



# ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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



### **Climate-Related Drought Didn't Cause Syrian War, Study Finds**

Climate change in the form of sustained drought is not to blame for the bloody and prolonged conflict in Syria, according to a new study.

But drought nevertheless plays a contributing role in creating the conditions for conflict – and a database of 1,800 riots over a cycle of 21 years delivers the evidence to support that hypothesis, according to a second study.

The idea that climate change, with consequential drought and famine in its wake, can drive conflict and topple kingdoms, empires and civilisations is not a new one: climate change has been identified as a factor in the fall of the ancient Assyrian empire and the fall of the Mayan civilisation, and the recent drought in the eastern Mediterranean has been identified as the worst in 900 years.

But, scientists in the UK argue in the journal *Political Geography*, there is no evidence to support climate change as a factor in the Syrian civil war.

This is an argument not likely to be settled by any one study. Researchers in the last three years have repeatedly warned that climate is likely to be a contributing factor to civil conflict or violence in some cases simply because hot weather and short tempers seemed statistically linked, in others because prolonged drought turns farmers and herdsman into climate refugees.

And the flight from the land has been linked with the beginning of civil unrest in Syrian cities. This argument has been invoked by, among others, former US President Obama, Prince Charles of Great Britain, the World Bank and Friends of the Earth.

Not so, say the scholars in *Political Geography*. They argue that though the drought was severe, it was not necessarily caused by man-made climate change driven by profligate combustion of fossil fuels, and that although drought contributed to migration to the cities, this would have involved not 1.5 million people but no more than 60,000 families. Economic liberalisation in any case may have been the more important factor, they say.

“Our paper finds that there is no sound evidence that global climate change was a factor in sparking the Syrian civil war. Indeed, it is extraordinary that this claim has become so widely accepted when the scientific evidence for it is so thin,” said Jan Selby, who directs the Centre for Conflict and Security Research at Sussex University in the UK.

“Global climate change is a very real challenge, and will undoubtedly have significant conflict and security consequences, but there is no good evidence that this is what was going on in this case.

“It is vital that experts, commentators and policymakers resist the temptation to make exaggerated claims about the conflict implications of climate change. Overblown claims not based on rigorous science only risk fuelling climate scepticism.”

Link persists

But the link between climate and violence remains. European researchers report in the Journal of Environmental Economics and Management that they studied the pattern of rioting recorded in sub-Saharan Africa between 1990 and 2011, and found a systematic link between sudden depletion of water resources and the outbreak of unrest.

They used statistical reasoning to find that droughts raised the risk of rioting from 10% to 50% in a given month in any region. There were other factors: density of population, the presence of lakes and rivers and the local ethnic mix could all contribute to the probabilities of conflict. That did not mean that droughts “cause” conflict.

“In order of importance, it is political, economic or social causes that create tension,” said Jérémy Lucchetti, a professor in the University of Geneva’s economics and management faculty, who led the study.

“Droughts are a factor that add fuel to flames that are already burning.”

23/10/2017 online at: <https://www.truthdig.com/articles/scientists-debate-whether-climate-change-caused-syrian-war/>

### **Damascus Water Crisis Deepens as Capital Fears Pollution of Drinking Supply**

It wasn’t too long ago that residents of Damascus and its visitors were supplied with sweet drinking water from the Ain al-Fijeh and Barada springs in the capital’s countryside. But this sweetness is now absent from most areas of Damascus, with a population of 5.5 million, as complaints have increased about the unpleasant taste of the water and the increased cloudiness, which has pushed them to purchase water cartons from the market.

Saad, a resident from one of the capital’s neighborhoods, told Sada al-Sham: “It’s been years since we drank pleasant water, as [now] there is always a strange taste to it, in addition to the fact that its color is clouded white. We were boiling water, and then cooling it and placing it in the refrigerator to reduce this flavor a little,” the man said.

He added: “There are some who set up filters for this purpose, while others have gone to buy water, although they are few because this is expensive, as the price of one barrel is 1,000 Syrian pounds.”

This situation has worsened recently in terms of the water’s taste and turbidity, and so the old methods residents had been using were no longer viable, as they became forced to buy water from owners of tanks, according to Saad.

Abou Mohamad al-Midani, a Damascus resident, expressed his surprise at the “difference in the water situation between one district and another, as there are districts suffering from a deterioration in the water quality to the extent that it isn’t fit to drink, and others which are better to some extent, and a few others who find their water as sweet as we remember Damascus water being 20 or 25 years ago,” he explained.

He added: “The problem isn’t in the poor quality of the water but also the poor access to it, as we often need to operate a pump to fill the tanks on the roofs of our houses. But in many instances not even the pumps can withdraw the water.”

### Bigger risks

Complaints from residents have increased recently over the poor quality of water which has rendered it undrinkable for many people, as well as unequal distribution among districts and the weak pressure. But Damascenes have begun to doubt the source of their water after examining its strange characteristics.

Some have begun to fear that the water coming from the wells is not only calcareous but “polluted chemically and bacterially and that it is unfit to drink,” according to leaks from inside the drinking water and sanitation institute in Damascus, which is under the regime government’s authority.

Doctors warn of the danger of calcareous water due to its effects on kidney function or its connection to causing skin diseases in the event it is used for washing.

The activist Omar al-Shami told Sada al-Sham that the poor water situation is not limited to pumping calcareous water to millions of Damascus residents or mixing it with Al-Fijeh spring water in other districts. He explained there are also reports indicating that a number of Damascus wells could be bacterially polluted and that the amount of chlorine added is unable to purify it.

He said that the reasons for this pollution relate to runoff from agricultural fertilizer remnants into rivers and groundwater, while leather tanning workshops which produce a large amount of toxic substances, including lead, arsenic and heavy metals have contributed to the pollution of groundwater. This has been worsened by the mixing of sewage and water networks and groundwater, due to a lack of maintenance and their proximity to each other. All of this has created liver diseases and severe gastrointestinal infections, which have harmed residents, especially children and the elderly.

With the rise in complaints from residents about the situation, the head of the general institute for drinking water and sewage in the Damascus governorate and its countryside, Mohamad al-Shiyah, released a press statement that ended people’s hopes for a solution.

In it he said: “it is difficult to address the situation and there no use and no solution for it because there is nothing to help reduce the amount of lime in it [the water].” But he reassured residents that “the drinking water in terms of health effects has no problems” and that it is “within the approved Syrian standards, apart from the differences in its taste.”

25/10/2017 online at:

[http://syrianobserver.com/EN/Features/33431/Damascus\\_Water\\_Crisis\\_Deepens\\_Capital\\_Fears\\_Pollution\\_Drinking\\_Supply](http://syrianobserver.com/EN/Features/33431/Damascus_Water_Crisis_Deepens_Capital_Fears_Pollution_Drinking_Supply)

**Iranian, French water associations sign co-op MOU in water sector**

Iran Association of Water and Wastewater Experts (IAWWE) and L'Association Internationale de L'Eau (IWA) signed an agreement on the sidelines of the 13th Iran International Water and Wastewater Exhibition (Watex 2017) in Tehran, IRNA reported on Wednesday.

The agreement which focuses on cooperation on renovation, expertise, and development in water sector between the two sides was signed by IWA's representative Emilie Fillol and Qanbar-Ali Rajabi, the managing director of IAWWE.

As reported, the agreement also seeks to strengthen cooperation on international research projects as well as international water expositions in Iran and France.

18/10/2017 online at: <http://www.tehrantimes.com/news/417733/Iranian-French-water-associations-sign-co-op-MOU-in-water-sector>

### **Iran developing indigenous farming model to save on water**

The Iranian government is developing an indigenous farming and cultivation model that will suit the country's climate and resources, with the aim to save on water.

The agricultural sector is responsible for the greatest share, 86 percent, of water consumption in Iran.

This model is being developed by the Supreme Council on Water, which is headed by the country's first vice president and brings representatives from a multiplicity of ministries and organizations, Mohammad Ebrahimnia, the head of the Macro-Planning Office of the Water and Wastewater Department of the Ministry of Energy, told Trend October 18.

"This plan will hopefully come through by the end of the current year (Iranian year, to end March, 20, 2018). It takes into account the climatic features of the country and the resources," Ebrahimnia said.

He hoped that considering an existing common vibe to care for environment and water resources will eventually lead authorities to put Iran's water management on the right track.

"We are also pursuing many other policies to maximize water efficiency. Using modern irrigation systems and importing the latest technologies, reducing the average age of farmers, and encouraging greenhouse farming are on agenda."

Iran is located in one of the most water-stressed regions in the world. Average annual rainfall is around 250 millimeters per year, or almost one-fourth of average global precipitation. That is compounded by excessive and seemingly unrestrained consumption of the dwindling resource.

Water consumption rose 2.5 percent in the first half of the current fiscal year (started March 21) compared with the similar period in the last fiscal, Sattar Mahmoudi, the caretaker minister of energy, said in September.

19/10/2017 online at: <https://en.trend.az/iran/business/2810373.html>

## **Iran Pushing to Finalize New Water, Power Deals**

Iran is finalizing a flurry of new deals in the water and power sectors while efforts are underway to restore a large and shrunken lake in northwest Iran, one of the country's biggest environmental challenges in years, the caretaker energy minister said.

"Water and power industries are capital-intensive. About €10 billion (\$11.8 billion) in foreign finance agreements [for water and power projects] are being examined and finalized by the energy and economy ministries," Sattar Mahmoudi was also quoted as saying by ILNA on Saturday.

He expected the government to unveil some of the new investments in an official ceremony in the next few months.

The statements by the caretaker energy minister came ahead of a parliamentary meeting on Sunday to vote on Reza Ardakanian, the new nominee for the ministry.

In August, lawmakers approved 16 of President Hassan Rouhani's 17 picks for ministerial posts while Habibollah Bitaraf, the proposed energy minister, failed to get enough votes.

Mahmoudi added that the government attracted more than 4 trillion rials (about \$1 billion) in private finance for water and wastewater projects in the last four years.

According to government officials, Iran has also signed over \$10 billion worth of deals to expand or renovate electrical infrastructure since last year's lifting of international sanctions over Tehran's nuclear dispute.

The country's push in the power industry is also buoyed by the rapidly growing interest of foreign companies in Iran's renewable industry.

According to Iran's Renewable Energy and Energy Efficiency Organization, international investors have proposed \$4.1 billion worth of renewable power projects since last year's lifting of sanctions. They include a \$2.9-billion preliminary agreement with Norway's Saga Energy and a \$600-million contract with London-based Quercus to build solar plants in Iran.

### **--- Lake Urmia**

Mahmoudi pointed to efforts to revive Lake Urmia, once Iran's largest salt lake that dried up a few years back and has now reduced to a thin body of water.

"Overall, Lake Urmia has recovered from a steep downward spiral ... The lake's level has not receded from the previous month's level," Mahmoudi said, partly blaming low precipitation for the lake's slower-than-expected recovery.

"One problem is that the rainfall has dropped 38% in and around Lake Urmia," he said.

Experts hope the lake's restoration program will get a fresh impetus if Ardakanian, touted as environmentally conscious, becomes the next energy minister.

When Lake Urmia was full 20 years ago, it was estimated to contain around 30 billion cubic meters of water. At the worst point, it accounted for a mere 0.5 bcm of saltwater. The number now stands at around 2.5 bcm, according to a United Nations' report in March that also said the "deadly decline has been reversed and the amount of water now keeps increasing month by month".

A study published in the Journal of Great Lakes Research showed the lake's surface area in September 2014 was about 12% of its average size in the 1970s, a far bigger fall than previously realized, the Guardian reported in 2015.

29/10/2017 online at: <https://financialtribune.com/articles/energy/75160/iran-pushing-to-finalize-new-water-power-deals>

### **Iran's New Energy Minister Vows Action on Chronic Water Crisis**

Preserving water resources and reforming the national wastewater system amid a chronic water crisis are front and center to plans of Reza Ardakanian, Iran's new energy minister who boasts environmentally-friendly credentials.

Prior to being voted in as the next energy minister in President Hassan Rouhani's administration for the next four years, Ardakanian expressed concern and laid out his vision for the country's water and power industries on Sunday, the Energy Ministry's website reported.

"We will devise and implement a comprehensive national document on managing water resources in collaboration with all stakeholders and authorities," said Ardakanian, who holds a PhD in water resource management from McMaster University of Canada and also serves as a faculty member of Sharif University of Technology.

"We need to restore balance to underground water reserves and help curtail drawdown of underground waters by 8 billion cubic meters," he said.

Ardakanian, 59, seems to fit the bill to help tackle Iran's water woes, given his role in international water and power initiatives.

He is the founding director of the United Nations University Institute for Integrated Management of Material Fluxes and of Resources, known as UNU-FLORES. He has served as director of the UN-Water Decade Program on Capacity Development since 2007 and served as vice rector of UNU in Europe from 2009–11.

The minister also has been on the boards of various international program/organizations such as the UNESCO International Hydrological Program, the UNESCO Institute for Water Education, the International Hydropower Association and the UNU Institute for Environment and Human Security.

Iran must take meaningful steps toward preserving its precious water resources in the face of a long spell of drought and dwindling rainfall by recycling wastewaters, Ardakanian argued, adding that the productive use of wastewater resources is a vital element to that end.

"In today's world, 'wastewater' is losing its traditional sense and is increasingly referred to as 'water with different color' ... We need to look at wastewater as a new resource," he said.

According to Ardakanian, past efforts to manage and preserve water resources in the long run, including a program introduced in 2004 as part of the country's Fourth Five-Year Economic Development Plan, have been insufficient or poorly implemented.

#### Dam Construction Revisited

The minister voiced his intention to revisit an excessive and imprudent trend of dam construction in the past several decades.

Iran is reportedly the world's third biggest dam-builder after China and Turkey, but the unimpressive spot has come through years of costly trial and error in dam construction, hurting the nature and endangering wildlife.

"New dam projects, which are being designed or constructed, will be reassessed based on hydrological changes, environmental impacts and economic feasibility," he said.

According to media reports in July, Iran has over 170 dams, only 13% of which have a water level of 90-100% while nearly two-thirds are running at or below 40% capacity. The underwhelming numbers can be assigned to Iran's below-average rainfall and increasing temperature, but failing to take into account environmental factors has undeniably played a part.

