

# ORSAM

# ORSAM WATER BULLETIN

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WATER RESEARCH PROGRAMME -Weekly Bulletin-

Issue 187

#### **ORSAM WATER BULLETIN**

30 June - 06 July 2014

- No: 228, 4 July 2014, Press Release Regarding the Amount of Water That Turkey Releases from the Euphrates River
- SKI resorts to water cut due to drought under pretext of maintenance
- Water, the latest weapon yielded by Isis
- Security of water supplies will be key to Iraq and Syrian conflicts
- **\*** Water supply key to outcome of conflicts in Iraq and Syria, experts warn
- \* Here's How Iraq Could Turn Into A Failed State In A Day
- \* Crisis in Iraq Deepens as War Over Waters Enters the Equation
- **\*** The Acute Danger of Iraqi Dams
- Solution State Change destabilizing Iraq?
- Syria and neighbouring countries: Water shortages add to woes
- Food Security Is National Security
- Iran's water crisis the product of decades of bad planning
- ✤ Iran to spend \$500 million to save shrunken Lake Urmia
- ✤ Iran's next crisis: A water shortage
- \* Iran Leader Orders Start of Plan to Save Shrinking Lake
- Syria inks Russian deal for Tigris irrigation project
- \* A hotter, drier Middle East climate could threaten stability
- \* Dell HPC to Assess Water Resource in Middle East and North Africa
- \* Ethiopia agrees to resume tripartite talks on Nile dam
- \* More people, less water mean rising food imports for Egypt
- \* Water, Rivers and Runoff Challenge Ethiopia's Expanding Capital
- \* Kerala asserts its ownership rights over dams
- **\*** Turkish firm to invest in Ghana
- Damming The Mekong River: Economic Boon Or Environmental Mistake?



- \* Decisions on Lao Dams Give Mekong River a Respite But Concerns Linger
- \* Cutting up the Mekong
- \* Mekong Delta faces major water crisis



# No: 228, 4 July 2014, Press Release Regarding the Amount of Water That Turkey Releases from the Euphrates River

The reports and comments, which have been published in several media outlets, alleging that Turkey has cut off or reduced the water of the Euphrates River are unsubstantiated.

As it was expressed on many occasions previously, Turkey has never reduced the amount of water released from its transboundary rivers for political or other purposes throughout its history. This is also valid for the period of instability and crisis that our region is presently going through.

Turkey approaches the water issue solely from a humanitarian perspective and attaches great importance to the water needs of the Turkish people and the people of the neighboring countries.

On the other hand, lately our region has been facing a heavy drought. The climate change plays a great role in this phenomenon. Besides, this year has been reported as the driest season recorded since 1961 in our country.

Despite the severe drought and the fact that the amount of natural water flowing into its dams in the last 12 months was approximately 297 cubic meters per second, Turkey has released during the same period 599 cubic meters per second on average from the Euphrates to Syria and Iraq.

Whereas Turkey aims at releasing the necessary amounts of water in the upcoming period, depending on climate conditions and drought one should consider that there might be decrease in some periods in the released amount of water and therefore take the necessary precautionary measures.

On the other hand, it should not be forgotten that the claims of water shortage in Syria and Iraq stems from the wastage of the limited water resources in the said countries as well as the struggle between the conflicting parties to control these resources and to exploit the water issue for their own purposes.

Turkey is always ready to enhance cooperation with the neighboring countries to use the transboundary waters resources in an equitable, reasonable and optimum manner and to manage these resources with an integrated approach.



#### WATER RESEARCH PROGRAMME -Weekly Bulletin-

"No: 228, 4 July 2014, Press Release Regarding the Amount of Water That Turkey Releases from the Euphrates River", 04/07/2014, online at: <u>http://www.mfa.gov.tr/no -228 -4-july-2014 -press-release-regarding-the-amount-of-water-that-turkey-releases-from-the-euphrates-river.en.mf</u>

#### BACK TO TOP



#### **Ski** resorts to water cut due to drought under pretext of maintenance

The İstanbul Waterworks Authority (İSKİ) has been resorting to water cuts in various parts of İstanbul under the pretext of maintenance of water pipelines, but İstanbulites suspect the real reason is the water scarcity that happened due to lack of precipitation this year.

After going through one of the driest winters in its history, the amount of water stored in İstanbul's reservoir has fallen to below 30 percent. As of July 3, fill rates in İstanbul's reservoirs were at 23.28 percent, the lowest in 10 months, İSKİ data, updated daily, show.

Due to the dwindling water levels in the city's reservoirs, İSKİ started periodic water cuts last week on the pretext of maintenance of the pipelines in many districts and neighborhoods of İstanbul, including Bağcılar, Bahçelievler, Yenibosna, Üsküdar, Çamlıca, Arnavutköy, Bayrampaşa, Beylikdüzü, Esenyurt, Eyüp and Fatih. İSKİ makes daily announcements regarding the water cuts in the city. These water cuts may last up to 10 hours a day, drawing the ire of locals.

According to data provided by İSKİ, the total water volume of reservoirs decreased from 30.09 percent to 23.56 percent in the last two months. As of today, there are 204.632 million cubic meters of water in İstanbul's dams, including dam reserves. Although İstanbul uses up 3.1 million cubic meters of water in a day, the city was only provided with 2,808,044 cubic meters of water on July 1.

The water storage capacity of the Elmalı, Ömerli, Terkos, Sazlıdere and Alibey dams that cater to İstanbul's water needs is 868 million cubic meters. The total water volume decreased to 26.53 percent on June 18, to 26.30 percent on June 20 and 25.38 percent on June 30, according to data provided by İSKİ. This means that Turkey cannot bear the consequences of a lack of precipitation for more than two months.

Despite all the warnings from experts, the government officials seem unconcerned, and surprisingly very optimistic about drought and water scarcity. In a recently released written statement regarding possible water scarcity, Forestry and Water Affairs Minister Veysel Eroğlu told İstanbul residents not to worry about water shortages in İstanbul since all planning up to the year 2040 has been done, yet



since June 20 many districts in İstanbul keep experiencing periodic water cuts.

Speaking to the Cihan news agency, A.C., a young resident of the Ferah neighborhood of Üsküdar, complains about the latest water cuts, saying: "İSKİ announced on its website that the water cut would end by 10 p.m. But when I called the authorities at 11 p.m., they told me that I should be patient because it would take time for the water to arrive in the upper sections of the neighborhood. I waited until 3 a.m. in the morning in order to have water," he said.

Complaining about the water authorities, A.C. accused of them of putting forward many different excuses. "They make announcements regarding the water cuts on İSKİ's website along with many excuses for them but I know that the water cut is simply because of the drought," he noted.

Head of the Water Resources Program at the World Wildlife Fund Bahar Divrak said that in order to allow future generations to make use of the currently dwindling water resources, an integrated water table management plan needs to be prepared for the 25 underground water tables that exist across Turkey. "In addition to a comprehensive national water law, Turkey should introduce sustainable water policies in line with international standards to avoid a water shortage. Deep-rooted changes with regard to water usage and a general position on water resource management must be introduced," she told the Anatolia news agency.

According to a report provided by the World Wide Fund for Nature (WWF), Turkey will face irredeemable water shortages, especially after 2050, if it continues to consume from its available water sources at the current speed. Because Turkey is not a water-rich country, and has an annual per capita water supply of only 1,430 cubic meters, Turkish water resources according to the report will be used to full capacity by 2030.

"İSKİ resorts to water cut due to drought under pretext of maintenance", 03/07/2014, online at: http://www.todayszaman.com/news-352041-iski-resorts-to-water-cut-due-to-drought-under-pretext-of-maintenance.html

BACK TO TOP



#### \* Water, the latest weapon yielded by Isis

Rivers, canals, dams, sewage and desalination plants are now all military targets in the semi-arid region that regularly experiences extreme water shortages, says Michael Stephen, deputy director of the Royal United Services Institute think-tank in Qatar, speaking from Baghdad.

"Control of water supplies gives strategic control over both cities and countryside. We are seeing a battle for control of water. Water is now the major strategic objective of all groups in Iraq. It's life or death. If you control water in Iraq you have a grip on Baghdad, and you can cause major problems. Water is essential in this conflict," he said.

Isis (the Islamic State in Iraq and the Levant) –now known as the Islamic State (IS) – rebels now control most of the key upper reaches of the Tigris and the Euphrates, the two great rivers that flow from Turkey in the north to the Persian Gulf in the south, and on which all of Iraq and much of Syria depend for food, water and industry.

"Rebel forces are targeting water installations to cut off supplies to the largely Shia south of Iraq," said Matthew Machowski, a Middle East security researcher at the British houses of Parliament and Queen Mary University of London.

"It is already being used as an instrument of war by all sides. One could claim that controlling water resources in Iraq is even more important than controlling the oil refineries, especially in summer. Control of the water supply is fundamentally important. Cut it off and you create great sanitation and health crises," said Machowski.

#### Fatal grip

IS now controls the Samarra barrage west of Baghdad on the River Tigris and areas around the giant Mosul Dam, higher up on the river. Because much of Kurdistan depends on the dam, it is strongly defended by Kurdish peshmerga forces and is unlikely to fall without a fierce fight, said Machowski.

Last week Iraqi troops were rushed to defend the massive 8km-long Haditha Dam and its hydroelectric works on the Euphrates to stop it falling into the hands of IS forces. Were the dam to



fall, say analysts, IS would control much of Iraq's electricity and the rebels might fatally tighten their grip on Baghdad.

