a pump breaks, the hydropower station might sit idle for long periods of time."

Researchers said the key finding of the research, contrary to prevailing but unvalidated belief, is that "biophysical impacts of small hydropower may exceed those of large hydropower, particular with regard to habitat and hydrologic change."

“Small dam construction to reduce greenhouse emissions is causing ecosystem disruption”, 18/06/2013, online at: http://esciencenews.com/articles/2013/06/18/small.dam.construction.reduce.greenhouse.emissions.causing.ecosystem.disruption

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