He also pointed to plans to upgrade dilapidated irrigation systems in an agriculture sector that is responsible for more than 90% of Iran's annual water consumption.

"Over 20 million hectares (200 billion square meters) of agricultural land in 85 countries are irrigated by wastewater," he said, adding that plans are in place to expand the use of wastewater in agriculture in a joint effort with help from the Food and Agriculture Organization of the UN and World Health Organization.

#### Power Agenda

The minister signaled that his efforts in the power industry will be largely focused on meeting the development targets rather than bringing about a turnaround.

"Expanding renewable energy resources will be an important mission under the Sixth Five-Year Development Plan (2017-22)," he said. According to Ardakanian, Iran's power production capacity from renewables, including solar and wind, is planned to increase by more than 10 times from below 500 megawatts in five years with "4,000 MW to become operational by 2021", which marks the end of Rouhani's second and last term as president.

Total installed a power generating capacity of 77,000 MW, up nearly 8,000 MW from 2013. That breaks down into over 62,000 MW of fossil fuel plants, 12 MW of hydroelectric power stations and 1,000 MW of nuclear power capacity.

31/10/2017 online at: <http://www.me-metals.com/News/NewsDetails.aspx?NID=1488>

## **JICA to Help Reduce Water Loss in Isfahan**

Iran and Japan on Saturday signed a basic agreement to cut water loss in central Iran with an eye on reducing the wastage of dwindling water resources across the national supply system.

Signed by the National Water and Wastewater Engineering Company, Tehran Province Water and Wastewater Company and Japan International Cooperation Agency in Tehran in the weekend, the agreement is aimed at reducing the drainage of "non-revenue water"—water that is pumped and then lost or unaccounted for before reaching consumers, IRNA reported.

As per the agreement, the joint program will be piloted in the city of Khansar in the central Isfahan Province where water wastage is three times the average in major Iranian cities.

The average amount of non-revenue water in Iran's big cities is around 20% but stands at around 60% in Khansar, the report said, adding that the agreement comes on the back of three years of studies on water loss in Khansar by the Japanese agency.

In developing countries, roughly 45 million cubic meters of water are lost daily with an economic value of over \$3 billion per year.

A World Bank study puts the global estimate of physical water losses at 32 billion cubic meters each year, half of which occurs in developing countries. Water utilities suffer from the huge financial costs of treating and pumping water only to see it leak back into the ground and the lost revenues from water that could have otherwise been sold.

If the water losses in developing countries could be halved, the saved water would be enough to supply around 90 million people.

According to data by the Geological Survey & Mineral Explorations of Iran, some 37 million Iranians are living in water-stressed regions. It comes as per capita water use in metropolises such as Tehran and Isfahan exceeds 200 liters, whereas the global average is around 150 liters.

Located in one of the world's most water-stressed regions, Iran suffers from low rainfall and excessive consumption as well as high levels of water loss because of aging supply infrastructure and outdated irrigation methods.

Established in 1974, JICA is the primary Japanese governmental agency responsible for technical cooperation component of Japan's bilateral ODA (Japan's Official Development Assistance) program.

JICA is involved in broad-ranging projects in Iran's water and power industries. It is providing assistance to Iran with a focus on development of domestic industries, reduction of disparities between urban and rural areas, environmental preservation, water resource management and disaster management.

Shahin Pakrouh, a deputy at NWWEC, noted that the Japanese organization has engaged in training Iranian workforce on various water-related issues.

"Curtailling Khansar's non-revenue water is a national project. Plans are in place to indigenize the technology to help curb water in Isfahan and elsewhere," he said.

06/11/2017 online at: <https://financialtribune.com/articles/energy/75672/jica-to-help-reduce-water-loss-in-isfahan>

### **Israel pumps new water saving push, as Sea of Galilee dives to century low**

In 2009, in the midst of what was dubbed “the worst drought in 900 years,” the Water Authority embarked on a public awareness campaign to reduce the country’s water consumption. Some people expected it would be the authority’s last.

In the past decade, five massive desalination plants have come online, transforming salty seawater into 600 million cubic meters of drinkable water per year, enough to cover 70 percent of the water used by homes and cities across the country. It seemed those ubiquitous “every drop counts” public service announcements were a relic of the past.

Not so fast, said Uri Schor, the spokesperson for Israel’s Water Authority, who is in the midst of designing a large public awareness campaign for early 2018 to encourage people to save water in their homes.

“The fact [that desalination] came online so quickly is amazing,” said Schor. “This hasn’t happened anywhere else in the world.”

“But this has also made a small problem,” Schor added. “There’s no lack of water at home, so people don’t understand what’s happening outside. Outside, we are in a really serious drought. This has really affected natural water sources.”

The Water Authority warned earlier this month that the Sea of Galilee is at a dangerously low level and expected to reach “the lowest level ever recorded.” Northern Israel has a deficit of 2.5 billion cubic liters of water, compared to non-drought years, the equivalent of a million Olympic-size swimming pools. This is water that normally flows through Israel’s streams and underground water tables toward the Sea of Galilee and other water sources.

The north must receive at least 85 percent of the winter average rainfall this winter or the country can expect major streams and water sources to dry up, including the Banias River in the Golan Heights, something that has not occurred since meteorological record-keeping began in the region more than 100 years ago, said Schor. Last year, northern Israel received just 10% of the average winter rain.

He said meteorologists have predicted that the coming winter will again be extremely dry in the north of the country. Doron Markel, the director of the Sea of Galilee division at the Water Authority, warned that this was indicative of “a permanent situation of climate change,” and the country will need to adjust accordingly.

Hardest hit are the farmers, who are allocated a certain amount of water for the coming year and must plan their crops based on that water allocation. Over the past week, farmers protested against possible cuts in their water allowances due to the ongoing drought.

Which is why the Water Authority is again utilizing TV commercials and social media to remind people that desalination hasn't made water woes disappear.

"Every one of us can use water efficiently and avoid wasting, even if you don't lack water at home," said Schor. "As we waste less, we'll need to make less, and making water costs money."

Schor said it's been difficult for the Israeli public to internalize this message, as experts trumpeted that desalination had solved Israel's water crisis and the cost of water decreased by 35% over the past decade.

The Water Authority recommends using devices in homes that mix air with water coming out of the taps. This reduces the amount of water used but gives the same impression of a strong stream.

Previous water saving campaigns, including a NIS 5 million campaign with a TV announcement featuring some of Israel's biggest stars like Bar Refaeli and Ninet Tayeb, have helped contribute to an 18% reduction in home water use.

Municipalities replacing leaky pipes have also reduced municipal water loss by 9%.

Despite the successes, Schor wants to make sure that the Israeli public doesn't cease being conscious of the amount of water it's using.

"We can't get to a situation where we're using water just because," he said. "This needs to be our permanent way of life. Water mustn't be taken for granted."

18/10/2017 online at: <https://www.timesofisrael.com/israel-pumps-new-water-saving-push-as-sea-of-galilee-dives-to-century-low/>

### **Water as a basic human right within the Israeli-Palestinian conflict**

In the Middle East, water often crosses political borders; because water is a shared resource, its effective management demands cooperation among different users. In the absence of cooperation, conflict is likely. Indeed, conflict and cooperation over shared water has defined Israeli-Palestinian relations since 1967 when Israel gained full control over the Eastern and recharge zone of the western Mountain aquifer, as well as the southern Coastal aquifer. These resources, combined with water from the Sea of Galilee have provided about 60% of Israel's water consumption.<sup>1</sup> With the occupation of the West Bank and Gaza Strip in 1967, Israel placed restrictions on the drilling of new wells for the Palestinian population in the West Bank, and instead chose to supply water to Palestinian households through its national water company, Mekorot.<sup>2</sup>

The signing of the 1993 Declaration of Principles on Interim Self-Government Arrangements (Oslo I) and the 1995 Interim Agreement on the West Bank and Gaza Strip (Oslo II) between Israel and the Palestinian Liberation Organization offered an historic opportunity to move from conflict to cooperation over shared water resources. Unlike many other peace agreements, water was codified in the Oslo Accords, as it was understood that water sharing

was of critical importance for human security, economic development, and regional cooperation. Specifically, the Oslo Accords called for the creation of a Joint Water Committee (JWC) during an interim period before the final status negotiations, comprised of equal number of members from Israel and the Palestinian Authority, whose functions would include the coordinated management of water resources and water and sewage systems in the West Bank.<sup>3</sup> Oslo II, Article 40 on water and sewage recognized Palestinian water rights in the West Bank and the need to develop additional water supply. Oslo II also detailed specific water quantities to be allocated to the Palestinian population, mostly from the eastern Mountain aquifer in the West Bank.

Research on environmental peacebuilding has found that the inclusion of natural resources such as water in a peace agreement, combined with the creation of a joint management institution, can help build trust among former adversaries and provide a formal institutional structure for addressing water shortages.<sup>4</sup> Joint management institutions like the JWC can facilitate the sharing of information about water resources and encourage donor activity in the water sector to bolster the peace process. Both the US and European countries have supported collaborative projects to share data and undertake joint scientific research, alongside providing foreign assistance for water and sanitation projects in the Palestinian territories. The NGO sector has also mobilized to bring civil society actors together to deepen cooperation over transboundary water resources. In particular, Ecopeace Middle East (previously known as FOEME) has encouraged Palestinian, Israeli, and Jordanian community members along the Jordan River to work together on the rehabilitation of the Jordan River through their Good Water Neighbors Project and Young Water Trustees.<sup>5</sup>

Despite these activities by international actors to deepen water cooperation, many of the peace dividends from the Oslo Accords in the water sector have been unrealized for the Palestinian population. Israel still controls nearly 80% of the water reserves in the West Bank aquifers.<sup>6</sup> The complicated approval process for new projects in the West Bank has hampered cooperation: any new water project that affects Area C not only requires approval by the JWC but also by the Civil Administration that has frequently rejected Palestinian water supply projects.<sup>7</sup> More so, much needed wastewater treatment plants have seldom made it through the entire approval process. The JWC has also ceased to meet in its official capacity, as approvals for Palestinian water supply projects were delayed and other projects' approval were made conditional upon Palestinians accepting water projects for Israeli settlements in the occupied territories.<sup>8</sup>

Because water has had the same final status importance as Jerusalem, borders, and refugees, dealing with the water situation between Israel and Palestine has ultimately been held hostage to solving these broader and more entrenched political questions. Water continues to be securitized rather than considered a basic human right. As final status negotiations have stalled since 2000, so have negotiations over water. Yet the Palestinian populations in the West Bank and Gaza Strip are growing, and water demand is increasing. Water quality in the Gaza Strip has also deteriorated such that it is unsuitable for human consumption owing to over-extraction from the Coastal aquifer and lack of adequate sanitation systems.

Fifty years later, it is increasingly apparent that water needs to be delinked from security in order to address the human costs of lack of access to water and sanitation.<sup>9</sup> The provision of safe water and sanitation should be one of the greatest priorities for governments. The concept of water as a human right is central to the international community's commitment to the Sustainable Development Goals (SDGs) introduced in 2015.<sup>10</sup> SDG 6 calls for universal and equitable access to water and sanitation as well as improved quality and international water cooperation.

At the same time that there is a need for a concerted effort to jump-start the peace process between Israel and the Palestinian Authority, efforts to provide access to clean water and sanitation in accordance with SDG 6 should not be left for final status negotiations. A 2009 World Bank report on Palestinian water sector development concluded that "by regional standards, Palestinians have the lowest access to fresh water resources."<sup>11</sup> Populations in the West Bank and Gaza Strip face uncertain access to clean water and sanitation. Protracted conflict between Israel and Hamas (that has ruled Gaza since 2007) has led to a deterioration in Gaza's water supply. Israeli incursions into Gaza in the summer of 2014 destroyed already dilapidated water infrastructure, leaving hundreds of thousands of residents without access to water.<sup>12</sup> Although Israel unilaterally disengaged from Gaza in 2005, Israel still controls the movement of goods and people across borders, including supplies and technicians needed to maintain and repair water and sanitation services. In 2016, during a protracted heatwave, villages in the West Bank were also left without access to water.<sup>13</sup> In contrast, through the construction of a chain of desalination plants along the Mediterranean, approximately two-thirds of domestic water use now comes from desalinated water,<sup>14</sup> reducing Israel's need for groundwater resources as well as vulnerability to droughts and man-made climate change.<sup>15</sup>

Meeting SDG 6 and fostering a human right to water will require not only funding for water and sanitation technologies, but also prioritizing a human right to water in negotiations between Israel and the Palestinian Authority. In response to Gaza's drinking water crisis, international actors, including the European Union and UNICEF, have been involved in helping to devise water solutions that include the construction of a desalination plant for the Gaza Strip.<sup>16</sup>

Privileging water as a basic human right is essential for meeting basic needs, fostering economic livelihoods and building regional cooperation. Only by delinking water from the overarching political process between Israel and Palestine will it be possible to attain SDG 6 and attain the goal of water as a human right.

18/10/2017 online at:

[http://www.unc.edu/depts/diplomat/item/2017/0712/ca/weinthal\\_water.html](http://www.unc.edu/depts/diplomat/item/2017/0712/ca/weinthal_water.html)

### **Israel's 'Water Apartheid': Palestinians Struggle as Settlers Live in Luxury**

Israeli settlers in the West Bank consume seven times more water per person than Palestinians, according to Palestinian rights group Al Haq.

The disparity is so stark, Palestinian rights organizations have described the situation as “water apartheid.”

International groups such as Amnesty have also slammed Israel for “severely restricting Palestinians’ access to water across the West Bank and Gaza.”

As long as eight years ago, Amnesty issued a report calling on Israel to “end its discriminatory policies [and] immediately lift all the restrictions it imposes on Palestinians’ access to water.”

Yet, Al Jazeera reported on Saturday, the discrimination continues.

Last month, Palestinian farmers in the Jordan Valley village of Ein al-Beida held a peaceful protest after Israel cut their water supply for more than a week, the network indicated.

When the water was eventually returned it was less than half the previous amount. With the protest achieving little, villagers have turned to the mayor of nearby Tubas to appeal for water.

"They gave us the excuse that there's not enough water underground," farmer Mahdi Foqaha told Al Jazeera.