In April, IS fighters in Fallujah captured the smaller Nuaimiyah Dam on the Euphrates and diverted its water to "drown" government forces in the area. Millions of people in the cities of Karbala, Najaf, Babylon and Nasiriyah had their water cut off and Abu Ghraib town was catastrophically flooded.

Earlier this year Kurdish forces reportedly diverted water supplies from the Mosul Dam. Equally, Turkey has been accused of reducing flows to the giant Lake Assad, Syria's largest body of fresh water, to cut off supplies to the city of Aleppo.

Iraqis fled from Mosul after the IS cut off power and water.

"When they restored water supplies to Mosul, the Sunnis saw it as liberation. Control of water resources in the Mosul area is one reason why people returned," said Machowski.

#### Drought

Increasing temperatures, one of the longest and most severe droughts in 50 years and the steady drying up of farmland as rainfall diminishes have been identified as factors in the political destabilisation of Syria.

Both IS forces and President Bashar al-Assad's army have used water tactics to control Aleppo. The Tishrin Dam on the Euphrates, 96km east of the city, was captured by the IS in November 2012.

Nouar Shamout, a researcher with the independent policy institute Chatham House, said: "Syria's essential services are on the brink of collapse under the burden of continuous assault on critical water infrastructure.

"The stranglehold of IS, neglect by the regime, and an eighth summer of drought may ... create a water and food crisis which would escalate fatalities and migration rates in the ... three-year conflict," said Shamout.

"The deliberate targeting of water supply networks ... is now a daily occurrence in the conflict. The water pumping station in Al-Khafsah, Aleppo, stopped working on May 10, cutting off supply to half of the city.



#### WATER RESEARCH PROGRAMME -Weekly Bulletin-

"It is unclear who was responsible; both the regime and opposition forces blame each other but, unsurprisingly, in a city home to almost three million people, the incident caused panic and chaos. Some people even resorted to drinking from puddles in the streets," he said.

"Water, the latest weapon yielded by Isis", 04/07/2014, online at: <u>http://mg.co.za/article/2014-07-03-water-the-latest-weapon-yielded-by-isis</u>

#### BACK TO TOP



#### Security of water supplies will be key to Iraq and Syrian conflicts

Security analysts in London and Baghdad say the outcome of the Iraq and Syrian conflicts may come to hinge on who controls the region's shrinking water supplies. ISIS now controls the Samarra barrage west of Baghdad on the River Tigris - and areas around the Mosul Dam, higher up on the same river. VoR's Tim Ecott spoke to Nouar Sahmout, a researcher at the think tank Chatham House.

Experts say rivers, canals, dams, sewage and desalination plants are all now military targets - as both sides battle for control of water.

Nouar Sahmout told VoR: "They are deliberately targeting water resources and taking control over it – not to destroy it, but to control the water resources of the country. When you are speaking about Iraq, you are speaking about the Tigris and the Euphrates.

"It's not only Baghdad. It's the whole country – water for irrigation, water for food production, for potable uses, for electricity – because Iraq depends a lot on hydropower – you are speaking about the two rivers.

"Taking control of these rivers means that ISIS will be able to bring the country to its knees without going into a real fight, you see.

"I don't know about the emergency measures that have been taken by the government. You can provide water through wells, for instance, but it's not sustainable, because the dependence will be on wells and the water there is not good for humanitarian use, for potable use. It's more brackish, the salinity of it is very high. So Baghdad depends a lot from the water coming from the north, through the Euphrates and the Tigris.

"Now you hav to think about two facts. First of all, that ISIS have control over two major dams in Iraq and Syria – one on the Euphrates and on the Tigris. So controlling two rivers; this is very dangerous."

"Security of water supplies will be key to Iraq and Syrian conflicts", 04/07/2014, online at: http://voiceofrussia.com/uk/news/2014\_07\_04/Security-of-water-supplies-will-be-key-to-Iraq-and-Syrian-conflicts-8808/

BACK TO TOP



# **\*** Water supply key to outcome of conflicts in Iraq and Syria, experts warn

The outcome of the Iraq and Syrian conflicts may rest on who controls the region's dwindling water supplies, say security analysts in London and Baghdad.

Rivers, canals, dams, sewage, and desalination plants are now all military targets in the semi-arid region that regularly experiences extreme water shortages, says Michael Stephen, deputy director of the Royal United Services Institute think tank in Qatar, speaking from Baghdad.

"Control of water supplies gives strategic control over both cities and countryside. We are seeing a battle for control of water. Water is now the major strategic objective of all groups in Iraq. It's life or death. If you control water in Iraq, you have a grip on Baghdad, and you can cause major problems. Water is essential in this conflict," he said.

ISIS Islamic rebels now control most of the key upper reaches of the Tigris and Euphrates, the two great rivers that flow from Turkey in the north to <u>the Gulf</u> in the south and on which all Iraq and much of Syria depends for food, water, and industry.





"Rebel forces are targeting water installations to cut off supplies to the largely Shia south of Iraq," says Matthew Machowski, a Middle East security researcher at the U.K. houses of parliament and Queen Mary University of London.

In April, ISIS fighters in Fallujah captured the smaller Nuaimiyah Dam on the Euphrates and deliberately diverted its water to "drown" government forces in the surrounding area. Millions of people in the cities of Karbala, Najaf, Babylon, and Nasiriyah had their water cut off but the town of Abu Ghraib was catastrophically flooded along with farms and villages over 200 square miles. According to the U.N., around 12,000 families lost their homes.

Earlier this year, Kurdish forces reportedly diverted water supplies from the Mosul Dam. Equally, Turkey has been accused of reducing flows to the giant Lake Assad, Syria's largest body of fresh water, to cut off supplies to Aleppo, and ISIS forces have reportedly targeted water supplies in the refugee camps set up for internally displaced people.

Iraqis fled from Mosul after ISIS cut off power and water and only returned when they were restored, says Machowski. "When they restored water supplies to Mosul, the Sunnis saw it as liberation. Control of water resources in the Mosul area is one reason why people returned," said Machowski.

Increasing temperatures, one of the longest and most severe droughts in 50 years, and the steady drying up of farmland as rainfall diminishes have been identified as factors in the political destabilization of Syria.

Both ISIS forces and President Assad's army are said to have used water tactics to control the city of Aleppo. The Tishrin Dam on the Euphrates, 60 miles east of the city, was captured by ISIS in November 2012.

The use of water as a tactical weapon has been used widely by both ISIS and the Syrian government, says Nouar Shamout, a researcher with Chatham House. "Syria's essential services are on the brink of collapse under the burden of continuous assault on critical water infrastructure. The stranglehold of ISIS, neglect by the regime, and an eighth summer of drought may combine to create a water and food crisis which would escalate fatalities and migration rates in the country's ongoing three-year conflict," he said.

"The deliberate targeting of water supply networks ... is now a daily occurrence in the conflict. The water pumping station in Al-Khafsah, Aleppo, stopped working on May 10, cutting off water supply to half of the city. It is unclear who was responsible; both the regime and opposition forces blame



each other, but unsurprisingly in a city home to almost 3 million people the incident caused panic and chaos. Some people even resorted to drinking from puddles in the streets," he said.

Water will now be the key to who controls Iraq in the future, said former U.S. intelligence officer Jennifer Dyer on U.S. television last week. "If ISIS has any hope of establishing itself on territory, it has to control some water. In arid Iraq, water and lines of strategic approach are the same thing."

"It is already being used as an instrument of war by all sides. One could claim that controlling water resources in Iraq is even more important than controlling the oil refineries, especially in summer. Control of the water supply is fundamentally important. Cut it off and you create great sanitation and health crises," he said.

ISIS now controls the Samarra barrage west of Baghdad on the River Tigris and areas around the giant Mosul Dam, higher up on the same river. Because much of Kurdistan depends on the dam, it is strongly defended by Kurdish peshmerga forces and is unlikely to fall without a fierce fight, says Machowski.

Last week, Iraqi troops were rushed to defend the massive five-mile-long Haditha Dam and its hydroelectrical works on the Euphrates to stop it falling into the hands of ISIS forces. Were the dam to fall, say analysts, ISIS would control much of Iraq's electricity and the rebels might fatally tighten their grip on Baghdad.

Securing the Haditha Dam was one of the first objectives of the American special forces invading Iraq in 2003. The fear was that Saddam Hussein's forces could turn the structure that supplies 30 percent of all Iraq's electricity into a weapon of mass destruction by opening the lock gates that control the flow of the river. Billions of gallons of water could have been released, power to Baghdad would have been cut off, towns and villages over hundreds of square miles flooded and the country would have been paralyzed.

The Euphrates River, the Middle East's second longest river, and the Tigris, have historically been at the center of conflict. In the 1980s, Saddam Hussein <u>drained 90 percent of the vast Mesopotamian</u> <u>marshes</u> that were fed by the two rivers to punish the Shias who rose up against his regime. Since 1975, Turkey's dam and hydropower constructions on the two rivers have cut water flow to Iraq by 80 percent and to Syria by 40 percent. Both Syria and Iraq have accused Turkey of hoarding water and threatening their water supply.

"There has never been an outright war over water but water has played extremely important role in many Middle East conflicts. Control of water supply is crucial," said Stephen.



#### WATER RESEARCH PROGRAMME -Weekly Bulletin-

It could also be an insurmountable problem should the country split into three, he said. "Water is one of the most dangerous problems in Iraq. If the country was split there would definitely be a war over water. Nobody wants to talk about that," he said.