"In reality, Israel doesn't want us to live here any more ... We just want the Israelis to let us extract our own water."

The suspension of water supplies, villagers suggested, was enacted as collective punishment after a neighboring village made an illegal connection to the water supply.

After occupying the West Bank and Gaza in the 1967, Israel seized control of all water resources.

In the 50 years since, Palestinians in the West Bank have depended on the Israeli authorities to allocate them water supplies, with permits for water infrastructure rarely granted.

That provision, they suggest, is increasingly little. Instead, they are forced connect pipes to the water network illegally, risking their supply being cut off at any moment.

Meanwhile, settlers enjoy considerable resources, using an average 450 liters per day per household, according to Al Haq. This compares to just 60 liters on average for Palestinians.

To put that into context, the World Health Organization says that an individual needs 100 liters of water a day for food preparation and to maintain personal hygiene.

While Palestinians depend on rain-fed crops, Israeli settlers can produce irrigated crops which are on average 15 percent more profitable, according to EWASH.

Mekorot, Israel’s national water company, has been targeted by the international BDS campaign. The movement accuses Mekorot of being “responsible responsible for water rights violations and discrimination since the 1950s.”

It is this company that has exploited most of the Mountain Aquifer, the main source of underground water in Israel and the Occupied Palestinian Territories (OPT), to feed Israeli communities.

Palestinians have access to only 20 percent of the Aquifer water, while Mekorot has previously reduced water supply by as much as 50 percent in summer to feed increased demand in the settlements.

The result is that wells that used to feed Palestinian villages, including Ein al-Beida which protested last month, dried up long ago. Palestinians are now forced buy back water from Mekorot at a high cost.

In fact, it is not just Palestine that suffers from Israeli appropriation of water resources.

According to Al Haq, the water of the Jordan river should be shared between Jordan, Israel, Syria, Palestine and Lebanon, with Jordan taking the largest share. Instead, 50 percent is exploited by Israel.

Settlements were described by the U.N. in 2016 as ‘a flagrant violation of international law.’ However, they continue to grow with work on a new settlement beginning over the summer under the full approval of Israel's Prime Minister Benjamin Netanyahu.

As long as illegal settlements expand in occupied Palestinian territory, the water and other resources available for Palestinians will continue to diminish.

22/10/2017 online at: <https://www.albawaba.com/loop/israels-water-apartheid-palestinians-struggle-settlers-live-luxury-1037496>

### **Israel delivers demolition notices, cuts off water to homes in Silwan**

For the second time this week, Israeli authorities delivered demolition notices to Palestinians in the occupied East Jerusalem neighborhood of Silwan on Tuesday.

Official Palestinian Authority (PA)-owned Wafa news agency reported that staff from the Israel's Jerusalem Municipality, escorted by Israeli police, distributed demolition notices to several homes in Silwan under the pretext of being built without difficult-to-obtain Israeli construction permits.

According to Wafa, staff from the Israeli water company Gihon cut off the water supply to a number of homes in Silwan under the pretext of accumulated debts.

A spokesperson for the municipality was not immediately available for comment.

Israeli forces on Sunday delivered demolition notices to the neighborhood, and last week, forces demolished two homes in the area.

Israel rarely grants Palestinians permits to build in East Jerusalem, though the Jerusalem municipality has claimed that compared to the Jewish population, they receive a

disproportionately low number of permit applications from Palestinian communities, which also see high approval ratings.

For Jewish Israelis in occupied East Jerusalem's illegal settlements, the planning, marketing, development, and infrastructure are funded and executed by the Israeli government. By contrast, in Palestinian neighborhoods, all the burden falls on individual families to contend with a lengthy permit application that can last several years and cost tens of thousands of dollars.

According to Daniel Seidemann of the NGO Terrestrial Jerusalem, "Since 1967, the Government of Israel has directly engaged in the construction of 55,000 units for Israelis in East Jerusalem; in contrast, fewer than 600 units have been built for Palestinians in East Jerusalem, the last of which were built 40 years ago. So much for (Jerusalem Mayor Nir) Barkat's claim 'we build for everyone.'"

According to United Nations documentation, 202 Palestinians were displaced and 116 buildings have been demolished in East Jerusalem since the beginning of the year as of Oct. 9. Israeli demolitions of Palestinian homes in the occupied West Bank and East Jerusalem reached a record high in 2016.

24/10/2017 online at: <https://www.maannews.com/Content.aspx?id=779375>

### **Israel's water worries return after 4 years of drought**

It was a source of national pride – technology and discipline besting a crippling lack of water.

But four years of drought have overtaxed Israel's unmatched array of desalination and wastewater treatment plants, choking its most fertile regions and catching the government off-guard.

"No one imagined we would face a sequence of arid years like this, because it never happened before," said Uri Schor, spokesman for Israel's Water Authority.

The Sea of Galilee, technically a lake near the border with Syria, is forecast to hit its lowest level ever before winter rains come, despite the fact that pumping there was massively reduced. Underground aquifers, the other main freshwater source, are nearing levels that will turn them salty.

How to cope with the crisis is becoming an increasingly touchy subject in Israel. Proposed cuts to water use for the coming year, more than 50 percent in some areas, prompted vehement opposition from farmers, who already face tough restrictions and would have been the hardest hit. The government quickly backtracked.

In the Middle East, one of the most vulnerable regions to climate change, water is also the subject of wider tensions. Intense pressure on already scarce water resources could lead to an increase in migration and the risk of conflict, the World Bank has warned.

Syria and Jordan depend on some of the same water sources as Israel, which has added to tensions in the past. Palestinians have long complained of inadequate access to water, which is mostly under Israeli control in the West Bank. Israel has said it has supplied more water than required under interim peace deals.

Under discussion for a possible long-term solution to Israel's water problem is the construction of an additional desalination plant, an industry official said. A similar facility in Israel has cost more \$400 million.

Several new reservoirs to catch rain and flood waters could also relieve some pressure as a quick, \$60 million fix, the official said, asking to remain anonymous due to the political sensitivity of the subject.

Just a few years ago Israel, a country two-thirds arid, declared an end to the water shortages that hounded it for decades. A longstanding nationwide awareness campaign ceased and Israelis could take long showers and water their gardens.

There was even talk of exporting surplus water to its neighbors. This came as a result of a massive investment drive which saw Israel put NIS 15 billion (\$4.3 billion) in its national water grid and sewage treatment centers. The commercial sector invested another NIS 7 billion into the construction of five desalination plants.

Supply issues are being hardest felt among farmers in the northern tip of Israel, the region where Dubi Amitay, a fourth-generation farmer and president of the Israel Farmers Federation, lives.

Amitay said the shortage had made him decide to dry out 3,700 acres of land, which will take a toll on future harvests.

His home region of eastern Galilee, a lush swath of land between the coast and the Golan Heights, could lose up to NIS 500 million this season, he said.

The lack of reliable waters supply leaves farmers with deep uncertainty.

"Will we have water or not?" he wondered.

29/10/2017 online at: <https://www.ynetnews.com/articles/0,7340,L-5035121,00.html>

### **US investing USD 10 mln for clean water project in Gaza, West Bank**

The US is investing USD 10 million to improve access to clean agricultural water in Palestine, the State Department announced Tuesday.

The State Department spokesperson Heather Nauert said the Trump administration's investment was made over the weekend and is part of an ongoing project to improve access to clean water for daily consumption and agricultural use in the West Bank and Gaza.

The US is "trying to improve the daily lives of Palestinian people, and what we believe, could potentially enhance the prospects for long-lasting peace. The US government through USAID

announced a USD 10 million investment over the weekend to increase Palestinian access to that agricultural water," Nauert said.

Earlier in the year, Trump administration directed USD 20 million to go to wastewater projects in the West Bank and Gaza.

The funds were initially allocated for an economic aid package to Egypt, but were frozen in August then reportedly redirected towards West Bank initiatives.

18/10/2017 online at:

<http://www.kuna.net.kw/ArticleDetails.aspx?id=2648244&Language=en>

### **Experts look to Israel for new water solutions**

In 2012, the National Intelligence Council released a report on Global Water Security and the effects water problems, such as shortages, quality and floods, would have on countries "important to the United States."

Water issues would create a risk of instability and state failure and increase regional tension, the report found.

"Between now and 2040, fresh water availability will not keep up with demand absent more effective management of water resources," the report read. "Water problems will hinder the ability of key countries to produce food and generate energy, posing a risk to global food markets and hobbling economic growth."

When businessman Seth Siegel attended a think tank talk where he heard that report, he began researching methods to create water abundance.

"The solution to nearly every water scarcity problem that the world was facing or would soon be facing, had either been invented in Israel or was one in which Israel had played a big part in it," Siegel said.

Siegel was the Tuesday morning keynote speaker at the 38th Annual Oklahoma Governor's Water Conference and Research Symposium at the Embassy Suites Hotel and Conference Center in Norman. The theme of this year's conference was "Liquid Assets: The Value of Water Investment in Oklahoma."

Siegel is the author of the book, "Let there be Water: Israel's Solution for a Water-Starved World."

He has become a self-proclaimed "evangelist for telling an important water story," but said "most of what I have to say falls on deaf ears. We are sleepwalking into a crisis."

With a global water crisis pending, Siegel said the Sooner state is ahead of the curve with its 2060 initiative.

“Oklahoma has been thinking smart about water,” he said. “This is something very special, and we need to migrate these ideas around the country.”

In 2012, Oklahoma became the first to establish a statewide goal of consuming no more fresh water in 2060 than is consumed today.

That initiative was codified with the adoption of the Water for 2060 Act authorized by House Bill 3055.

“Most of the world thinks long-range planning is something two or three years out,” Siegel said.

Like Oklahoma, Israel thinks long-term. Even as a fledgling nation, Israel began thinking long-term about water and created what Siegel calls a “water-respecting culture.”

Two-thirds of Israel is desert and the other third is semi-arid, he said, but Israel is water abundant, Siegel said.

Israel got to that point through education, creating a water-aware culture, by implementing technology to save water and by requiring people to pay the true cost of water, from finding it to building the infrastructure, cleaning it and delivering it to homes and businesses.

Unlike many arid nations, people in Israel have access to water 24 hours a day, seven days a week and share that water with other nations.

“Israel made the decision early on that the totality of the water would be the property of the people and managed by the government but not by politicians,” Siegel said.

To protect the water supply, Israel made plans in advance and, even before computers, started collecting massive amounts of data.

“They didn’t even know exactly what they were going to do with these mountains of data,” he said.

They focused on infrastructure, keeping water loss to 9 percent nationally and with their big water lines losing only 3 percent. Israel’s first line of defense is to preserve what they have.

“Water is not just water, water is also a bedrock of society, a bedrock of economy,” Siegel said.

Israel started with a vast consumer education campaign and used celebrities to advertise the need to conserve. As a result, water consumption dropped by 9 percent.

That number sounds impressive and is significant, but the next year they switched to real pricing with the public, not the government paying the full price of the water.

“Water in Israel is totally unsubsidized,” Siegel said. “Every usage is charged for at the full and real prices.”

When that real pricing rolled out, consumption dropped by 18 percent, despite that people thought they were already conserving water. People fixed their broken water pipes and found ways to increase conservation.

Farmers had an additional four years to phase into the higher water prices but immediately began looking for alternative technology to get the biggest bang for their buck, he said.

“With focus and desire you can develop all kinds of stuff,” he said. “It’s not a surprise that drip irrigation was invented in Israel. This is a transformational technology.”

Drip irrigation is not popular in Oklahoma, he said, but drip prevents the loss of water by evaporation by putting water directly to the roots.

While the Israelis use natural breeding and plants are not genetically modified, they have come up with things like a tomato with short roots and almost no leaves and wheat with a short stalk that saves water.

“In 1952 Israel was four years old, and in 1952 Israel had all the water it needed” but looked long-term and decided to capture 100 percent of its sewage and treat it to a high level for reuse watering crops. To do this, Israel spent 30 years building parallel infrastructure to transfer the reuse to crops.

Israel has also led the way in desalination, he said. Siegel said while Oklahoma doesn’t have seawater, it can de-salt its brackish water.

These technological advances were created through partnerships between academia, government, business and agriculture working together.

“I think that culture is the most important determinant,” he said.

Siegel said before Oklahomans think it can’t be done, that their our culture of abundant water use can’t be changed, they should remember the days when people smoked at work, smoked on airplanes and in restaurants and other places where we now can’t imagine allowing smoking.

There has been a major culture change in how we view smoking, he said, and that same culture change in how we view water can be brought to Oklahoma and the nation.

“We need to get this right for our children,” Siegel said. “We need to get this right for the world. There are solutions ahead that everyone can adopt. “

The water symposium continues today at the Embassy Suites, Norman.

31/10/2017 online at: [http://www.normantranscript.com/news/government/experts-look-to-israel-for-new-water-solutions/article\\_9fa21bd4-6b9d-5fe6-98d6-8b768bbd2cff.html](http://www.normantranscript.com/news/government/experts-look-to-israel-for-new-water-solutions/article_9fa21bd4-6b9d-5fe6-98d6-8b768bbd2cff.html)

**Israeli Drinking Water at Risk if Pipeline for Natgas By-product Given the Go-ahead**

The government may approve a route for a pipeline to transport a substance that could endanger wells that supply drinking water. The material, condensate, is a by-product of natural-gas production that is an environmental hazard because it emits toxic substances.

The proposed route for the pipeline sees it starting at Dor Beach, passing through Yokne'am and ending at the oil refineries in Haifa. If the Health Ministry and the Infrastructure, Energy and Water Ministry approve the pipeline before new sites for water wells are identified, drinking-water regulations would be violated.

Another option being examined is to stream the substance through the fuel line of the Eilat-Ashkelon pipeline that reaches the Haifa area.

It took years for the state to craft the approved master plan for the facilities that handle the natural gas from the Leviathan field and transport it and its by-products overland. But despite the lengthy planning process, the proximity of the pipeline to drinking-water wells was not taken into consideration.

The existing wells in the region supply drinking water to area residents, and the proposed route runs through an area meant to protect the water and where new fuel infrastructure must be banned. The region already has a fuel pipeline, but it does not pose a risk to the drinking water.

Changing the route of the condensate pipeline now would require new planning procedures that would delay the streaming of gas from Leviathan, which is meant to start in less than two years. The gas cannot be extracted until a solution for the condensate is found.

In recent months officials from the health and infrastructure ministries have met a number of times in an effort to find a solution. One proposal is to approve the pipeline route and dig wells for water elsewhere, but that would still result in a violation of water regulations for a year or two, because it takes time to drill wells. Another suggestion is to improve the pipeline's protective measures to reduce the risk to the wells.

"We will also reinforce the existing fuel line," said a source at the Infrastructure Ministry. "We can improve the existing situation, thereby explaining the approval for a line with the potential to pollute in the protected radius."

The Health Ministry says condensate has a high risk for polluting. Moreover, the wells near Yokne'am are in a sensitive area; they provide all the freshwater for Yokne'am and the surrounding communities.

The residents and local authorities are strongly opposed to the laying of the condensate pipe. This opposition has increased the pressure on the government to examine the option of streaming the condensate through an existing pipeline that belongs to the Eilat-Ashkelon Pipeline Company. For its part, the Health Ministry said that it "operates in accordance with the law and regulations." It said the ministry "insists that any solution achieved will protect public health."

The Infrastructure Ministry said the route of the condensate pipeline had not been changed, and that alternatives for moving the wells were being examined.

01/11/2017 online at: <https://www.haaretz.com/israel-news/.premium-1.820532>

### **Wisconsin, Israel to collaborate on water research**

The Water Council of Wisconsin and the Zuckerberg Institute for Water Research at Ben-Gurion University of the Negev have signed an accord to increase collaboration and research in water related issues between the midwestern US state and Israel as a first step to setting up an arm of Wisconsin's National Science Foundation center in Israel.

The agreement calls for collaboration on water-related applied research that aims to introduce new technologies globally through Wisconsin's National Science Foundation sponsored Industry/University Cooperative Research Center (I/UCRC) for Water Equipment and Policy (WEP). The foundation is an independent federal agency that aims to promote science and advance health and welfare.

The Water Council also signed an accord with the Israel Innovation Authority, a public organization responsible for Israel's innovation policy, to develop a new research partnership in which Israeli and Wisconsin water technology startup companies will collaborate on piloting and developing new applications for the Milwaukee Metropolitan Sewerage District and other Wisconsin water utilities.

The accords were signed during Wisconsin Governor Scott Walker's trade mission to Israel this week.

"These partnerships will strengthen the sector in both countries, and are expected to open new markets to water technology companies in Wisconsin and Israel," said Walker in a statement released by Ben-Gurion University.

The Zuckerberg Institute conducts interdisciplinary research and graduate education in water sciences.

The WEP Center is a collaborative non-profit organization led by University of Wisconsin-Milwaukee in partnership with Marquette University, and with members including corporations and government agencies.

The agreements will result in "bringing together our two world water technology hubs," said Dean Amhaus, president and CEO of The Water Council. "The partnership with Ben-Gurion University lays the foundation for creating the first I/UCRC presence for the National Science Foundation in Israel and fosters greater business and academic collaboration. The agreement with the Israel Innovation Authority offers tangible support for Israeli businesses seeking to conduct pilots with Wisconsin water utilities."

The partnership with the Zuckerberg Institute will enable Wisconsin universities and US companies to access research being conducted in Israel and connect with some of Israel's

innovative water technology companies. Likewise, Israeli researchers would get access to research being conducted at the University of Wisconsin-Milwaukee and Marquette.

“While we share different water challenges, we look forward to complementing each other in addressing water quality issues,” said Zuckerberg Institute director Prof. Noam Weisbrod in a statement.

Under the agreement with the Israel Innovation Authority, The Water Council will provide \$100,000 in research funds, provided by the Milwaukee Metropolitan Sewerage District, which will be matched by the authority.

The funds will be used to allow Israeli companies to pilot technologies at Wisconsin utilities. These projects may include cybersecurity technologies, data analytics for utility applications and other water technologies or applications. The agreement calls for Israeli startups to come to the US to commercialize their products for the North American market, the statement said.

The Milwaukee Metropolitan Sewerage District will provide the facilities for those companies to develop their technology in a pilot program, and will have some preferential access to that technology if the pilot is successful, the statement said.

The Wisconsin governor led a 16-member Wisconsin delegation on a trip to boost exports, increase foreign investment in Wisconsin and develop new partnerships between the state and Israel.

02/11/2017 online at: <https://www.timesofisrael.com/wisconsin-israel-to-collaborate-on-water-research/>

### **Israeli settlers destroy water pipes used by Palestinians in Jordan Valley**

Israeli settlers destroyed on Monday water pipes used by Palestinians in the village of Sakout, in the northern Jordan Valley in the occupied West Bank, to irrigate their land, according to a local official.

Aref Daraghmeh, who monitors settlement activities in the area, said settlers destroyed the water pipe that was recently installed by Palestinian farmers in the area to irrigate their crops.

The village is located in Area C of the West Bank, which is under full Israeli military control and where the Palestinian government has no jurisdiction.

The Palestinian residents in these areas are often harassed and attacked by Israeli settlers who often carry out their acts in the presence of Israeli military forces.

Israel wants to push the Palestinians out of the Jordan Valley using all means and replace them by Jewish settlers.

06/11/2017 online at: <http://english.wafa.ps/page.aspx?id=8hexdqa92369532156a8hexdq>

### **Extremist settlers seize water pipe in Northern Jordan Valley**

Extremist Jewish settlers, early Monday seized a water pipe used by Palestinian residents in al-Sakut area in Northern Jordan Valley in the West Bank.

The Palestinian official in charge of the settlement file in the Jordan Valley, Aref Daraghmeh said in a statement that Jewish settlers seized the water pipe in al-Sakut area, where the Palestinians began lately to plant and which is also targeted by the Israeli occupation and Jewish settlers.

06/11/2017 online at:

[http://petra.gov.jo/Public\\_News/Nws\\_NewsDetails.aspx?Site\\_Id=1&lang=2&NewsID=325956&CatID=-1](http://petra.gov.jo/Public_News/Nws_NewsDetails.aspx?Site_Id=1&lang=2&NewsID=325956&CatID=-1)

### **Is Jordan planning major change in Red Sea-Dead Sea project?**

The much-talked-about Red Sea-Dead Sea Water Conveyance Project might be losing its regional components. Two independent sources have told Al-Monitor that this comes as a result of continued Israeli-Jordanian tensions.

A source in the lead technical company that is carrying out the Red-Dead study told Al-Monitor on condition of anonymity that the company has been instructed by Jordan's Minister of Water and Irrigation Hazim el-Nasser to revise the study and make it a Jordan-only project.

Jordan, Palestine and Israel signed on Dec. 9, 2013, a regional cooperation memorandum of understanding at World Bank headquarters. The agreement — signed by Palestinian Minister of Water and Irrigation Shaddad Attili and his Israeli counterpart Silvan Shalom along with Nasser — supports the management of scarce water resources in the region and the joint development and use of new water resources through seawater desalination.

The memorandum was followed up in February 2015 with a \$900 million water distribution bilateral agreement between Jordan and Israel, which would benefit Palestinians as well. The agreement calls for Jordan to sell to Israel the desalinated water from the Red Sea and in return Israel would provide Jordan and Palestine with potable water. The Economist magazine's intelligence unit predicted in March 2015 that progress on this project "will be vulnerable to political sensitivities at times." The agreement is now in the process of implementation.

After a shooting incident in Amman on July 24 by an Israeli Embassy security officer that led to the death of two Jordanians, Israel's ambassador and staff left Jordan and the Israeli Embassy in Amman has been closed. Jordan has demanded guarantees that the Israeli security officer be tried for his actions against Jordanians and an apology. Israel has stonewalled these demands and as a result, relations with Jordan have been described by analysts as a cold peace.

An Oct. 17 press report from a Jordanian website that mentioned the switch to a Jordan-only option regarding the project went without comment from any Jordanian government official.

Jordan Valley Authority Secretary-General Saad Abu Hammour, who heads the Jordanian committee responsible for the Red Sea-Dead Sea project, was surprised to hear the news of the change from Al-Monitor. “As far as I know, there has been no change to the regional aspect of this project,” he said over the phone. “I am concerned that if this happens we might lose some of the funding for it.”

Repeated attempts by Al-Monitor to get comment from Nasser and Water Ministry spokesman Omar Salameh produced no response. The Palestinian Water Authority minister, Mazin Ghnaim, and authority spokeswoman Abeer Awwad, who were also approached for comment by Al-Monitor, didn’t return calls. The US Embassy spokesman in Amman, Eric Barbee, also refused to make a comment. The United States has pledged \$100 million to support the Red Sea-Dead Sea project.

Alexander McPhail, the lead World Bank officer working on the Red Sea-Dead Sea project, told Al-Monitor that the institution has issued a \$100 million guarantee instrument. “If the Jordanians send us a letter saying that the project’s aims and partners are changed, we are willing to entertain such a request,” he said.

The “Jordan-only option” was mentioned in a World Bank March 2014 study on alternatives by three academics, John Anthony Allan of King’s College London and the School of Oriental and African Studies, Abdallah I. Husein Malkawi of the Jordan University of Science and Technology and Yacov Tsur of The Hebrew University of Jerusalem. In that study, the Jordan-only option is explained as follows, and refers to water volumes in million cubic meters (MCM):

“This alternative would be a ‘Jordan only’ initiative and would not involve Israel or the Palestinian Authority. It would consist of 5 phases and ultimately would aim to abstract 2,150 MCM/year [1.7 million acre-feet] of seawater from the Gulf of Aqaba, partially desalinate this volume to produce 80 MCM/year of potable water in the Aqaba area, and then convey the remaining seawater and brine by pipeline for desalination at the Dead Sea in order to produce a further 850 MCM/year of potable water. A total of up to 1,220 MCM/year would be discharged to the Dead Sea. Phase I, possibly for completion in 2018, would produce 250 MCM/year of desalinated water and 190 MCM/year of Dead Sea discharge.”

Sufyan Tell, one of the main Jordanian individual opponents to the Red Sea-Dead Sea project, told Al-Monitor that four different pro-Israeli project ideas have been floating for years. “In addition to the water wells in Jordanian territory that Israel continues to gain access to even after the Wadi Araba Agreement,” he said, “I have documented in my recent book four water channel project options, all of which give much more benefit to the Israelis than to Jordanians.”

EcoPeace, a nongovernmental environmental organization with offices in Palestine, Israel and Jordan, has been the leading regional group opposed to the Red Sea-Dead Sea project. The organization issued a press release Dec. 1, 2015, opposing all aspects of the project. “As EcoPeace has said before, our governments need to recognize that the ‘Red Dead Canal’ project, whether it be Phase I, or otherwise, is not environmentally nor economically sound,

and any attempt to connect the subject of the Dead Sea are only doing damage to other sensible projects of water exchange.”

While all parties agree that the dangerous decline of water levels in the Dead Sea must be addressed, the current efforts to use a canal from the Red Sea require a more comprehensive holistic approach that takes into consideration the opinions of all parties involved and ensures that such mega projects don't do more harm than good.

19/10/2017 online at: <https://www.al-monitor.com/pulse/originals/2017/10/red-sea-dead-sea-project-jordan-option-israel.html>

### **Jordan water crisis worsens as Mideast tensions slow action**

From a hillside in northern Jordan, the Yarmouk River is barely visible in the steep valley below, reduced from a once important water source to a sluggish trickle overgrown with vegetation. Jordan's reservoirs are only one-fifth full, a record low, and vital winter rains are becoming more erratic.

Jordanians don't need scientists to tell them that they live in one of the world's driest countries in the centre of the planet's most water-poor region.

But recent studies suggest the kingdom, a Western ally and refugee host nation with a growing population, is being hit particularly hard by climate change, getting hotter and drier than previously anticipated. One forecast predicts as much as 30 per cent less rain by 2100.

“We are really in trouble if we don't take action in time,” said Ali Subah, a senior Water Ministry official.

But addressing the problem would require cross-border co-operation, a commodity as scarce as water in the Jordan River basin shared by Jordan, Israel, the Palestinians, Syria and Lebanon.

Jordan's flagship Red Sea desalination project, which includes a water trade with Israel, has faced repeated delays, most recently because of a diplomatic crisis that led to a scaling back of cross-border contacts since the summer.

A master plan by the regional advocacy group EcoPeace that seeks to transform the Jordan River valley into an economically vibrant green oasis by 2050 is based, in part, on a state of Palestine being established on Israeli-occupied lands. Palestinian independence remains distant, and Israeli Prime Minister Benjamin Netanyahu recently asserted that Israel will never leave the stretch of the Jordan Valley in the occupied West Bank.

Warning signs abound of what a failure to act looks like.

The Dead Sea and Jordan River, global treasures with religious significance as the cradle of Christianity, have been devastated by dropping water levels due to decades of water diversion to urban areas. Some experts suggest civil war in neighbouring Syria, which led to a large

influx of refugees to Jordan and other neighbouring countries, may have been triggered in part and indirectly by a mismanaged drought.

Munqeth Mehyar, the president of EcoPeace, said the growing water scarcity urgently requires co-operation.

“People need to be aware of their water situation, and try to compromise between their water reality and their nationalistic politics,” he said at his group’s lush, formerly arid 270-hectare (675-acre) reserve in the Jordan Valley, a witness to nature’s power to bounce back.

Stanford University researchers say that in the absence of international climate policy action, the kingdom would have 30 per cent less rainfall by 2100. Annual average temperatures would increase by 4.5 degrees Celsius (8.1 degrees Fahrenheit) and the number and duration of droughts would double, compared to the 1981-2010 period.

Water flows to Jordan from the Yarmouk River, which originates in Syria, would remain low due to droughts and diversion, regardless of when the civil war ends.

The results, published in the journal *Science Advances* and based on improved data analysis tools, suggest the impact of climate change is likely to be more severe than anticipated, said Steven Gorelick, head of the university’s internationally supported Jordan Water Project.

Another study found that man-made climate change was a major force behind an extreme drought in the area in early 2014, said co-author Rachael McDonnell of the International Center for Biosaline Agriculture in Dubai.

“The findings are more severe than anticipated and more imminent,” she said.