<u>Some academics have suggested</u> that Tigris and Euphrates will not reach the sea by 2040 if rainfall continues to decrease at its present rate.

"Water supply key to outcome of conflicts in Iraq and Syria, experts warn", 04/07/2014, online at: http://grist.org/article/water-supply-key-to-outcome-of-conflicts-in-iraq-and-syria-experts-warn/

#### BACK TO TOP



#### \* Here's How Iraq Could Turn Into A Failed State In A Day

ISIS has the ability to immediately turn Iraq into a failed state through the destruction of the country's dams, Keith Johnson wrote in Foreign Policy.

On June 30, ISIS forces began moving towards the Haditha Dam in western Iraq on the Euphrates River. Iraq's largest dam, the Mosul Dam, is also within the jihadist organization's striking distance. Damage to either dam could be a doomsday scenario for Iraq.

If the Mosul Dam fails, Johnson wrote, "scientists say Mosul could be completely flooded within hours and a 15-foot wall of water could crash into Baghdad."

The Mosul Dam could fail even without ISIS directing an attack against the structure.

The dam is <u>inherently unstable</u>, according to the U.S. Army Corps of Engineers. If ISIS disrupts maintenance of the dam its structure could deteriorate and the dam could be breached out of sheer neglect. In a worst-case scenario, a breach could <u>flood Baghdad</u> and wipe out 250 square kilometers of farmland.

Destruction of the Haditha Dam would also have serious consequences. The dam provides both hydroelectric power for Baghdad and irrigation for downstream farms. The Haditha Dam holds back a gigantic reservoir, Lake Qadisiyah, which could flow downstream and cause <u>massive flooding</u> if the dam were ever breached.

ISIS has a history of attacking water sources and dams in Iraq. From January to April, ISIS <u>controlled</u> the Fallujah Dam. They used their newfound power to affect drought in southern Iraq while flooding the areas around Fallujah. The U.S. Embassy in Baghdad estimated that these actions caused a <u>water shortage</u> for hundreds of thousands of Iraqis.

On April 17, gunmen linked to ISIS bombed an oil pipeline, causing spills which <u>contaminated</u> the water supply of west Baghdad.



#### WATER RESEARCH PROGRAMME -Weekly Bulletin-

The destruction of either dam would cause the most damage to southern Iraq, which is predominantly Shiite. ISIS, a Sunni organization, views the Shiites as heretics and is intent upon overthrowing the Shiite-led government in Baghdad. Attacking Iraq's major dams would move them closer to this grisly end goal.

"Here's How Iraq Could Turn Into A Failed State In A Day", 02/07/2014, online at: <u>http://www.businessinsider.com/iraq-can-turn-into-a-failed-state-in-a-day-2014-7</u>

#### BACK TO TOP



#### \* Crisis in Iraq Deepens as War Over Waters Enters the Equation

On June 30, Saudi-funded terrorists representing ISIS, and now members of the newly-proclaimed Caliphate, Islamic State (IS), renewing their efforts in western Iraq to break up the country, have begun to move towards the Haditha hydroelectric dam, the second-largest dam in the country, located on the Euphrates River. On July 2, reports claim ISIS's control around Haditha has increased, with reports indicating that disparate militant groups and tribal leaders were negotiating the surrender of the town of Haditha, which would open the whole of Iraq's Anbar province and the control over the hydroelectric dam to ISIS.

Moreover, Iraq's biggest dam, the Mosul dam, could fall under ISIS's control any day. It is right next to a hotbed of Islamic State activity and poses catastrophic risk. If the dam fails, scientists say the second-most populous city of Iraq, Mosul, could be completely flooded within hours and a 15-foot wall of water could crash into Baghdad, Iraq's capital.

In an article, "Water supply key to outcome of conflicts in Iraq and Syria," experts warn, in yesterday's Guardian, Michael Stephen, deputy director of the Royal United Services Institute thinktank in Qatar, speaking from Baghdad, pointed out that control of water supplies gives strategic control over both cities and countryside. "We are seeing a battle for control of water. Water is now the major strategic objective of all groups in Iraq. It's life or death. If you control water in Iraq you have a grip on Baghdad, and you can cause major problems. Water is essential in this conflict," he said.

Expressing a similar view, Matthew Machowski, a Middle East security researcher at the UK houses of parliament and Queen Mary University of London, told the Guardian, "Rebel forces are targeting water installations to cut off supplies to the largely Shia south of Iraq."

"Crisis in Iraq Deepens as War Over Waters Enters the Equation", 04/07/2014, online at: http://larouchepac.com/node/31218

#### BACK TO TOP



# \* The Acute Danger of Iraqi Dams

It's been apparent at least since the American-led invasion of Iraq in <u>2003</u> that the Mosul Dam, Iraq's largest, could spell devastation for Iraq due to a combination of faulty construction, governmental indifference, and an ongoing civil insurrection. Were it to collapse, it would lead to the largest human-induced loss of life in history. (For more on this problem, see my coverage <u>here</u> and <u>here</u>.)

The conquests in 2014 by what used to be known as the Islamic State in Iraq and Syria (ISIS), now known just as the Islamic State, have dramatically shown that other dams in Iraq can also pose problems, if not on so catastrophic a scale.

First, when ISIS seized Fallujah in January 2014, it also took control of the Fallujah Dam, which is on the Euphrates River, and proceeded to manipulate it for its purposes. <u>Hamza Mustafa</u> of *Asharq Al-Awsat* quoted a pro-government militia leader a few months later, after Baghdad government forces managed to recapture the barrage, explained ISIS's tactics:

[ISIS] realized after closing the dam gates—which resulted in a rise in water levels behind the dam that if the closure continued, they will be besieged twice, once by the armed forces, and the second by rising water, and if they had to withdraw, they would drown, which in turn forced them to reopen the floodgates.

The militia leader also explained the motives behind these maneuvers:

ISIS has two objectives: on the one hand, they want to drown the areas surrounding Fallujah, but the sudden attack by the [government] army foiled that plan; on the other hand, they want to cut off water supply to the central and southern governorates in order to give their war a sectarian dimension.

Second, ISIS approached the <u>Haditha Dam</u>, Iraq's second-largest, in late June, raising here too the possibility of catastrophic flooding. Reports the *New York Times*:

The ISIS militants advancing on the Euphrates River dam, about 120 miles northwest of Baghdad, were coming from the north, the northeast and the northwest. The fighters had already reached



Burwana, on the eastern side of Haditha, and government forces were fighting to halt their advance, security officials said. ... "This will lead to the flooding of the town and villages and will harm you also," the employee said he told the officers. According to the employee, who asked not to be named because he was not authorized to speak to the news media, the officer replied, "Yes, I know, it will be against us and our enemies."

Mesopotamia, one of the most ancient areas of human civilization, has always been defined by its two great rivers, the Euphrates and the Tigris. How ironic that these life-giving sources could potentially also be the vehicle of the country's doom.

The combatants in Iraq's growing civil war need to be compelled by their patrons (Turkey and Qatar, especially in the case of the Islamic State jihadis, Iran in the case of the Baghdad government) to agree on some basic terms of combat, such as not using waterworks as weapons of war. This is where outside powers (the West, Russia, China) can be of help.

"The Acute Danger of Iraqi Dams", 01/07/2014, online at: <u>http://www.nationalreview.com/corner/381738/acute-danger-iraqi-dams-daniel-pipes</u>

#### BACK TO TOP



### Is climate change destabilizing Iraq?

This winter was not a good one for farmers in the Fertile Crescent.

A punishing drought hit most of Syria and northern Iraq during what's normally the wettest time of the year. In the mountains of eastern Turkey, which form the headwaters of the Tigris and Euphrates rivers, snow and rain were less than half of normal. The region has seen one of the worst droughts in decades.

Drought is becoming a fixture in the parched landscape, due to a drying trend of the Mediterranean and Middle East region fueled by global warming. The last major drought in this region (2006-2010) finished only a few years ago. When taken in combination with other complex drivers, increasing temperatures and drying of agricultural land is widely seen as assisting in the destabilization of Syria under the regime of Bashar al-Assad. Before civil war broke out there, farmers abandoned their desiccated fields and flooded the cities with protests. A series of U.N. reports released earlier this year found that global warming is already destabilizing nation states around the world, and Syria has been no exception.

With the ongoing crisis in Iraq seemingly devolving by the day, it's not a stretch to think something similar could already be underway just next door.

One of the most devastating droughts in decades hit Syria and Iraq in 2007-2008. Scientists have linked the drought to climate change.

#### Courtesy of NASA

Could there be a connection between climate change and the emerging conflict in Iraq?

The short answer is a qualified yes, according to Frank Femia of the Center for Climate and Security, a Washington-based policy institute advised by senior retired military and national security leaders. He explained in a phone interview:

It's far too early, considering this is happening in real time, to figure out what is motivating ISIS and its members. Certainly, the natural resource stresses in the region make things worse. Terrorist organizations can try to control those resources and gain significant influence and power. You can't



say climate change is causing ISIS to do what it's doing, but it [climate change] certainly has a role to play in the region.

Increasing temperatures may also be playing a role in the recent uptick in violence. A study published last year in the journal Science showed a strong connection between high temperatures and political instability, like civil wars, riots, and ethnic violence, though the cause is not well known. A previous study has linked dehydration with decreased cognitive performance and increased levels of anxiety.

Sure enough, this year has been unusually hot so far in Iraq with the March-April-May season ranking as the warmest on record across much of the country. (Reliable records from the National Oceanic and Atmospheric Administration date back to 1880.) The emergence of the Islamic State in Iraq and Syria around the same time may just be an interesting coincidence, but the implications are important enough for us to consider a broader connection.

The United Nations lists Iraq as "one of the Arab region's most vulnerable countries to climate change." In 2004, just after the American-led regime change, a Congressional Research Service report cited "rapid population growth coupled with limited arable land" and "a general stagnation of agricultural productivity" after decades of conflict and mismanagement during the final Saddam years as the main reasons Iraq grew more reliant on imports of food amid international sanctions and the oil-for-food program. A major drought from 1999-2001 also hampered the country's ability to feed itself. Since then, conflict has raged and the climate has grown even more extreme, with alternating severe droughts and heavy rainstorms. From the United Nations Development Programme in 2009:

Iraq's wheat production this year was down 45 percent from a normal harvest, with similar reductions expected in the coming year. As a result, the country has experienced a massive loss of seed reserves for future planting, forcing the country to significantly increase food imports at great cost to the economy.

Meanwhile, farmers are abandoning their fields en masse and moving to urban centres, a trend that has placed more stress on cities in Iraq that are already struggling to provide basic social services and economic opportunities to growing urban populations. As a result, social tensions and the risk of crime have increased.



Sound familiar? As in neighboring Syria, it's increasingly clear that Iraq is drying out, an effect that's long been predicted as a result of the human-caused build up of heat-trapping gases like CO2. Since 1973, Femia says, parts of Iraq and Syria have seen "some of the most dramatic precipitation declines in the world." Citing projected stark declines in rainfall and continued population pressure and upstream dam building, a study released earlier this year made the case that the Tigris and Euphrates rivers may no longer reach the sea by 2040.

Much of Iraq's climate is similar to California's Central Valley, with a long summer dry season and a rainier, more productive winter. That's helped Iraq serve as the breadbasket of the region for millennia, <u>but no longer</u>. Like Bakersfield, Baghdad is intensely dependent on river water from upstream for irrigation of most of its crops. After decades of war, not nearly as much water is getting through.

<u>This year's major drought</u> has coincided with <u>the rise of ISIS</u>, which has already used dams as a weapon of war, <u>threatening downstream agriculture and electricity production</u> during its march to gain control of vast swaths of territory in Syria and northern Iraq. From <u>Al Arabiya</u>:

In Iraq, ISIS, <u>reportedly</u> in control of the strategic Mosul dam, has <u>declared</u> its intention to deprive Shiite regions from water. Further electricity shortages hit Southern Iraq, where the consecutive governments have failed in restoring basic services since 2003.

The declines in rainfall already seen in Syria and Iraq are on the order of scientists' predictions but have generally come faster than climate models anticipated. According to retired U.S. Navy Rear Adm. David Titley, the combination of worsening drought and violent conflict now spreading across the region "is a classic case of unintended and unforeseen consequences."

For all the debate over climate change, those in the national security realm are moving surprisingly full-speed ahead. <u>In this year's Quadrennial Defense Review</u>, the Pentagon listed the impacts of climate change, like drought, as "threat multipliers." As Femia put it, "the U.S. military doesn't have the luxury of planning for the short term." Now that the Department of Defense has listed climate change as a national security threat, Femia says, "they have an obligation and duty to address those issues."



For Femia, the way forward in Iraq and other parts of the region is by working at reducing one of the root drivers of Middle East conflict: water scarcity.

In post conflict situations, issues of disarmament and new political foundations and the relationship between various ethnic groups, those are all critical and need to be part of any solution. But if conflict resolution doesn't involve natural resource management, you're setting the stage for future instability.

The government of Iraq has named 2014 as a national <u>Year of Environment</u> in an attempt to prioritize the rehabilitation of the country's degraded lands after years of conflict. Let's hope they're not too late.

"Is climate change destabilizing Iraq?", 27/06/2014, online at:

http://www.slate.com/articles/technology/future\_tense/2014/06/isis\_water\_scarcity\_is\_climate\_change\_destabilizing\_iraq\_.html

#### BACK TO TOP



#### Syria and neighbouring countries: Water shortages add to woes

Throughout the Middle East, people are suffering from water shortages. The rising violence of the past few years and record-low rainfall have made clean water increasingly difficult to come by – especially in Syria, where the shortfall in precipitation last winter is expected to hit many people very hard.

"Wheat, which is primarily grown in rain-fed areas in the north-eastern part of Syria, is expected to produce a record-low yield this year," said Michael Talhami, water and habitat programmes coordinator at the ICRC. "This means that Syria will become even more reliant on imported food, and will therefore be acutely vulnerable to any spike in world food prices, which would exacerbate the difficulties many people already face as they try to obtain food at a price they can afford."

Millions of people have been displaced by fighting to shelters where no clean water is available. With power outages common in all parts of Syria and water networks suffering damage, the challenge now is to transfer the limited water supplies still available to high-population areas.

For Syrians who are still farming despite the ongoing conflict, the low yield and hence reduced income, combined with the high price of the food they have to buy when they don't produce enough even for themselves, are making it increasingly difficult for them to eke out a living. Automatic stabilizers that were in place prior to the conflict, involving subsidized fertilizer and seed for producers and subsidized food for consumers, are now mostly unavailable.

"Working with the Syrian Arab Red Crescent water and sanitation specialists and with local water boards, we are improving access to clean water for millions of people all over Syria," said Mr Talhami.

"Much of the region depends on aging infrastructure that requires considerable maintenance," he added. "In Jordan, one of the most water-scarce countries in the world, the demand for water both from residents and from the refugees who have arrived over the years has been growing significantly. In addition, there has been an increase in the cost of water, which in turn has caused an increase in



the cost of food. In border areas, the ICRC is endeavouring to provide drinking water, sanitation, shelter and other basic necessities for Syrian refugees."

Although Lebanon's water supplies are relatively abundant, after several years of low rainfall it has become a challenge even there to maintain water quality and availability. There are Syrian refugees in all parts of the country. The ICRC, working in coordination with local water boards, has been upgrading pumping stations and water networks to boost supplies and meet needs wherever they may arise.

Because of the influx of refugees into Lebanon and Jordan and displacement within Syria, the local authorities have had to supply fresh water and provide wastewater treatment for growing numbers of people. The ICRC intends to expand its activities to respond to these needs.

#### Syria

The ICRC has worked closely with the Syrian Arab Red Crescent and local water boards to provide, within the last month:

- six tanker trucks that brought water to more than 100,000 people in Homs, Rural Damascus and Deir Ezzor;
- financial support enabling a rubbish collection truck to operate in Idlib city, thereby providing more sanitary living conditions for 100,000 people;
- upgrades to eight centres housing displaced people, bringing clean water, proper sanitation and decent housing to over 9,400 people in Rural Damascus and Dara'a;
- supplies needed to treat water from Al Figeh Spring, the main source of water for around four million people living in Damascus city and the surrounding areas;
- general maintenance and emergency repairs required to maintain the availability of safe water for more than a million people in Rural Damascus and Deir Ezzor;
- mechanical and electrical spare parts for 15 submersible pumps to increase the capacity of various water stations in Hassakeh governorate, such as Ras Al Ain, Al Malekia, Al Jawadiah and Qamishly, which together serve more than 800,000 people.



#### Jordan

To help the Jordan Armed Forces cope with the growing influx of refugees across the country's eastern border, the ICRC has, since the beginning of 2013:

- equipped six transit facilities in the border areas so that 1,200 Syrian refugees per day can be hosted in suitable conditions;
- provided in the eastern border area 50 shelter caravans, 20 sanitation caravans, 90 rubbish bins, seven generators, 46 tents, 10 solar water boilers, 13 drinking-water coolers, 12 large washbasins, 14 water pumps and 41 water tanks;
- provided in Raba'a Al Sarhan Registration Facility in Mafraq governorate three sanitation caravans, seven drinking-water coolers, fivewater tanks and 10 rubbish bins;
- provided in Manshiyat Al-Alyan camp for Syrian defectors in Mafraq governorate six sanitation caravans, 10 drinking-water coolers;
- nine water tanks, 10 rubbish bins, 13 large washbasins, six solar water boilers and two water pumps;
- made available 18,000 litres of potable water daily at Manshiyat Al-Alyan camp through a Jordanian contractor.

#### Lebanon

Between May and December 2013, the ICRC completed eight projects in the country involving the supply of pumps and generators, upgrades to pumping stations, etc., which benefited some 220,000 people, residents and refugees alike.

So far this year, projects already under way or about to begin in Zahle, Chamsine, Abu Halka, Hebberiye, Hasbaya and Kfeir are benefiting over a quarter million people. Further projects under study in Aarsal, Flawi, Laboue, Sour and Chebaa could benefit as many as 270,000 people. The ICRC has also provided support for the renovation of a hospital in Ain El Helwe damaged in armed clashes. Field assessments and discussions with municipal authorities have begun with a view to launching new water projects for refugee and host communities in areas with a large refugee population.



#### Iraq

Iraq's armed conflict has now spread from Anbar to other parts of the country, leaving thousands dead and over 800,000 displaced. In addition, Iraq is hosting many thousands of people who have fled the conflict in Syria. The Iraqi water infrastructure is affected due to the fighting, and the huge number of displaced persons. The government has measures in place to deal with the water situation, but shortages of electricity, fuel, chemicals and spare parts could reduce capacity still further. The ICRC is working in the provinces of Anbar, Babil, Diyala, Kirkuk, Missan, Nineveh and Salah al-Din, where we have:

- built or renovated 10 water supply systems;
- carried out 15 emergency repairs on water supply systems;
- installed water tanks and delivered water at seven centres and two camps for displaced people;
- repaired a primary health care centre damaged during clashes in Ramadi (Anbar);
- run three training sessions for 45 technicians at water treatment plants in southern Iraq;
- repaired two irrigation canals in Kirkuk and Babil, benefitting 24,700 people.