The World Bank named Jordan, Iraq, Lebanon, Morocco and Syria as the countries in the Middle East and North Africa that will experience significantly increased water stress driven by climate change. The bank’s report in August described the region as the “global hotspot of unsustainable water use.”

Israel is on the road to resolving its water scarcity, producing close to 75 per cent of water for domestic use in desalination plants and recycling more than half of its waste water for agricultural use, said Yacov Tsur, a professor of environmental economics at the Hebrew University of Jerusalem.

Israel is being aided by technological advances, easy access to sea water and a strong economy that can afford large-scale projects, he said.

Jordan, which pulls 160 per cent more water from the ground than nature puts in, views desalination as the main answer.

A Jordan-only option would be costly. Jordan’s main population centre is about 300 kilometres (190 miles) from the only coastline, making it prohibitively expensive to deliver desalinated Red Sea water to the capital, Amman.

In recent years, a water trade plan was developed to get around high transport costs.

Jordan would desalinate Red Sea water, sell some to nearby southern Israel and pump the brine into the Dead Sea to raise water levels there. Separately, water from northern Israel would be sold to nearby northern Jordan and to Palestinian communities.

Israel has a strategic interest in the stability of security ally Jordan, a land buffer against the region's turmoil.

But the Red Sea-Dead Sea project has hit snags, in part over funding, and Jordan still hasn't approached five short-listed consortiums to submit their bids.

The ongoing diplomatic crisis, triggered by the fatal shooting of two Jordanians by an Israeli Embassy guard in Amman in July, also contributed to delays by reducing cross-border contacts, said Subah, the Water Ministry official.

He said Jordan remains committed to the regional project but will also look at fallback options. "The Jordanian solution for water in the future is desalination," he said. "If it's regional, if it's on our own, we will go in this direction."

Some say the government's focus on desalination is linked, in part, to reluctance to implement politically painful conservation measures.

For example, more than 50 per cent of Jordan's water is used for agriculture which produces only a small share of the local food supply.

Water for irrigation remains heavily subsidized, encouraging waste and the planting of water-intensive crops such as bananas and tomatoes.

About half the water supply is lost from the network, most of it due to misuse or theft.

The government has cracked down on illegal water use, announced a slight price increase and plans to ramp up waste water treatment for use in agriculture as budgets permit.

But there are fears that draconian reforms could lead to instability, said Hussam Hussein, a water expert at the American University of Beirut.

"This would not be popular at all," he said. "That's why, from a political perspective, it's easier for the government to increase the supply and maintain the status quo."

At EcoPeace, Jordanian, Israeli and Palestinian activists try not to lose hope, despite what Israeli co-director Gidon Bromberg acknowledged to be "enormous" political obstacles.

The group is floating a new swap idea, in addition to the Red-Dead project, in which Jordan would sell solar energy to Israel and the Palestinian self-rule government in exchange for water.

Separately, the group's master plan outlines 127 projects with an investment value of \$4.6 billion to help rehabilitate the Jordan River and the Dead Sea and grow the Jordan Valley's economy almost 20-fold by 2050. The group recently identified 13 projects as doable now.

In a setback, the diplomatic crisis derailed a conference on the water-energy swap idea and a trilateral official meeting on how to move forward with the 13 projects.

Bromberg remains optimistic.

He said progress will be made once all involved realize that failure to respond to the water and environmental crises poses a risk to their national security.

“Where national security interests are clarified, they trump,” he said.

31/10/2017 online at: <http://nationalpost.com/pmn/news-pmn/jordan-water-crisis-worsens-as-mideast-tensions-slow-action>

### **Jordan suffers from drought**

The Yarmuk River in the north of Jordan is barely visible among the dense grass. Once upon a time it was an important source of fresh water. Now from her there was only a small stream. Reservoirs of the country are filled by 20%. This is a record low.

And in the winter rainy season there is less rainfall. Recent studies show that in Jordan it is getting hotter and drier. This is despite the fact that previously scientists did not expect such large-scale changes. If the trend continues, then by 2100 the rains here will drop by almost a third less.

Jordan uses 160% more water than nature returns to the earth. Today, many believe that the only way to solve the problem of shortage is desalination. However, even this will not be easy.

Many projects depend on the cooperation of Jordan, Israel, Palestine, Syria and Lebanon, as they divide water resources. But the unstable situation in the region hinders. Experts warn that in the coming years, Iran, Lebanon, Morocco and Syria will also face severe water shortages.

03/11/2017 online at: <https://earth-chronicles.com/natural-catastrophe/jordan-suffers-from-drought.html>

### **Saudi Aramco participates in 5th Water Arabia Conference**

Saudi Aramco is participating as the Diamond Sponsor at the 5th Water Arabia Conference which began here today under the title "Sustaining Water Resources through Innovative and Reliable Water and Wastewater Treatment Technologies", and last for three days at the Meridian Hotel in Al Khobar.

In an opening speech, Saudi Aramco's Vice President for Engineering Services Eng. Abdullah Al-Baiz spoke about the company's leading role in using new technologies for water treatment and desalination.

He pointed out to Saudi Aramco's experience in water conservation and rationalization, citing that it seeks to meet the requirements for future generations.

He added that the industrial sector is required to set plans for water conservation and strategic implementation in order to meet the economic and population growth in the Kingdom, stressing the keenness of Saudi Aramco to participate in this conference in line with its strategies in creating solutions that promote the rationalization of water consumption, contributing to the conservation of precious groundwater, as well as the importance of the Conference in addressing the water challenges facing the Kingdom which is located in one of the driest areas in the world.

The Conference stresses the urgent need to raise awareness about water scarcity in the region and that all members of society should be involved in rationalizing water consumption at home, work and in our communities.

The conference discusses several topics, including: water treatment, options of sustainable treatment for wastewater, and water supply management policy in the Kingdom.

The conference brings together researchers, business leaders, investors, contractors, suppliers, manufacturers and key decision makers interested in environmental and water issues from inside and outside the Kingdom in addition to the participation of a number of specialized companies from various governmental and private sectors.

It will also host several technical workshops provided by Saudi Aramco. The exhibition being held on the fringes of the conference includes various companies displaying the latest technologies used in the field of water treatment and desalination.

18/10/2017 online at: <http://www.spa.gov.sa/viewfullstory.php?lang=en&newsid=1678730>

### **Saudi Arabia poisoning Yemen's water by biological weapons – report**

Yemeni Armed Forces Spokesman Brigadier General Sharaf Qaleb Luqman dismissed speculations that contagious diseases like cholera are the result of sanctions and lack of hygiene in his country, and said Saudi Arabia is using biological weapons to spread such diseases among people.

“Poisonous gases were spread in the sky after the US, Saudi and Israeli fighter jets’ direct airstrikes and they came down to the ground with the rain and penetrated and contaminated our underground waters,” Luqman said on Saturday.

He added that after the latest airstrike using the banned gases, symptoms of cholera were seen in the Yemeni children.

“Therefore, it was a biological war as Saudi Arabia has already used all types of banned weapons against us,” Luqman said.

Saudi Arabia has been striking Yemen since March 2015 to restore power to fugitive president Mansour Hadi, a close ally of Riyadh. The Saudi-led aggression has so far killed at least 15,000 Yemenis, including hundreds of women and children.

Despite Riyadh's claims that it is bombing the positions of the Ansarullah fighters, Saudi bombers are flattening residential areas and civilian infrastructures.

According to several reports, the Saudi-led air campaign against Yemen has driven the impoverished country towards humanitarian disaster, as Saudi Arabia's deadly campaign prevented the patients from travelling abroad for treatment and blocked the entry of medicine into the war-torn country.

The cholera outbreak in Yemen which began in April, has also claimed 2,100 lives and has infected 700,000, as the nation has been suffering from what the World Health Organization (WHO) describes as the "largest epidemic in the world" amid a non-stop bombing campaign led by Saudi Arabia. Also Riyadh's deadly campaign prevented the patients from traveling abroad for treatment and blocked the entry of medicine into the war-torn country.

According to reports, the cholera epidemic in Yemen, which is the subject of a Saudi Arabian war and total embargo, is the largest recorded in modern history.

29/10/2017 online at: <https://southfront.org/saudi-arabia-poisoning-yemens-water-biological-weapons-report/>

### **Mega Reservoirs Project second phase 'to boost Qatar's water security'**

The second stage of the 'Water Security Mega Reservoirs Project' will soon begin as part of Qatar's plan to achieve water security, Mohamed Tahir Jamil, projects engineer, told Qatar Urdu Radio's live show Haqeeqat yesterday.

"The crisis has had no impact on mega projects of Qatar," he asserted while explaining that the demand for water in Qatar has grown steadily with increasing population.

"It is estimated that the demand for water is going to double by 2022," Jamil said, adding that Qatar is the first country to work on mega water reservoir projects of this kind.

In a major step towards achieving water security, the Qatar General Electricity and Water Corporation (Kahramaa) is building five primary reservoir and pumping stations.

The first phase of the project, will deliver storage capacity of about 2,300mn gallons of water in 24 huge concrete reservoirs and some 480km of buried ductile iron pipelines with diameter up to 1.6m. Second stage of the project will include construction of additional pipelines and 16 new reservoirs within the five mega sites to achieve an ultimate total storage capacity of about 3,800mn gallons of water, Jamil added.

Haqeeqat, which aims to engage and interact with the large South Asian expatriate community in Qatar, is a joint venture of Gulf Times and Qatar Media Corporation Urdu Radio. It is broadcast from Sunday to Thursday on FM107.

19/10/2017 online at: <http://www.gulf-times.com/story/567949/Mega-Reservoirs-Project-second-phase-to-boost-Qata>

### **Kabil opens factory of water treatment devices**

Trade and Industry Minister Tarek Kabil on Tuesday inaugurated new expansions at Aqua Chiara Egypt which is specialized in manufacturing water treatment devices.

The new expansions were carried out with total investments of 150 million Egyptian pounds and are expected to generate annual sales of 160 million pounds and hire 500 workers.

About 50 percent of its production will be allocated for exports.

The minister also inspected the factory of Unionaire Group, which is built on 10,000 square meters with Egyptian-Saudi investments worth about 1 billion pounds.

The factory generates sales worth 1.950 billion pounds and 45 billion worth of its annual production will be exported.

It hires 5,000 workers.

17/10/2017 online at: <https://www.egypttoday.com/Article/3/28182/Kabil-opens-factory-of-water-treatment-devices>

### **Ethiopian, Sudanese, Egyptian water ministers discuss on Ethiopia's grand dam**

Ministers of Water and Irrigation of Ethiopia, Sudan and Egypt on Wednesday discussed on ways to continue the two commissioned studies on the Grand Ethiopian Renaissance Dam (GERD), which are not progressing at the required level.

Egyptian Irrigation Minister, Mohamed Abdel-Aty, Sudanese Minister of Water Resources, Irrigation and Electricity Affairs, Muataz Musa, and Ethiopian Minister of Water, Irrigation and Electricity, Sileshi Bekele, have on Tuesday visited the dam's construction site in Ethiopia's Benishangul-Gumuz regional state on the Blue Nile River, located some 40km east of Ethiopia's neighboring country Sudan.

Since the commencement of the construction of the dam, the three countries agreed to conduct an assessment by an International Panel of Experts (IPoE) so as to build trust among Ethiopian and the two lower riparian counties.

After the assessment, the Panel of Experts recommended studies to be conducted on filling and operation of the dam's reservoir, including its impact on the lower riparian countries.

Following the recommendation of the IPoE, the three countries hired two French firms, Artelia and BRLi, to conduct two studies on the dam at a cost of 4.5 million Euros in September 2016. The progress of the two studies, however, has not met expectation.

The three ministers, during their discussion in Ethiopia's capital Addis Ababa on Wednesday, have discussed on ways to solve differences related to technical studies of the dam, which will be Africa's largest hydroelectric dam upon completion with a total volume of 74,000 million cubic meters.

Bekele, who affirmed Tuesday's visit as an impetus for further discussions, indicated that the difference related to the construction of the dam could be resolved "if it is perceived rightly and regardless of political and other issues."

Bekele also stressed the need for cooperation in the filling and operation of the dam as one of the 10 principles that the heads of the three countries agreed in March 2015 in Khartoum.

Abdel Aty, who expressed his country's disappointment at the delay of the work of the joint study scheduled to start last February, indicated that Egypt was "very concerned with the delays in the joint studies recommended by the International Panel of Experts (IPOE)."

Abdel Aty, who recalled the contract that was signed with the consultancy firm back in September 2016 to commence the studies on February 15 this year, stressed that the situation is critical considering the inability to approve the Draft Inception Report so far.

Musa on his part said that the Nile River should be the foundation of cooperation and development between the three countries, adding a consensus needs to be reached regarding the preliminary report.

According to the Ethiopian Water, Irrigation and Electricity ministry, the construction of the dam has presently reached 60 percent completion.

19/10/2017 online at: [http://news.xinhuanet.com/english/2017-10/19/c\\_136689936.htm](http://news.xinhuanet.com/english/2017-10/19/c_136689936.htm)

### **Hydro-economics: Egypt, Ethiopia and the Nile**

Water ministers from Egypt, Sudan and Ethiopia have gathered last week to discuss how Africa's largest hydroelectric dam will affect water distribution and access to the Nile.

The Grand Ethiopian Renaissance Dam (GERD) is 60 percent complete and has yet to go into operation. The \$4.8bn megaproject near the Sudanese border was launched in April 2011.

Water rights and the utilization of water from the Nile for power generation still remain highly contentious issues. And there are concerns about GERD's impact on the river and downstream nations.

Nearly a quarter of a billion people rely on the Nile's waters.

Its basin covers eleven countries: Tanzania and Uganda, Rwanda, Burundi, the Democratic Republic of Congo, Kenya, Ethiopia, Eritrea, South Sudan, Sudan and Egypt.

Egypt and Sudan claim exclusive rights to its use and object to anything that might affect the river. This is based on colonial-era treaties of 1929 and 1959 that gave Egypt and Sudan the lion's share of the Nile's water. Egypt was also given veto power over dams in upstream countries.

Most of Egypt's Nile water originates in Ethiopia from the Blue Nile, and the nation hopes for the Renaissance dam to help boost its economy. In a major breakthrough, the three countries

signed a cooperation deal on the project in 2015. But Egypt still fears that the dam will cut into its water supply.