Overall, the ICRC has improved access to safe water for 372,000 displaced people and others across Iraq, reducing the risk of disease.

"Syria and neighbouring countries: Water shortages add to woes", 04/07/2014, online at: http://reliefweb.int/report/syrian-arab-republic/syria-and-neighbouring-countries-water-shortages-add-woes

BACK TO TOP



#### Food Security Is National Security

In order to set effective food and nutrition priorities, as well as strengthen access to nutritious foods and sustainable agriculture, America must view food security as integral to its national security. According to USAID, food security is "having at all times, both physical and economic access to sufficient food to meet dietary needs for a productive and healthy life." When this access is denied, food insecurity can become a catalyst of social unrest. Nowhere is this more evident than in the oscillating political seismograph that is the Middle East.

In Egypt, as food prices rose 37 percent between 2008 and 2010, protesters in Tahrir Square chanted for "bread, freedom and social justice." Prices remain high, and despite the new government's success in curbing the price of food and goods for Ramadan, it cannot avoid continued calls for bread and social justice.

The Syrian government's mismanagement of water in the midst of a pressing drought led protesters to scold the regime by saying it took their "loaf of bread." Food and water deprivation have become a weapon in a bloody crisis that is spreading throughout the region, and the situation is only worsening.

In Iraq, government officials are telling employees at the Haditha Dam that they made need to open the dam's floodgates, as fighters with the Islamic State in Iraq and Syria are advancing on the dam. When the Fallujah Dam was opened after ISIS seizure in April, the agricultural results from the flooding were disastrous. We can expect the same for Haditha.

The combination of conflict and food scarcity in addition to the broadening and deepening of drought due to climate change and resource mismanagement, population displacement, and refugee crises, have all impacted the changing landscape in the region and will continue to do so in the foreseeable future.

The challenge is great. According to the USDA International Food Security Assessment, the number of food insecure people is projected to increase to 868 million by 2023. However, when it comes to sustainable agriculture and global food security, the U.S. can still reap what it sows. Increased global food security will tame social unrest and advance the national security goals of the United States.



This will require sustained and patient thought leadership to incubate a global set of values through which leaders can influence security factors and collaborate across sectors and geographies. In the Middle East and North African region, in particular, we should weigh the costs of investing in wheat fields against the costs of investing in battlefields. The more support for programs that foster sustainable agriculture and nutrition today, the less likely the need for American intervention tomorrow.

So what is the blueprint to address this immense issue? First, we must recognize that there are many stakeholders -- from the Rome-based UN food agencies, multinational corporations, and national governments to the predominantly women smallholder farmers themselves who carry the burden for most of the world's food production.

Second, we must cultivate not just thought leadership, but actionable ideas here in the US and abroad to advance solutions and bring these stakeholders to the table, whether it is in Alabama or Africa.

If we are to achieve this goal, we must think outside the box and acknowledge that talking about acting and acting are different. Therefore, we should consider in this new table we've constructed a redesign of the UN food agencies to be more collaborative and more impactful. We should think creatively and create incentives for smallholder farmers, whether it's through greater access to finance, legal rights, or technology.

Above all, as we consider this new architecture we need to run, not walk, as we are all mindful of the stunning impact that climate change is having on meeting and feeding the next nine billion. It strikes me, as His Holiness Pope Francis has recently reminded us, that we have a moral authority to address this compelling 21st century issue. We must engage, not embrace the globalization of indifference.

"Food Security Is National Security", 29/06/2014, online at: <u>http://www.huffingtonpost.com/toni-verstandig/food-security-is-national b 5540015.html?utm hp ref=politics&ir=Politics</u>

BACK TO TOP



#### \* Iran's water crisis the product of decades of bad planning

TEHRAN — Iran is headed for a water shortage of epic proportions, and little is being done to reverse a decades-long trend that has reduced the country's water supply to crisis levels.

Changes in the global climate, a century of rampant development and heavy subsidies for water and other utilities are all contributing to a situation that is likely to get much worse.

"Our water usage is twice the world standard, and considering the situation in our country, we have to reduce this level," Massoumeh Ebtekar, a vice president and the head of Iran's Department of Environment, said in a recent speech.

Iranians use an average of 66 gallons of water each day. They use much less water than residents of the United States, who lead the world in using nearly 105 gallons per day, but Iran and other Middle Eastern countries do not enjoy the abundance of fresh water found in the Americas and Europe.

With Iran's annual precipitation only a third of the global average, heavy overconsumption has ravaged its available water resources. A 2013 study by the World Resources Institute ranked Iran as the world's 24th most water-stressed nation, putting it at extremely high risk of future water scarcity.

While Iran has several large<u>desalination projects</u>, and even plans to sell water to neighboring countries, converted salt water is seen as solution only for areas close to the country's two main saltwater sources, the Caspian Sea and the Persian Gulf, because the transportation costs of moving the water to other regions of Iran are too high.

Throughout Iran, landscapes are being transformed as scientists warn that the already arid country runs the risk of becoming a vast desert.

Lake Urmia, a salt lake in Iran's northwest that once was the largest in the Middle East, has been depleted to just 5 percent of its former volume over only two decades. The Zayandeh River, which flowed through Iran's heartland, is mostly a dry bed after being diverted and dammed to provide irrigation for farms.



Disappearing lakes and dried-up rivers are the outward symptoms of Iran's water shortage, but the root causes are less visible, stemming from the techniques and habits of a more traditional and less mechanized era.

"In less than 50 years, we've used all but 30 percent of our groundwater supply, which took a million years to gather, and it's getting worse and worse due to unsustainable development," said Nasser Karami, an Iranian physical climatologist who is an associate professor at the University of Bergen in Norway.

Iran's population has more than doubled since the 1979 revolution and has grown eightfold since 1900.

After six years of below-average rainfall, few Iranian authorities acknowledge the depth of the problem, instead offering quick-fix solutions that do little to address the looming long-term impact on Iran's climate and landscape.

"I have repeated it several times, that if water consumption in Tehran is managed and controlled we will not need rationing this summer. If people reduce their water consumption by just 20 percent, there won't be any need for action," Seyed Hossein Hashemi, the governor of Tehran province, said June 20 in an interview with Jahan News.

The city of Karaj, a sprawling suburb of Tehran with 1.6 million inhabitants, recently implemented a rationing plan. Other major cities seem certain to follow suit in the coming days.

For a society that has become accustomed to heavily subsidized utilities, including water, and has never been proper educated on managing its natural resources, convincing Iranians to make adjustments will be challenging.

"We don't realize that we're making life for the future impossible, for our own uses today. We shouldn't only think about living comfortably today at the expense of tomorrow," Karami said.



Among the signs of Iranians' disregard for water conservation are unregulated gardening taps in public parks that flow for hours on end, the widespread practice of hosing down hot and dusty concrete to cool it down and faucets that are habitually left running in kitchens around the country.

Environmental experts say that any solution will need to extend beyond conservation to include a long-term strategy to reverse the damage done to groundwater supplies in recent years.

"We've overexploited our groundwater, which is sort of a hidden water resource. People believe they can use it as though there is an unlimited supply. We are in a severe drought, but we could have prevented these kinds of problems, or least come up with a better plan," said Mehdi Mirzaee, a professor of water resource management at Tehran's Islamic Azad University.

Iran's water problems go far beyond the everyday consumption habits of its nearly 80 million citizens. Agricultural use, which accounts for 90 percent of Iran's water usage according to statistics released by the Islamic republic's Environmental Protection Organization in May, is also in need of reform. State estimates put the amount of water wasted in agricultural irrigation at 60 percent.

#### BACK TO TOP

<sup>&</sup>quot;Iran's water crisis the product of decades of bad planning", 02/07/2014, online at: http://www.washingtonpost.com/world/middle\_east/irans-water-crisis-the-product-of-decades-of-badplanning/2014/07/01/c050d2d9-aeeb-4ea1-90cc-54cef6d8dd10\_story.html



#### ✤ Iran to spend \$500 million to save shrunken Lake Urmia

Iran will spend half a billion dollars just in the first year in a bid to revive the once-enormous Lake Urmia, which has shrunk almost to nothing in the last two decades.

The money will mostly go to water management, reducing farmers' water use, and restoring the local environment, says Naser Agh of Urmia University, who is a member of the steering committee of the Lake Urmia restoration programme.

In March, Iran's Department of Environment and the United Nations Development Programme (UNDP) issued a plan to save the lake and the nearby wetland.

Now a recovery plan has been approved at a special meeting headed by Iran's president Hassan Rouhani. "President Rouhani accepted the programmes and ordered immediate action plans," says Agh. The budget approved for the first year is 14 trillion Iranian rials – over \$500 million. That goes well beyond an earlier Iran-UNDP plan, which called for spending \$225 million in the first year of a \$1.3 billion restoration.

#### Draining away

Lake Urmia was one of the largest lakes in the Middle East, and is a UNESCO biosphere reserve. But in just 14 years it has almost vanished. Once covering 5000 square kilometres, by October last year it covered just 20 per cent of that. Its volume has shrunk nearly 95 per cent from its original 32 cubic kilometres.

The southern half of the lake has been left largely dry, and wildlife has suffered. Flamingos largely abandoned islands in the lake where they bred, and numbers of migratory ducks, shorebirds and gulls declined.

The problem is that Lake Urmia is highly vulnerable to water loss. Like the shrunken Aral Sea in central Asia, it is shallow and sits in a closed, semi-arid basin. Every year about 3 billion cubic metres of water evaporates from the lake.

Two factors have drained the lake, according to the Conservation of Iranian Wetlands Project. First, a major drought began in 1998. At the same time, people have been using too much water. The number



of wells pumping groundwater increased from a few thousand in 1973 to over 70,000 in 2005. There has also been lots of dam-building, so little water now flows into the lake.

It looks like that situation could now change.

"Iran to spend \$500 million to save shrunken Lake Urmia", 04/07/2014, online at: <u>http://www.newscientist.com/article/dn25850-iran-to-spend-500-million-to-save-shrunken-lake-urmia.html#.U7p8Dv1\_uFV</u>

#### BACK TO TOP



#### ✤ Iran's next crisis: A water shortage

TEHRAN, July 2 (UPI) --Cities in Iran are preparing for water rationing, as decades of overuse and inadequate planning have produced a shortage of water.

Development, weather changes and a lack of conservation have put Iran -- an arid country whose population has doubled to nearly 80 million since 1979 -- on the brink of a crisis.

Iranians use 250 liters (66 gallons) of <u>water</u> per person per day, significantly less than United States residents, who use nearly 400 liters (105 gallons) per day but have access to abundant fresh water. Countries neighboring Iran tend to consume water at similar levels to Iran but have significantly lower populations.

"Our water usage is twice the world standard and considering the situation in our country, we have to reduce this level," said Massoumeh Ebtekar, the head of Iran's Department of Environment.

A study by the World Resources Institute in 2013 called Iran the world's 24th most water-stressed nation. Although it has desalinization plants on the Caspian Sea and the Persian Gulf to convert seawater to drinking water, the costs to transport the potable water are excessive.

Across Iran, rivers and lakes are drying up -- symptoms of a drought caused by six years of belowaverage rainfall, as well as longstanding habits of Iranians that include public and household water taps that are never shut off, and the practice of hosing down concrete to cool it.

Karaj, a Tehran suburb of 1.6 million people, began a rationing program this summer, and other major cities are likely to begin their own.

"If water consumption in Tehran is managed and controlled we will not need rationing this summer. If people reduce their water consumption by just 20 percent there won't be any need for action," said Seyed Hossein Hashemi, governor of Tehran.

A state estimate claims nearly 60 percent of agricultural irrigation water is wasted.

"In less than 50 years, we've used all but 30 percent of our groundwater supply, which took a million


years to gather and it's getting worse and worse due to unsustainable development," said Nasser Karami, an Iranian climatologist.

"Iran's next crisis: A water shortage", 02/07/2014, online at: <u>http://www.upi.com/Top\_News/World-News/2014/07/02/Irans-next-crisis-A-water-shortage/9411404313271/</u>

BACK TO TOP



## \* Iran Leader Orders Start of Plan to Save Shrinking Lake

Iran, sapped by drought in parts of the country for five decades, will try to save one of the Middle East's largest lakes after it lost 85 percent of its water.

Lake Urmia "shouldn't be left in its current status," President Hassan Rouhani said yesterday, according to the state-run Fars news agency. "The government is ready to pay the costs, as much as needed, to rehabilitate the lake."

The lake in northwest Iran has shrunk as dams were built and farmers diverted water for crops amid climate change, state media say. The average depth of Lake Urmia when it covered 5,000 square kilometers, the size of the Caribbean island of Trinidad, was six meters (20 feet). That's now one meter, the official Islamic Republic News Agency said.

The United Nations in partnership with Iran's environment department presented a report in March on conserving Iranian wetlands. The project relating to Lake Urmia will introduce sustainable agriculture practices to 40 villages with a potential water savings of about 35 percent while waterharvesting options will also be considered, the UNDP said on its website. Japan contributed \$1 million to the UNDP's office in Tehran to help manage area waters more efficiently.

Operations to save Lake Urmia may start next week though restoring it will require 10 to 15 years, IRNA said, citing Davoud-Reza Arab, a spokesman for the Lake Urmia Restoration Committee.

Iran has suffered from drought either nationwide or in certain areas for about half of the past five decades, the Tehran-based Donya-e-Eqtesad newspaper reported today, citing Deputy Energy Minister Sattar Mahmoudi. This year, Iran's rainfall has decreased 6 percent, with the capital Tehran and 11 other cities bordering on water shortages, Mahmoudi said.

About 92 percent of Iran's water is used in the agriculture industry, the minister said. At 236 liters (62 gallons) per person, Iran's daily water consumption is higher than the global average, he said.

"Iran Leader Orders Start of Plan to Save Shrinking Lake", 30/06/2014, online at: http://www.bloomberg.com/news/2014-06-30/iran-leader-orders-start-of-plan-to-save-shrinking-lake.html

## BACK TO TOP



# Syria inks Russian deal for Tigris irrigation project

The Syrian government signed a deal with a Russian firm Monday for the first phase of an irrigation project for the drought-hit northeast of the war-torn country, state media said.

The project, which had been planned before the uprising against President Bashar al-Assad erupted in March 2011, aims to draw water from the River Tigris to irrigate land in Hasakeh province.

The government still controls Hasakeh city but much of the surrounding province is in the hands of Kurdish militia or jihadists of the Islamic State.

"The General Company for Water Resources signed today a contract valued at 30 billion Syrian pounds (\$264 million) with Russian company Stroytransgaz to carry out a project... to draw water from the Tigris," the state SANA news agency said.

The deal is for the construction of a main pumping station in the Ain Diwar area, near the Turkish and Iraqi borders.

It is a small part of the ambitious master plan originally drawn up which aims to irrigate some 214 million hectares (530 million acres) at a total cost of more than \$2 billion.

Russia is the Assad regime's most powerful ally and Russian firms have long been heavily involved in the Syrian economy.

"Syria inks Russian deal for Tigris irrigation Project", 30/06/2014, online at: <u>https://uk.news.yahoo.com/syria-inks-russian-deal-tigris-irrigation-project-172920587.html#tbKPdLr</u>

### BACK TO TOP



### \* A hotter, drier Middle East climate could threaten stability

In the United States, the question of whether the Earth's climate is changing continues to be hotly debated in mainstream and popular media. However, a growing body of scientific research demonstrates that certain areas of the globe are experiencing significantly lower levels of precipitation, higher temperatures and more frequent droughts than in centuries past. One of these regions is the Middle East. According to arecent study by scientists from the National Oceanic and Atmospheric Administration (NOAA) the Mediterranean basin has been experiencing significantly drier conditions since the 1970s. Moreover, <u>current climatological research</u> predicts that the Levant region of the Middle East will be one of the areas most negatively affected by <u>rising air temperatures</u> and shifting precipitation patterns during the 21st century.

What implications does a drier and hotter Middle East hold for politics in the region? Does climate change have the potential to transform political dynamics in this geo-strategic area of the world? To find answers to these questions, I have spent the past several years exploring the political implications of increasing water scarcity in the Middle East and have recently published a set of preliminary findings in the journal <u>Middle East Policy</u>. In short, Arab countries face three key challenges in a world of more volatile precipitation events and higher temperatures: enforcing the sustainable use of groundwater, satisfying growing urban demand for water and an increased potential for social and political instability.

Arab governments have manipulated water resources for political ends since the achievement of independence. For example, Jordan's government actively promoted rural development during the 1950s and 1960s to secure political loyalty and support from rural residents, particularly tribal leaders. A key part of this strategy was providing subsidized diesel fuel to power pumps extracting water from wells. Low energy costs, along with official efforts to promote local demand for domestically grown crops, led Jordanian farmers to maximize crop yields by pumping huge amounts of water from the ground. By the 1980s, growing demand for and dwindling supplies of water led the Jordanian government to impose rationing on urban residents, limiting the delivery of water to one or two days a week. Despite these efforts to promote conservation, the extraction of groundwater for both agricultural and municipal use continued to grow. In 2010, the average rate of abstraction from renewable aquifers was 155 percent of the natural recharge rate.



#### WATER RESEARCH PROGRAMME -Weekly Bulletin-

One dramatic effect of groundwater over-abstraction was the destruction of the Azraq wetlands in eastern Jordan. The wetlands had served as an oasis for humans and animals for centuries before the unsustainable extraction of groundwater caused the springs feeding the wetlands to dry up in the early 1990s. Today the wetlands are only 0.04 percent of their original size, and groundwater from the Azraq aquifer continues to be pumped to satisfy the needs of Jordan's northern cities. One relatively positive development for the wetlands —and for Jordan's water security in general — is the recent completion of the Disi Water Conveyance Project. This project is provides nearly 100 million cubic meters of fossil groundwater annually to the capital. Amman, and this has lessened the need to pump water from Azraq to Amman for municipal use. However, the Disi project is not without its own challenges as the water from Disi is naturally radioactive and must be mixed with other sources of freshwater to make it safe for consumption. In addition, the cost of pumping the Disi water to Amman – about 400 miles away – has greatly increased the budget deficit of the Water Authority of Jordan and is putting pressure on the government to raise water prices for consumers.