"The building of a great dam is bound to have impacts, both locally and throughout the river system, it's all one joined-up system. However, the way that it's done, the way that it's built, the way that it's filled, and the way that it's managed can massively reduce those impacts," Colin Thorne, professor and chair of Physical Geography at the UK-based Nottingham University, tells Al Jazeera.

He believes that "if the addition of another dam to a river is done in a coordinated fashion, with the existing dams and water resource developments, then actually the addition of a dam can be beneficial. So it's all in the way that you do it and in the way that you operate the dam afterwards."

Asked about Egypt's concerns regarding the dam and its impact, Thorne says, "I think any country in Egypt's position would have concerns about developments of a major water resource upstream.... they don't have control over what happens upstream of them, so they are justified to be nervous, but they must enter into full dialogue with Sudan, with Ethiopia, indeed with the other countries in the Nile basin. That's the only way that the Nile can be managed in a coordinated fashion to the benefit of all the nations."

According to him, there's always a possibility of a regional resource conflict, but "the Nile is a fantastic water resource. It's been exploited for not just centuries but millennia, and that's going to go on in the future at a time of increased water stress, because of climate change. And if the nations and the engineers and the technical experts work together, then fears, although understandable, will be unnecessary."

22/10/2017 online at: <http://www.aljazeera.com/programmes/countingthecost/2017/10/hydro-economics-egypt-ethiopia-nile-171022074240615.html>

### **Egypt, FAO dig 99 wells to face water shortage in Matrouh**

A total of 99 wells are being dug in the Marsa Matrouh governorate to gain benefit from rainwater amid the water scarcity that Egypt faces, Hussein Gadain, representative of the United Nations' Food and Agriculture Organization (FAO) in Egypt, announced in a press conference on Monday.

The project is being implemented by the Desert Research Center, which is affiliated with the Ministry of Agriculture, in cooperation with FAO. Nine wells will be dug in each of the 11 municipal areas in the governorate.

"The project in the Matrouh governorate aims to increase the agricultural productivity...and achieve the sustainability of agricultural crops that are based on rain water, and improve the living conditions of the people," said Gadain.

The project also aims to face the challenges that face the government, said Ibrahim Daoud, the project head, noting that such challenges boil down to the scarcity of water resources, the

weakness of agricultural productivity, the lack of knowledge on using modern agricultural techniques, and child malnutrition in low-income families.

Egypt's 94-million population depends on Nile water, but it now faces a water shortage, as was announced by Minister of Water Resources and Irrigation Mohamed Abdel-Ati in 2015. Egypt's average water resources per capita have dropped to 663 cubic meters per year, and are expected to plummet to 582 cubic meters by 2025, according to the Central Agency for Public Mobilization and Statistics (CAPMAS) in 2014. Meanwhile, the international benchmark is 1,000 cubic meters annually per capita.

CAPMAS reported in February that around 457,000 people live on 2.4 percent of the land of Matrouh governorate, located on 212,112 square kilometers.

According to FAO, the international organization is providing Egypt with technical assistance to modernize the irrigation canals and improve on-farm irrigation.

23/10/2017 online at: <https://www.egypttoday.com/Article/1/29087/Egypt-FAO-dig-99-wells-to-face-water-shortage-in>

### **Nile Basin Countries to Harness Water, Energy Potential Through Cooperation**

The 10 Nile Basin countries have committed to make use of Nile water and other water resources in the Basin to meet various water demands, including in the area energy generation and trade, to spur regional economic growth.

They contend that the goals could be achieved through cooperation and partnerships.

The development follows talks involving more than 400 participants from member states and beyond who had convened for the fifth Nile Basin Development Forum in Kigali, which concluded on Wednesday.

By 2050, the population of the Nile Basin countries is projected to more than double, from around 400 million to one billion.

This issue, coupled with changes in the climate and the desired socio-economic transformation, will put even greater pressure on Nile Basin water resources, as an input for increased food and energy production as well as the growing population and economies will result in more water demand for domestic, and industrial use, according to information from Nile Basin Initiative (NBI).

In his closing remarks, the Rwandan Minister for Environment, Dr Vincent Biruta, said the forum was characterized by 'fruitful, frank and open discussions, ending on a note of optimism.'

"And I should say conditional optimism because it will depend on cooperation," he said, to a loud applause from an audience that included water ministers, members of parliament and water experts as well as representatives of civil society organizations.

"Cooperation, I think that word was most used during these last three days and we should go beyond only using that word, and implement the cooperation mechanism in our Basin," he said.

"The scope and depth of the shared understanding gained here will surely transform perspectives in water scarcity related issues globally."

He pointed out that the recommendations agreed in Kigali will inform regional and national agenda for water resources management and development.

The Nile Basin Initiative Secretariat Executive Director, Eng. Innocent Ntabana, said that sustainable Nile cooperation is key to a water secure future in the Nile Basin.

"I, therefore, urge you (member states) to take forward the messages and possible solution pathways emerging from this forum as well as the network established to contribute to a water secure future in the Nile Basin Region and, consequently, make it a best place for all living beings," he said.

Ethiopia is setting up a mega energy project - the Grand Renaissance Dam - at the Nile River, which the Minister of Water, Irrigation and Electricity for Ethiopia, Eng. Sileshi Bekele, said represents an opportunity in the region for power access.

The dam will store over 15 billion cubic meters of water (annually), which will generate more than 6,000 Megawatts at a cost of about \$3.5 billion, according to Bekele.

"Africa is developing large capacity infrastructure that could nurture the development of its treasury," Bekele said.

"If we don't have energy, we can't move the economy of the region," he noted.

He said that the countries have already started collaborating on energy transmission projects.

"We are discussing transmission lines that could generate up to 3,000 Megawatts, and connected to Egypt," he said.

"We are envisaging the merger of energy highway between Entebbe (Uganda) and Kenya that will transmit up to 2,000 Megawatts through Kenya to connect Tanzania, and we have MoU to connect with South Sudan.

"These are real opportunities to integrate our energy systems," he noted.

Prof. Seifeldin H. Abdalla, Chairman of Water Resources at the Ministry of Water Resources and Electricity in Sudan, said that climate change and degradation, especially in the high lands of Ethiopia, floods and droughts are among the challenges that affect the Basin.

"All these (challenges) don't recognise boundaries, so we have to tackle them in a holistic approach which necessitates that we cooperate," Abdalla said.

"We have too many opportunities in the Nile Basin, we can create interdependencies among the countries, and this is going to be for the benefits and the welfare of the citizens of the Nile Basin," he said.

27/10/2017 online at: <http://allafrica.com/stories/201710270098.html>

### **Protocol signed to provide drinking water, sanitation services**

A cooperation protocol will be signed between the Ministry of Solidarity and the Holding Company for Drinking Water and Sanitation to provide drinking water and sanitation to Upper Egypt.

This comes under the “decent housing” initiative adopted by the Ministry of Social Solidarity to improve the environmental and health situations of vulnerable families. This initiative aims to provide drinking water and sanitation services, as well as promote the infrastructure of houses.

According to the protocol, proper funding will be given to several NGOs to supply those lacking access to safe, readily available water and safely managed sanitation in villages in Upper Egypt. The NGOs aim to implement the proper pipelines and sanitation systems needed for pure, drinking water.

“Financing contracts will also be signed with NGOs as the Ministry of Social Solidarity believes in the concept and the value of social responsibility to support communities and finance charitable, productive, health, educational and developmental projects,” said Minister of Social Solidarity Ghada Waly.

Many Egyptians, especially in rural areas and slums, lack access to adequate sanitation and clean water as their dwellings are not connected to the water system. There are many villages in rural Egypt that continue to rely on water delivery and waste disposal systems that are outdated, unhygienic, and therefore, unsafe. As a result, the situation with regard to safe drinking water, household sanitation, and the environment within these communities is far from satisfactory.

Lack of access to safe water and proper sanitation facilities as well as poor hygiene contribute to the spread of diseases, which significantly and negatively impact children’s health and nutrition.

Consequently, Egypt, with the cooperation of numerous NGOs, could implement around 8,000 household connections, reaching an estimated 40,000 people in rural areas of the governorates of Assiut, Sohag and Qena, and in two poor informal settlements in the Cairo governorate between 2013 and 2016, according to a UNICEF report.

Additionally, UNICEF provides technical support to the Holding Company for Water and Waste Water (HCWW) and governorate water companies.

02/11/2017 online at: <https://www.egypttoday.com/Article/1/30608/Protocol-signed-to-provide-drinking-water-sanitation-services>

### **Libya on brink of water crisis as armed group closes main source**

The Man-Made River administration has announced finishing the routine maintenance at the Shuwairif station, but said it would be unable to restore water supplies to flow back into the Libyan cities due to the threats of an armed group in the area.

The administration started the maintenance work on October 16 and said it would take 9 days to finish, however an armed group led by Abulqassim Ehnish threatened in a... video statement to shut down the water source and later blow it up if their demands were not answered.

The armed group demanded their commander Al-Mabrouk Ehnish be released from Tripoli by the Special Deterrent Force after he was detained earlier last month heading a force and trying to enter southern Tripoli.

“We give the force 72 hours otherwise we will explode the Man-Made River and we will even shut down the gas and oil pipelines in the southern region.” Ehnish said in the video three days ago.

Today, the capital and other cities in Libya are left without water supplies and the crisis will only get worse by time as the armed group is still vowing to do more harm to the water source.

23/10/2017 online at: <http://www.libyanexpress.com/libya-on-brink-of-water-crisis-as-armed-group-closes-main-source/>

### **Water stops in Tripoli as Qaddafi militants now threaten to blow up gas pipeline**

The water supply in Tripoli and the sounding area has once again stopped after a pro-Qaddafi militia in the south of the country carried out its threat to turn off the valves the Man-Made River valves if its leader were not released by the Rada (“Deterrence”) forces of Abdul Raouf Kara.

Al-Mabrouk Ahnish, a member of the Magarha tribe from Brak Al-Shatti, was captured at the beginning of the week in the Wirshafana area along with several Sudanese fighters and handed over to Rada. He is being held at Mitiga. Three days ago, Mabrouk’s brother, Khalifa Ahnish, threatened to stop the Man-Made River water supply to Tripoli if Al-Mabrouk were not released within 72 hours. The deadline has now expired.

In a separate video, militiamen threatened to blow up the gas pipeline in the south heading to the Mellitah oil and gas complex and from there feeding into the Greenstream pipeline to Italy if Mabrouk Ahnish were not freed.

“They’re quite capable of doing it,” said one member of the tribe. “Ahnish is quite crazy and doesn’t care about anyone in authority,” he added, warning that the situation could escalate even further if there were not immediate negotiations. But he doubted whether Kara would free him.

Khalifa Ahnish has appeared in yet another video claiming that he and his fellows were not mercenaries unlike, he said, those supporting Khalifa Haftar and other forces in the country. He was with Ali Kani, he said. However, Kani, the pro-Qaddafi Tuareg commander based in Obari, is now reported to be denying that the Ahnish brothers have anything to do with him.

19/10/2017 online at: <https://www.libyaherald.com/2017/10/19/water-stops-in-tripoli-as-qaddafi-militants-now-threaten-to-blow-up-gas-pipeline/>

### **Libyans dig for water in latest test for capital’s residents**

Across Libya’s capital residents have started drilling through pavements to access wells in a desperate search for water after the taps ran dry in a new low for living conditions.

After years of neglect, workers turned off the water to do urgent maintenance earlier this month, cutting supplies to many Tripoli households. Then an armed group sabotaged the system, prolonging the misery.

The water crisis is a powerful symbol of state failure in a country that was once one of the wealthiest in the Middle East but has been gripped by turmoil since a 2011 uprising unseated Muammar Gaddafi.

For Libyans the chaos has meant power cuts and crippling cash shortages. These are often made worse by battles between armed groups vying for control of the fractured oil-rich state and its poorly-maintained infrastructure.

“We haven’t had water for ten days. The state does nothing,” said Nasser Said, a landlord in Tripoli’s upmarket Ben Ashour district.

Already equipped with a generator to keep the power running during outages that sometimes last more than a day, he hired drillers to dig some 31 meters to extract groundwater for the six apartments in the residential block he owns.

“No water, no electricity. You become a state in a state,” he said, standing next to his building on a leafy side street. “We last had to do this maybe 20 years ago.”

Like many Libyans, Said is skeptical about the chances of U.N.-led peace talks unifying rival factions that have been fighting for control.

The talks were adjourned last week with little sign of progress in creating a government that could stabilize Libya and stand up to armed groups that have repeatedly seized oil facilities and other state assets to make demands.

The U.N.-supported Government of National Accord (GNA) has struggled to impose its authority since its leaders arrived in Tripoli in March last year.

Early last week an armed faction in the south said it had turned off water supplies from Gaddafi's Great Man Made River, a pipeline system that pumps water from underneath Libya's vast southern desert to coastal areas such as Tripoli.

The group is seeking the release of a leader imprisoned by a rival faction in the capital, said Tawfiq Shwehaidi, a manager at the Great Man Made River based in the eastern city of Benghazi.

"We had started maintenance work on the 16th (of October) and cut supplies to Tripoli," he said.

"Afterwards an armed group... set one power plant on fire which closed three other plants and shut down 24 wells."

That has deprived residents of water while boosting the business of drillers who for 4,000-6,000 Libyan dinars (\$2,940-\$4,410 at the official exchange rate) access groundwater unused in some neighborhoods since the Great Man Made River started pumping water to Tripoli in 1996.

"We drill about three wells in two weeks—it takes about three to four days to drill a well," said Abdulsalam Forganea, a 23-year-old worker helping to operate an ageing drilling rig.

## NO BUDGET

Parts of Tripoli offer a semblance of normality and power cuts have eased since the summer.

The city has seen fewer big clashes since a handful of armed groups aligned with the GNA earlier this year.

But security is still fragile. A former prime minister was abducted in August for nine days by one of the two most powerful armed groups, while the other engaged in a battle this month that shut down the airport.

A Reuters reporter recently saw a traffic clogged commercial street suddenly empty as a man was fatally shot by militiamen. Kidnapping for ransom is rife.