The destruction of the Azraq oasis is an apt illustration of the potential consequences of meeting growing urban demand for water. Currently, the Jordanian agricultural sector uses nearly two-thirds of the kingdom's renewable water resources, but the country's population is growing at more than 2 percent a year – with most of this growth occurring in urban areas. Furthermore, the influx of refugees from Iraq and Syria over the past decade has put even greater pressure on Jordan's scarce water resources. Faced with increasing levels of urban population growth and the agriculture sector's decreasing contributions to the national economy and employment, the government faces the difficult task of curtailing water use by key political constituencies — farmers and several large tribes — to provide adequate supplies of water for the urban-based service and industrial sectors, both of which make greater contributions to national employment and economic growth than agriculture.

The third critical challenge that Jordan and other Arab countries face if predicted changes in the region's climate occur is the potential for increasing water scarcity to create conditions conducive to sociopolitical instability. The best example of this potential is Syria. Before the outbreak of widespread protests in Syria in 2011, a four-year drought ravaged the country's north and northeast. The drought had devastating effects on the agricultural sector and displaced over a million rural residents to Syria's main urban centers. According to some analysts, the migration of thousands of



#### WATER RESEARCH PROGRAMME -Weekly Bulletin-

farmers and rural residents to cities already suffering from high levels of unemployment and poverty created the conditions that led to the outbreak of the popular rebellion against the regime of President Bashar al-Assad. However, a close look at the <u>available evidence</u> indicates that water scarcity and the effects of the drought played only an indirect role in the outbreak of the rebellion. Instead of being inspired by the drought's effects, rural migrants who participated in urban protests were primarily motivated to do so by the government's failure to assist them and other rural Syrians whose livelihoods were destroyed by the drought. Thus, it was the government's inaction and unwillingness to help communities harmed by the drought that proved to be the real trigger for the rural migrants who joined the popular protests.

In Jordan and other Arab countries facing a hotter and drier future, governments will need to respond decisively and effectively to droughts and become more successful at promoting water conservation. Failure to do so may exacerbate already volatile sociopolitical conditions in some Arab countries and contribute to domestic and/or regional political instability. At the same time, scholars and analysts must be extremely careful to avoid making spurious connections between extreme meteorological events and political developments in the Middle East. As the case of Syria clearly demonstrates, the connections between drought and political instability are at best indirect and merit very careful analysis to avoid equating correlation with causation.

Scott Greenwood is an associate professor of political science and global studies and associate dean of instruction and academic programs at the California State University at San Marcos.

"A hotter, drier Middle East climate could threaten stability", 03/07/2014, online at: <u>http://www.washingtonpost.com/blogs/monkey-cage/wp/2014/07/03/a-hotter-drier-middle-east-climate-could-threaten-stability/</u>

BACK TO TOP



## Dell HPC to Assess Water Resource in Middle East and North Africa

Dell announced that the International Center for Biosaline Agriculture (ICBA) in Dubai has deployed Dell High Performance Computing (HPC), Dell Services, and Dell SonicWALL security solutions. The system is built to support analyses of the impact of climate variability and change on water and agriculture in the Middle East & North Africa (MENA) regions.

As part of ICBA's MAWRED project (Modeling and Monitoring Agriculture and Water Resources Development), funded by the U.S. Agency for International Development (USAID), ICBA is collaborating with NASA's Goddard Space Flight Centre (NASA GSFC) and selected U.S. university experts to use the Weather Research and Forecasting system (WRF) to downscale climate data at a regional and local scale.

This climate data is then used as input for NASA GSFC furnished Land Information System models, operating at ICBA, to understand the likely impacts on water and agriculture in the MENA region. This information will help local government ministries and public organisations in their management of water and agricultural resources decisions, and assist vulnerable communities in the region through improved drought management and response. It will also help in making decisions on water allocation among other sectors, such as industry and households.

ICBA is a world-class research facility with a team of international scientists conducting applied research to address the water related issues improving the agricultural practices in the water scarce arid environments. The organisation has a particular interest in dealing with problems using saline water for irrigated agriculture. Their central aim is to tackle the complex challenges of water, nutrition and food security in a region, which is under a continuous threat of declining water resources.

ICBA has also engaged Dell Services for full ongoing support, as well a security plan to address the organisation's specific security requirements. As part of this, ICBA has deployed SonicWALL Next Generation Firewall NSA 3500, which integrates intrusion prevention, malware protection, and



application intelligence and control with real-time visualization, as well as Dell SonicWALL Email Security ES3300.

"The International Centre for Biosaline Agriculture undertakes incredibly important work to improve water management in the MENA region and help the most vulnerable in society. We are delighted to have been selected to implement an HPC solution as well as support their in-house team with security solutions and services," said Dave Brooke, General Manager, Dell Middle East.

"Technology is absolutely essential to our ability to deliver information to governments and public bodies which potentially leads to life-changing results," Dr Rachael McDonnell, Water policy and governance scientist, ICBA. "The implementation of Dell's HPC solution is key to our ability to analyse vast amounts data which can be used to improve the lives of people in the MENA region. Our in-house IT team is small, so as well as best-of-breed technology we were also looking for a partner which could offer support through responsive services. We are delighted to partner with Dell which has previous experience of WRF modelling and offered a robust and scalable end-to-end solution."

"Dell HPC to Assess Water Resource in Middle East and North Africa", 03/07/2014, online at: <u>http://www.engineering.com/DesignSoftware/DesignSoftwareArticles/ArticleID/7945/Dell-HPC-to-Assess-Water-Resource-in-Middle-East-and-North-Africa.aspx</u>

## BACK TO TOP



### \* Ethiopia agrees to resume tripartite talks on Nile dam

Ethiopia has agreed to an Egyptian call for the resumption of tripartite talks – also including Sudan – to discuss the construction of a multibillion-dollar hydroelectric dam being built by Addis Ababa on the upper reaches of the Nile, an Ethiopian diplomatic source said on Saturday.

"Ethiopia and Sudan have agreed in principle to hold a tripartite meeting this month," the source, requesting anonymity, told Anadolu Agency.

He added that the meeting will likely be held in Sudanese capital Khartoum.

The Egyptian government, however, says it has yet to receive an official response from Addis Ababa.

"But we expect the response to be positive," Egyptian Irrigation Minister Hossam Moghazi told AA by phone.

Earlier this month, Cairo said it has offered to host the tripartite talks in mid-July.

The invitation came after Egypt and Ethiopia agreed during late June's African summit in Malabo to resume talks on the controversial hydroelectric mega-dam Addis Ababa is building on the Nile, which Cairo fears will reduce its traditional share of river water.

"Cairo harbors no sensitivity towards the location of the meeting," Moghazi said.

In a joint statement during the summit, the two countries also agreed to resume meetings of a tripartite committee composed of officials from Egypt, Ethiopia and Sudan.

The statement was issued a day after Egyptian President Abdel-Fattah al-Sisi met with Ethiopian Prime Minister Hailemariam Desalegn on the sidelines of the 23rd African summit.

Set up in 2011, a tripartite technical committee was tasked with studying the impact of the multibillion-dollar Grand Ethiopian Renaissance Dam on the two downstream countries.

The panel's work, however, was suspended in January amid mounting tension between Cairo and Addis Ababa.

"Egypt is looking forward to reaching a friendly solution to the crisis," Moghazi said. "We have common ground with Ethiopia on which we could reach a settlement."



Ethiopia says the dam is necessary for its national development, insisting the project won't impact Egypt's traditional share of Nile water, which has long been set by a colonial-era water-sharing treaty that Addis Ababa has never recognized.

Tension has marred relations between Ethiopia and Egypt in recent years over the former's construction of the Nile dam, given the fact that the river represents Egypt's only source of water.

Egypt fears construction of the dam could potentially reduce its water supply and hurt local agriculture.

"Ethiopia agrees to resume tripartite talks on Nile dam", 05/07/2014, online at: http://www.worldbulletin.net/world/140109/ethiopia-agrees-to-resume-tripartite-talks-on-nile-dam

### BACK TO TOP



### **\*** More people, less water mean rising food imports for Egypt

World's top wheat importer to be more dependent on food imports

\* Water constraints make boosting farming output very difficult

\* Ethiopia dam, rising temperatures to tighten water supply

\* Water policies 'unrealistic' or ignore subsidised wheat, biggest water user

By Maggie Fick and Shadi Bushra

CAIRO/LONDON, July 3 (Reuters) - In the northwest corner of the Nile Delta, Ibrahim Sharaf Al-Dein fires up his diesel-powered pump next to a murky canal only to watch it spew out a yellowish froth.

For the past 15 years, antiquated irrigation systems and a government conservation drive have kept many farmers from nutrient-rich Nile waters, forcing them to tap sewage-filled canals despite their proximity to the world's longest river.

"This water ruins our pumps, it breaks our machines, it's bad for our production," Sharaf Al-Dein, 50, said of the canal.

But even as Egypt wrestles with dwindling water from its only major source, the Nile, it pushes farmers to grow more to supply the country's costly subsidised food programme. The two goals, farmers and experts say, are at odds with one another.

And efforts to make the most of precious farmland have been hampered by decades of urban sprawl, which has accelerated since 2011 when the overthrow of President Hosni Mubarak led to a security vacuum.

The government, anxious to stimulate economic recovery after years of political turmoil, wants to cut its \$4.5 billion food import bill. Most of that bill goes to subsidies that guarantee universal access to bread at less than one U.S. cent (0.05 Egyptian pounds) per loaf.



That makes Egypt the world's top wheat importer, purchasing around 10 million tonnes a year.