A conflict that escalated in 2014 has put extra pressure on a Tripoli population that swelled to an estimated three million with the arrival of displaced families from other Libyan cities.

Public health services are failing, inflation has spiraled, and the start of the school year has been delayed by several weeks because teachers are striking over salaries.

Shutdowns crippled oil revenues so little has been spent on repairs and maintenance, and the water network and other infrastructure have been corroded.

Most government spending goes on public salaries, including for former rebel groups that forced their way onto the state payroll after Gaddafi's overthrow.

“No budget has been transferred... since 2011 except the emergency budget, which is the result of the financial difficulties experienced by the Libyan state,” said Naji Assaed, head of the Libyan Water Authority.

Production at desalination plants has fallen sharply, with output at a plant in the western town of Zuwara dropping from 80,000 cubic liters to 16,000 cl annually.

Assaed said officials were working hard to resolve the crisis, but it was not clear when supplies would be restored. As he spoke a tanker arrived up to deliver water for his tattered ministry building.

“In the absence of adequate spare parts, lack of budgets, lack of stability in the security situation, security chaos, people do not comply with the law and all this has affected the performance of the system,” he said.

27/10/2017 online at: <https://www.thepeninsulaqatar.com/article/27/10/2017/Libyans-dig-for-water-in-latest-test-for-capital%E2%80%99s-residents>

### **Man-Made River Company says water will be in Tripoli homes “within three days”**

The water supply will be back in people’s homes in of Tripoli within less than three days, according to the north area manager of the Man Made Rive company, Mahmud Abu Aisha.

“The reason for the delay to water arriving in the capital after finishing the maintenance works a few days ago was due to the incidents that happened in area,” he told the Libya Herald this evening.

He was referring to the armed gang that last week attacked an electricity control room in the Shwerif area that oversees the power supply to the pumps on the MMR pipeline in a bid to secure the release of its leader Mabrouk Ahnish. Homes in the city which depend on the MMR supply have now been without water for 10 days. It is the longest period without water the city has suffered since the revolution.

The time taken for water to reach Tripoli, Abu Aisha added, depended on the amount of water fed into the pipelines at Shwerif, Bani Walid and Tarhuna.

“There is a link connecting Tarhuna valley with the Sidi Saih basin [55 kilometres south of Tripoli] and once the water reaches it, then it will almost automatically be inside homes in Tripoli,” he explained.

Abu Aisha was the head of the technical team that headed two weeks ago to the Shwerif area, halfway between Tripoli and Sebha, to make necessary maintenance to the water infrastructure there.

” The scheduled plan for our team to finalise the maintenance was nine days, but we finished it in six, due to the scare we had with it being attacked.”

28/10/2017 online at: <https://www.libyaherald.com/2017/10/28/man-made-river-company-say-water-will-be-in-tripoli-homes-within-three-days/>

## **As Morocco Races to Ensure Water Security, Govt. Head Pushes Target Year Back 20 Years**

Having promised that water scarcity will be definitively resolved by 2018, only three days after being handed the task by King Mohammed VI, Head of Government Saad Eddine El Othmani has already had a change of opinion.

Noting that Morocco originally had a target of 2030 to ensure water security, El Othmani revealed that the date had been pushed back to 2050.

“The reality of water scarcity must be dealt with as it is and to not overlook the obstacles. We must recognize water scarcity in order to succeed in dealing with it with all responsibility and realism,” said the head of government during the meeting held Wednesday morning.

“There is a reality that should not be overlooked where several regions in Morocco still suffer from water shortage.”

To attack the problem, the head of government said that all governmental departments must ensure the provision of drinking water to the population.

### **Thirsty Future**

Morocco is now officially among the UN list of countries most vulnerable to climate change. The country is progressively suffering from water scarcity and a rise in temperature, says a report by Global Nexus.

In the upcoming years, the rate of precipitation will decline by 10 to 20 percent, while sudden gushes of rain will usher the melting of ice at a rapid pace and thus lead to the decline of ground water stocks. The study estimates that Morocco’s water supply is at 18 billion square meters per year, 83 percent of which is surface water.

While the share of water rate per person in the 1960s was 3500 square meters, it has now reached 750 square meters. The share will decline to “alarming rates” in the upcoming five years, says the management company.

Agricultural activities consume a notable rate of 90 percent of Morocco’s water supply, while household use exhausts 9 percent and industrial use 1 percent.

The study sees that by 2050 Morocco’s population, which will have reached 42 million, will be “in a competition over food, water, and employment.”

In response to the report, El Othmani acknowledged the need to adopt strategic solutions to avoid any water crisis.

In recent months, residents of different regions, especially rural areas, have complained about an increasing scarcity of drinking and irrigation water. In cities like Ouazzane, Beni Melal, Zagora, Sefrou, and Azelal, Moroccans took to the streets to draw the government’s attention to the issue.

In rural areas, many groups organized long-distance marches to the regional government offices, sometimes facing blockades set up by the Gendarmerie.

The rate of access to drinking water in rural areas is expected to reach 96.5 percent by the end of 2017, with the state investing more than MAD 1 million in water supply projects, announced Secretary of State in charge of Water, Charafat Afilal, during the July 25 parliamentary session.

19/10/2017 online at: <https://www.morocoworldnews.com/2017/10/231539/morocco-water-security-saad-eddine-el-othmani/>

### **Moroccans protest water shortages**

Taps are running dry in southern Morocco, and the government is searching for solutions after people took to parched streets in anger. Experts blame poor crop choices, growing populations and climate change for the water shortages in towns like Zagora, which saw repeated protests for access to clean water last month.

The shortage of drinking water pushed the impoverished inhabitants of the Zagora region to demonstrate in an unusual outbreak of anger.

Twenty-three people were arrested following confrontations with police, and eight were handed sentences last week of two to four months in prison.

Moroccan Prime Minister Saadeddine al-Othmani made an exceptional public apology during a Parliament session Monday.

“I apologize publicly to the people of Zagora, because it’s the state’s responsibility,” he said, promising to solve the problem.

Around Morocco, persistent drought in recent years has reduced gross domestic product in this farm-dependent economy. The government is concerned that the issue of water is becoming a threat to national stability in the kingdom, seen as a steady force in a restive region and key ally with the West in the fight against terrorism.

“The issue of water has always been a priority for Morocco, but today, after two years of drought, we have to move on to higher gear,” Morocco’s secretary of state in charge of water, Charafat Afailal, said.

She told the Associated Press that several projects are underway to strengthen existing infrastructure, including the Agdez dam and a drinking water treatment plant and building wells.

Although water supplies have been restored in Zagora in recent days, residents complain about its poor quality.

“For the last 15 years, the inhabitants of Zagora have been buying drinking water because tap water is undrinkable. We only use it for cleaning,” said Atmane Rizkou, president of the Moroccan Association of Human Rights in Zagora.

But since the summer, “the problem has worsened,” he said. Dry taps hit women particularly hard, forcing them to go farther and farther afield to draw water to quench children’s thirst and wash family dishes and laundry.

One culprit: watermelon farming. With a consumption of 7 million cubic meters of water per year, according to a study by the regional hydraulic basin agency, “the watermelon greatly contributed to the water stress in the region,” said Jamal Akchbab, president of the Association of Friends of the Environment in Zagora.

David Goeury, a geographer at Paris IV – La Sorbonne University, said the problem has been brewing for years and some have sought a ban on watermelon farming.

“The problem is that watermelon demands a lot of water, and requires drilling. If the water table is overexploited, its water level will drop or the quality of the water will be altered because it will come into contact with saltwater,” Goeury said.

Zagora “must completely change its drinking water supply model, and get supplies upstream, from a dam,” he added.

The drought in Morocco has pushed rural people toward the city each year. While 90 percent of Moroccan households in urban areas are connected to the drinking water system, the connection rates in rural areas barely reach 40 percent.

Zagora is not the only locality affected by this problem, and residents of the remote villages of Beni Mellal, Khenifra, Taounate and Ouazzane have also demonstrated for access to drinking water.

Rainfall across Morocco has been declining, and the country has experienced an “acceleration of extreme events, including droughts and floods, an increasing trend of heat waves and cold waves, and rising sea level,” according to a report from the Energy, Mining and the Environment Ministry.

A 2011 report on the effects of climate change on groundwater resources by the International Association of Hydrogeologists said that “water deficiency and water quality degradation have important implications for future economic growth and political stability in Morocco, as water authorities are already struggling to distribute and provide potable water to the domestic and agricultural sectors.”

Faced with the proliferation of water demonstrations, King Mohammad VI last month ordered the creation of a commission, tasked with making an emergency plan that lists water shortages and proposing ways to invest in solving the problem.

Othmani told AP that the commission will also contribute to a longer-term solution: a national water plan for 2020-2050.

The Moroccan government is already working to build dams, wastewater treatment plants and desalination plants. A water route that will cost nearly \$3.6 billion aims to transfer 850 million cubic meters of water per year from the north of Morocco to the south, which is experiencing growing water stress.

06/11/2017 online at: <https://www.dailystar.com.lb/News/Middle-East/2017/Nov-06/425266-moroccans-protest-water-shortages.ashx>

### **Water Resources: 130 projects to be delivered by end of 2017, 68 other to be launched in 2018**

The minister of Water resources Hocine Necib said Sunday in Algiers that the sector of water resources will deliver 130 vital projects by the end of 2017, likely to improve the level of water mobilization, ensure tap water supply and extend the irrigated agricultural area and the level of waste water treatment, in addition to the launching of 68 new projects in 2018.

The sector will be reinforced before the end of the current year with major works of mobilization like 5 dams with a capacity of 250 million cubic meters in the wilayas of Mascara, Médéa, M'Sila, Laghouat and Tebessa, said the minister at a meeting with the APN Finance and Budget Committee as part of the review of the 2018 finance bill.

According to the minister, the project to transfer the wilaya of Relizane to 30 communes will be approved to guarantee the strengthening of the daily drinking water supply for the benefit of 650,000 inhabitants.

Regarding drinking water supply, the minister said that 9 projects will be carried out before the end of the year, allowing the supply of drinking water for nearly 4 million inhabitants and the reduction of leaks at the level of 17 cities through the network rehabilitation operation, in addition to the completion of 76 projects under the sectoral programs for the benefit of 5 million citizens.

In terms of sanitation, Mr. Necib unveiled the completion of 21 projects including 8 sewage treatment plants with a capacity of 216,900 cubic meters / day.

For agricultural irrigation, the minister said that 6 large irrigated perimeters of an area of 26,000 hectares will be realized in the regions of Ouled Hamla in Oum El Bouaghi, El Ksob in M'Sila, Arib in Bouira, Hebra in Mascara Beni Slimane in Medea and Chemora in Batna.

11 dams with a storage capacity of 7 million cubic meters will also be received for irrigation of 1,300 hectares, he said.

30/10/2017 online at: <https://www.dzbreaking.com/2017/10/30/water-resources-130-projects-delivered-end-2017-68-launched-2018/>

## **"Without water, we are nothing"**

### Solar Powered Water Supply System Improve Life of Afghan Marginalized Communities

Access to water is a basic human necessity, fundamental for a dignified and healthy life. Significant improvement in access to water and sanitation is one of the biggest achievements of the post-Taliban era reconstruction efforts in Afghanistan. Yet, according to the United Nations, 39% of the total population still needs access to improved water supply. Ensuring access to water and sanitation for all is one of the Sustainable Development Goals the world leaders pledged to achieve over the next 15 years. People in Need, with the funding of the Consulate General of the Federal Republic of Germany, made this a reality for 140 households of the Jogi community living in Mazar-e-Sharif.

Jogis, one of the many ethnic groups living in Afghanistan were historically nomads, but changing socio-economic patterns led to a decrease in their nomadic lifestyle; these days Jogis are more likely to settle in specific areas of the country for more prolonged periods of time. Like many communities in Afghanistan, Jogis are often internally displaced due to conflict or natural disaster but as one of the most marginalised groups in Afghanistan, vulnerability is compounded by a lack of their legal recognition by the state. This translates, among many other issues, to limited access to electricity and safe water in their current settlements, often reminding more a makeshift refugee camps, than a long-term housing arrangement.

Water 30 minutes away and often only at night

Previous People in Need (PIN) and German Consulate interventions, aimed at improving food security and nutrition and hygiene practices, have led to an improvement of the situation in the Mazar-e-Sharif Jogi community; however, access to water continued to be a challenge. More than a third of households had to walk more than 30 minutes to fetch water. Mullah Oral, the community leader recalls: "It's been many years since we settled here, but we were never supported with this type of project, which would bring drinking water to our homes. We used to fetch water from other people's sources, asking for permission and paying them for it. We often had to go during the night when they did not use it, so it was with lots of difficulties". As he speaks, other people from the community are joining the conversation. Discussion turns to health issues, and how difficult it was to even to ensure basic hygiene, when the water was so scarce. "You know, without water, we are nothing", concludes one of the men who joined the conversation.

Now, in the centre of the community, there is brand new water system, able to supply at least 25,000 liters of water per day to the 140 households who live here, from the 70 meters deep well powered by 14 solar panels. Even people from surrounding non-Jogi areas sometimes come and fetch the water for themselves. "This project didn't only give us access to water but

also made our relationship very good with our neighbors, as now they are also using this water and everyone is very content”, Mullah Oral adds. The 800 meters pipe system supplies water to 16 taps, strategically located across the community to ensure fair distribution among all the families who live there. PIN provided a technical maintenance training as well as necessary tools, so the beneficiaries can continue to take care of the new water system themselves. The community established a water management committee, whose members, selected from different households, are in charge of the maintenance of the solar panels and regular control of the technical aspects of the water system. The construction, overseen by PIN engineers, was a collaborative effort where community members also contributed through the provision of labor, promoting local ownership of the project.

Women are the ones benefitting the most

Once the construction of the water system was finished, PIN conducted a hygiene promotion session with 100 participants – one member from each household. The session focused on the importance of consuming clean water, the ways of safely collecting and storing water and available water treatment techniques, as well as refresher training on healthy nutrition and hygiene practices, already delivered by PIN in the past.

Now there is enough water to comfortably cover all the daily needs of the people living in the settlement. For the local women, the positive change was particularly significant, as they are the ones traditionally taking care of the children and majority of the domestic chores. One of them, Bibi Zahra, is 57 and has only a daughter and a small grandson. Both she and her daughter are widows. She proudly points to the new water tap, located right in front of her modest house and says: “As I don’t have a son and I lost my husband, I couldn’t fetch water by myself during those late nights from other communities’ sources. I had to pay someone to get water for us and these costs were very high for our family. Now I don’t need to do this anymore, as I have the tap right here.” Mullah Oral adds: “Before, our people were often fed up with this kind of life. Now they can think of themselves as human beings, this project gave us so much value.”

23/10/2017 online at: <https://reliefweb.int/report/afghanistan/without-water-we-are-nothing>

### **Russian company to construct water dam in Afghanistan's Paktia province: local media**

A Russian company has won the contract for the construction of a dam called "Machalgho Dam" in the eastern Paktia province, a local television channel Tolo reported on Friday.

"Work for the construction of Machalgho Dam will kick off within the next one month," the media outlet quoted Deputy Minister for Energy and Water Abdul Basir Azimi as saying.

Without identifying the name of the company, Azimi, according to Tolo television channel, said that the government would pay the budget for the 23 million U.S. dollars project which will irrigate more than 2,300 hectares of land, will also produce 800 kilowatts of power and meanwhile it will provide drinking water to over 900 families in Paktia province.

Work for the construction of the dam project will start within the next one month after the winner company presents the warranty letters and other required documents, Tolo reported, based on Azimi's remarks, adding the project will be completed in three years.

03/11/2017 online at: [http://news.xinhuanet.com/english/2017-11/03/c\\_136725728.htm](http://news.xinhuanet.com/english/2017-11/03/c_136725728.htm)

### **New dams crucial to meet water needs: PM directs for expediting measures for construction of Diamer-Bhasha, Mohmand dams**

Prime Minister Shahid Khaqan Abbasi has directed the Ministry of Water Resources to expedite efforts for construction of Diamer-Bhasha and Mohmand dams. Presiding over a meeting in Islamabad, he also directed that financing strategy for Diamer-Bhasha dam should be brought before the Council of Common Interests for approval. During the meeting, an overview of the annual surface water availability and distribution of western and eastern rivers was presented along with water storage capacity available in the country. Failure to add storage capacity during last four decades has created a situation of water scarcity.

17/10/2017 online at: <http://www.radio.gov.pk/17-Oct-2017/new-dams-crucial-to-meet-water-needs-pm-directs-for-expediting-measures-for-construction-of-diamer-bhasha-mohmand-dams>

### **Pakistan to face serious water crisis in future**

Punjab University Vice Chancellor Prof Dr Zafar Moeen Nasir has said that Pakistan would face serious water crisis in future and we must take measures on emergency basis to cope with this crisis.

He was addressing a seminar on emerging challenges in Disaster Management and Volunteerism at the auditorium of Institute of Chemistry.

The seminar was organized by Punjab University Department of Social Work in collaboration with Provincial Disaster Management Authority and Punjab Social Welfare Department. Additional Director PDMA Dr Khurram Shahzad, Chairman Department of Social Work Dr Zahid Javed, Hafiz Muhammad Akram, Assistant Professor Sonia Omer, senior faculty members and a large number of students were present on the occasion.

Addressing the ceremony, Dr Zafar Moeen Nasir said that Pakistan lacked appropriate skills and capacity to manage disasters and calamities and there was need to do a lot of work in this regard. He said that PU would soon launch emergency and social disaster management program at Department of Social Work. He said that young students must adopt problem solving approach and such system should be developed which could resolve problems.

24/10/2017 online at: <https://pakobserver.net/pakistan-face-serious-water-crisis-future/>

### **The Vulnerability of Pakistan's Water Sector to the Impacts of Climate Change: Identification of gaps and recommendations for action**

Concern has been growing in recent years regarding the potential impact of climate change on Pakistan's already stressed water resources. Rising temperatures, increasing saltwater intrusion in coastal areas, a growing threat of glacier lake outburst floods, more intense rainfall, and changes in monsoon and winter rainfall patterns are just some of the ways in which climate change is expected to affect Pakistan's hydrologic resources. These risks amplify an already problematic situation given that Pakistan is among the most waterstressed countries in the world. Per capita access to surface and groundwater sources is expected to continue to decline in the decades ahead, driven largely by rapid population growth and urbanization.

Of particular concern is the potential for climate change to affect water flows within the Indus Basin. The majority of Pakistan's water is provided through the Indus River and its tributaries, which are fed primarily by snow and ice melt in the Hindu Kush-Karakoram-Himalaya mountains. Any change in water flow in the Indus basin will have significant implications for food security in Pakistan given that 90 per cent of total agricultural production occurs on arable land supported by the Indus Basin Irrigation System (Qureshi, 2011). Indus basin water flows also play a critical role in meeting domestic and municipal water supply needs, as well as supporting the country's energy production, manufacturing and industrial processes.

25/10/2017 online at: <https://reliefweb.int/report/pakistan/vulnerability-pakistan-s-water-sector-impacts-climate-change-identification-gaps-and>

### **Residents of Karachi continue suffering from water shortage**

Many areas of Karachi are facing acute water shortage due to lack of planning on the Sindh government's part, forcing citizens to drink unclean water.

Residents of neighborhoods such as Defence, Lyari and others are adversely affected by the water shortage and instances of salty water being supplied to these areas have also surfaced.

The scarcity of clean drinking water in the metropolis has always been a norm in the summer season, however in recent times it has become increasingly difficult for the city dwellers to procure clean water all year round.

Despite paying their water bills, residents of the city have been at the mercy of poor performance of Karachi Water and Sewerage Board (KWSB). Coupled with water tanker mafia and alleged lobbying of bottled water companies, the water shortage has reached an unfortunate magnitude.

Another aspect to Karachi's water issue is the correlation between uncertainty of power supply and water shortage. Water pumping stations, without smooth flow of electricity fail to match the daily water demand. In most of the areas, the water supply timing by KWSB and load-shedding hours are identical, depriving people from storing the water as a preemptive measure.

Karachi is a mega city of Pakistan which requires more than 1,000 million gallons of water per day for fulfilling the need of its large population. Keeping in mind the increasing population, there is an inherent need to raise the water capacity of the city on urgent basis.

30/10/2017 online at: <https://www.pakistantoday.com.pk/2017/10/30/karachiites-continue-suffering-from-water-shortage/>

### **Pakistan's Water Crisis: Why a National Water Policy is Needed**

Recently, the Pakistan Council of Research in Water Resources (PCRWR) delivered a grave warning: if the government does not take action, the country will run out of water by 2025. Severe water scarcity is already having a negative impact on the country's public health and the economy. Over 80 percent of water supplied is considered unsafe, and water scarcity and water-borne diseases are resulting in a loss of up to 1.44 percent of GDP. A number of standalone initiatives are underway to mitigate this impact; what else is needed now is a coordinated national policy on water.

Approximately 95 percent of Pakistan's water is used for agriculture, with 60 percent of its population directly involved in agriculture and livestock, and 80 percent of exports based on these sectors. Despite having the world's largest glaciers, Pakistan is among the world's 36 most water-stressed countries. As the population rapidly increases, water demand is projected to far outstrip supply. As this happens—coupled with strained relations with the country's neighbors over transboundary water resources—the water crisis is posing a threat to the country's future security, stability, and sustainability. Immediate coordinated planning and implementation is required to avert disaster.

Goal six of the Sustainable Development Goals (SDGs) calls for ensuring availability and sustainable management of water and sanitation for all, water use efficiency, and integrated water resources management. In line with the SDGs, Pakistan's vision 2025 addresses the issues of water security and aims for increasing water storage capacity, improving agricultural efficiency by 20 percent, and ensuring the availability of clean drinking water to all Pakistanis.

Greater investment in Pakistan's water sector represents the best option for sustainable social and economic development and to ensure that no one is left behind in the process of development. Pakistan needs a sound national water policy which delineates the framework for balanced socio-economic development, management, and conservation of the country's water resources in an environment challenged by climate change. Attempts over the years to update and approve a national water policy have failed due to lack of priority and consensus among federating units, and the approval of the 2002 draft national water policy has been delayed for a decade and a half.

The Asia Foundation is supporting a local organization Hisaar Foundation to develop a series of recommendations to guide the framework of a national water policy. The five main focus areas of the recommendations are: improving access to water for the poor and landless;

financing the urban and rural water value chain; safeguarding the Indus Basin and its infrastructure; improving water institutions and their management and governance; and building a base for science, technology, and social aspects of water.

At a recent conference on water policy organized by the Hisaar Foundation and The Asia Foundation in Khyber Pakhtunkhwa province, participants from the public and private sector discussed recommendations regarding where the country's water policy and its implementation need to focus, with specific strategies for a provincial water policy.

Highlights include: calling on the political leadership to actively take up the water cause, improving agricultural water use efficiency, maintaining and upgrading existing water infrastructure, expanding the irrigation network to semi-arid and arid districts in order to utilize arable land, depoliticizing water management, raising community awareness about water conservation and water rights, improving transboundary communication, and bringing the private sector and institutes of higher learning into the water discourse.

If prioritized, water can serve as the engine of economic growth and regional trade expansion. With agriculture being Pakistan's major sector (constituting 20% of GDP) and largest water consumer, it is estimated that even if a billion-dollar output is achieved for every million acre-feet of water utilized for agriculture, the water economy has the potential to increase total annual agricultural GDP to \$200 billion from its current \$50 billion.

Similarly, the country has exploited only 6,500 megawatts of hydro energy generation capacity of the Indus river system which stands at a potential of generating 59,000 megawatts. To realize the potential of the country's "water economy," a paradigm shift in reframing the national water policy and management is required at national level where all stakeholders are engaged and demand side measures are emphasized that promote conservation, water use efficiency, and controls excessive groundwater exploitation.

Pakistan needs to employ smarter and less water-intensive practices. The country has seen its fair share of supply-side measures such as building mega hydro projects and dams. The focus of the future reforms however should be on improving water use efficiency especially in the agriculture sector which continues to be the largest consumer of water while escaping taxation (or lightly taxed at the provincial level).

Apart from bringing the agriculture sector under the tax umbrella, there is a need to reform water tariffs and cost recovery. Canal water is heavily undervalued and the cost of recovery is poor—only 24 percent of the annual operation and maintenance cost is recovered—leading to water use inefficiencies and a financially unsustainable irrigation system. Moreover, the uniform pricing structure of major crops does not reflect their different water consumption rates. Reforming tariffs to represent their true value, therefore, will not only increase efficiency but will also generate revenue to maintain the water infrastructure, thereby reducing system leakages. Similarly, inadequate urban water tariffs have affected drinking

water quality and there is a need to revise urban utilities to promote conservation and efficient water use.

Besides pricing incentives, maintaining infrastructure and innovation have an important role to play in water management and conservation. Maintaining infrastructure, especially in the agricultural sector, can reduce water loss significantly (two-thirds of irrigation water is lost due to system leakages) while practices such as crop zoning and innovative technologies like direct seeding drip irrigation should be encouraged and emphasized which increase agriculture water-use efficiency. Innovative methods in water conservation, recycling, wastewater management, water treatment, and rain water harvesting should become realities in cities and towns. However, care should be taken in making innovative practices cost effective and accessible.

Greater engagement of multiple stakeholders is required at the local level in water management and the capacity-building of local institutions. Campaigns aimed at increasing awareness and behavioral change should represent an essential part of the government's water policy. Women have been identified to be important change makers in areas of conservation efforts; therefore, women should be engaged at every level. Most importantly, equity needs to enter the policy discourse so that measures introduced are not at the expense of the marginalized and the poor. Lastly, the private sector should be brought into the public policy discourse over water management. Banks should be encouraged to develop products to meet the gaps in financing for water projects. The State Bank of Pakistan's recent Green Banking Guidelines for financial institutions is a step in the right direction.

Pakistan aspires to become one of the 10 largest economies in the world by 2047. Given the importance of water to Pakistan's economy, getting water resource management right will be essential to realizing this goal. Water issues need to be resolved expediently for the sake of peace and prosperity in the country. We owe this to our future generations.

01/11/2017 online at: <https://asiafoundation.org/2017/11/01/pakistans-water-crisis-national-water-policy-needed/>

### **Pakistan dumps \$21bn worth of water in the sea each year: IRSA**

The Indus River System Authority (Irsa) told the Senate Forum for Policy Research on Thursday that Pakistan dumps water worth approximately \$21 billion into the sea each year due to a lack of water conservation systems.

In a meeting of the forum, chaired by Nayyar Husain Bukhari, members of Irsa and the Pakistan Council of Research in Water Resources (PCRWR) made shocking revelations while briefing attendees about Pakistan's lack of water conservation systems and water distribution to provinces.

"The country needs three Mangla-sized dams to conserve the amount of water that goes to sea each year," Irsa members told the meeting while informing them that Pakistan faces a 36 per cent shortage in its water requirements at the moment.

If no water reservoirs are made, the country faces an extreme water shortage in the coming years, Irsa members said as they endorsed the long-overdue creation of the Kalabagh Dam.

Pakistan can only store up to 30 days' worth of water, while India can store up to 320 days' worth, Irsa members informed the meeting while stressing upon the need for more reservoirs in the country.

"Kalabagh dam can be completed in five years," a PCRWR member said, but told officials that the Akhoori Dam can also be developed as an alternative to Kalabagh.

"Do not talk about the Kalabagh Dam after three provinces have voted against it; discuss alternative plans with us," said Jahanzeb Jamaldini.

The inflow of rivers Indus, Chenab, Kabul and Jehlum has dropped and as a result, this year's crop may be severely affected, Irsa members informed the meeting.

Water levels in Islamabad are falling by one metre each year and six metres in Balochistan, Irsa officials warned the officials. PCRWR members warned that out of 43 lakes in Pakistan, the levels of 26 have dropped drastically in the past few years, while the country remains without a National Water Policy.

To top it all off, the country's population is on the rise at an alarming rate which is also adding to its water woes, PCRWR told the meeting.

"Shortage is a common problem; the question is what are we doing to deal with it," the meeting's chair responded.

02/11/2017 online at: <https://www.dawn.com/news/1367885>