"The problem of import dependence is going to get worse," said Nicholas Lodge, managing partner at Clarity, a Gulf-based agricultural investment firm.

"You have population growth outstripping the ability of the agricultural sector to improve production, which is held back by land and water shortages."

Egypt already grows a large amount, including 7 million tonnes of wheat a year according to traders, largely because Cairo offers farmers above-market prices to spur production.

Subsidised bread encourages Egyptians to consume more wheat per person than almost any other country, and demand is set to increase as the 87 million population grows. The U.S. CIA World Factbook puts population growth at 1.6 million people a year.

## "UNREALISTIC" SOLUTIONS

Egypt has an enduring debt to the Nile, which allowed it to build an ancient civilisation based on agricultural wealth. But

farms soak up 85 percent of the country's water, above global averages, according to think-tank the World Water Council.

While improving yields and allocating more land to farmers could boost production, those measures will not keep up with growing demand, said Gamal Siam, an agricultural economist at Cairo University.

Egypt's wheat yields are already among the highest in the world but further production is limited by growing competition between Egypt's farms and cities for limited land and water.

The Nile Valley, almost the only arable land, makes up five percent of Egypt's area but is home to 95 percent of its people.



Newly-elected President Abdel Fattah al-Sisi met with key ministers on Sunday to flesh out plans to reclaim 4 million feddans (about 1 billion hectares) of desert land for <u>farming</u>.

Siam said the "unrealistic" plan would need 80 billion cubic metres of water a year, more than all Egypt's Nile waters.

More modest reclamation plans in southern Egypt and on the northern coast have been stalled for years for lack of water.

Policies like limiting farming of rice, the thirstiest crop, and encouraging sugar beets instead of water-intensive sugar cane have helped, but don't address wheat, the main water user.

Experts say feasible solutions include overhauling irrigation systems or growing more profitable crops, such as fruits, which need little water but require complex logistics like refrigerated transport and storage.

## MORE EGYPTIANS, LESS WATER

Water watchers warn that global food security is threatened by water scarcity, with Egypt especially affected by upstream Nile projects, a booming population, and climate change.

"Egypt is basically a country that depends on one source of water, the Nile, which is shared by eleven countries," Benedito Braga, president of the World Water Council, told Reuters.

"So from a strategic point of view the Nile is something of a national security issue for Egypt," Braga said.

Treaties inked while all neighbours except Ethiopia were colonised grant Egypt three-quarters of the 74 billion cubic metres of annual usable flow, a position it is keen to protect.

But with its regional hegemony faded, others along the river are starting to unlock the Nile's potential for themselves.



In 2011, Ethiopia won its power-starved neighbours' support and began building Africa's largest hydropower project, causing consternation in Cairo.

"All options are on the table," then-President Mohammed Mursi said on the dam last June. "If a single drop of the Nile is lost, our blood will be the alternative."

Cairo has been more conciliatory of late, with Sisi to visit Ethiopia this summer for talks on the quarter-finished dam.

Siam estimates the dam will hold back 10 billion cubic metres a year for seven years, with more lost to evaporation.

Egypt says it needs its historical veto on Nile projects because upstream countries are more watersecure.

"Egypt is under the water poverty line of 1,000 cubic metres a year per capita, at 700 cubic metres," Siam said. "And with an increasing population, the problem becomes more serious."

And whatever farmers such as Sharaf Al-Dein make of the climate change debate, some agencies are predicting shifts in weather patterns could affect Egypt.

"A reduction in rainfall over northern Africa is very likely by the end of the 21st Century," the UN's Intergovernmental Panel on Climate Change warned in a 2013 report that also expected Egypt's temperature to rise by one to two degrees Celsius by the end of the century.

Hotter weather means more water is lost to evaporation and less rain will decrease the Nile's overall flow, said Pasquale Steduto, head of the UN Food and Agriculture Organisation's Regional Water Scarcity Initiative.

Taken together with the dam and demographics, it will be tougher than ever to feed Egyptians from Egyptian soil.



"For thousands of years we've become used to overusing water, it was considered free. An Egyptian farmer will tell you, 'You don't own water. Water is from god," said Adel Beshai, economist at the American University in Cairo.

"In the coming decade we will have to learn very fast to rationalise water use." (Reporting by Maggie Fick in Cairo and Shadi Bushra in London; Writing by Shadi Bushra; Additional reporting by Sarah McFarlane in London and Maha El Daha

"More people, less water mean rising food imports for Egypt", 03/07/2014, online at: http://uk.reuters.com/article/2014/07/03/egypt-water-idUKL6N0PB35X20140703

## BACK TO TOP



### \* Water, Rivers and Runoff Challenge Ethiopia's Expanding Capital

**ADDIS ABABA, Jul 1 2014 (IPS)** - The streets of Addis Ababa are increasingly turning into waterlogged obstacle courses as downpours increase in the run up to Ethiopia's July to September rainy season. Strangers link hands to steady themselves as they step high and gingerly over the spreading puddles and slippery mud.

Sustainable drainage systems may not sound like an exciting topic to get the heart beating faster, but it is one of increasing importance in Ethiopia and especially in Addis Ababa as the capital city grows, construction sites abound, its population swells and demand for accessible, clean water increases — and the downpours keep coming.

"Despite Ethiopia being called the water tower of Africa, it's actually more of a water highway due to runoff and a lack of storage capacity," Manaye Ewunetu, managing director of London-based ME Consulting Engineers that works on water systems in the United Kingdom and Ethiopia, tells IPS.

Due to its mountainous topography Ethiopia's water storage capacity is relatively low at about 30 percent, compared to countries like Australia where it is nearer 80 percent.

This issue affects a population of 92 million that is projected by the World Bank to grow to 145 million by 2050, hence efforts by the likes of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), a German government-backed international enterprise for sustainable development trying to enhance the resilience of small-scale agriculture through sustainable land management practices.

But water issues are also sharply felt in urban areas like Addis Ababa, with a population that has grown from around 2.7 million in 2008 to a current population estimated at over three million, and likely to reach more than five million by 2037, according to the Ethiopian Central Statistics Agency.

Addis Ababa is increasingly emerging as an important world city, home to the African Union, the United Nations Economic Commission for Africa, and many other international organisations, embassies and consulates.

New York-based consultancy A.T. Kearney in the emerging cities outlook of its 2014 annual Global Cities Index ranked Addis Ababa, after Jakarta and Manila, as the third-most likely city to advance its global position. "At current rates of improvement, the Ethiopian capital is among the cities closing



in fastest on the world leaders — despite current distances — in income equality, healthcare and business transparency," states A.T. Kearney's report.

Despite the plaudits, the speed of this young city's development — other demographic growth estimates put Addis Ababa's population nearer 5 million now and increasing up to 8 million by 2030 — threatens to overwhelm it and the rivers and springs that led to its creation in 1886 as the country's New Flower, the translation of its Amharic name.

Waste disposal, inadequate drainage, industrial and petrol station run off and discharge into water sources, create significant health hazards in the city. This is exacerbated by flooding.

"Floods have significant health hazards by [carrying] pathogens and pollutants which can contaminate food and water sources," Wendwosen Feleke, a water and sanitation expert for the World Bank Ethiopia Country Office, tells IPS.

About 14 million birr (700,000 dollars) is spent by the Ethiopian Ministry of Health treating waterborne diseases each year, an estimation that does not include other economic losses such as loss of time and loss of earnings due to absence from jobs.

There are other economic implications, also.

"Inadequate drainage can result in deterioration or even destruction of infrastructure meaning it may fail to reach its design life," James Markland, a senior transport specialist with the World Bank Ethiopia Country Office, tells IPS. "[This reduces] the economic effectiveness of substantial investments made."

Furthermore, 24-hour-a-day water availability is all but unknown in the city, despite an average yearly rainfall of 1,180mm which is just under what rain-drenched U.K. experiences.

For the majority of Addis Ababa households the norm is to fill water receptacles during the periods when water flows from taps: in some parts of the cities this is early in the morning, in other parts it is late at night.

"I have to set the alarm on my mobile and wake up around midnight," says 24-year-old Meleshew. "I go outside to join the neighbours queuing by the tap, it can take up to three hours before I go back to bed."



Meleshew lives with three friends in a small house to the west of Addis Ababa where they take it in turns to wake to refill their house's water container once every few days.

"It's hard because during the daytime I am looking for a job and so I'm tired at the end of the day," Meleshew says. Often she finds herself nodding off while queuing for her turn, and typically wakes up with a headache after a night of interrupted sleep.

Many other city dwellers can't even rely on a water source at home, hence the sight of people walking along the city's roads carrying large yellow water containers on their backs after visiting public water points.

The authorities in Addis Ababa are not turning a blind eye to the relentless expansion of the city, and there is, as a result, a so-called city master plan that aims to mitigate the city's disorganised growth and guide efforts to modernise it over the next 25 years.

But, some argue, presently the master plan doesn't address the water issue adequately.

"Unless you put a drainage master plan into the city's master plan there will be chaos," says Manaye, who has watched the city expanding for the last 27 years during visits from U.K..

And despite the relevant government and city departments producing the necessary manuals, lack of coordination and willpower means little of tangible worth is occurring on the ground, he says.

"The problems stem from a lack of integration," Teshome Worku, from Addis Ababa-based CORE Consulting Engineers, tells IPS. "The master plan doesn't involve enough different disciplines and peoples."

A robust water and drainage system would have much needed aesthetic benefits for the city, in addition to the benefits of tackling pollution, disease and lack of potable water.

"When you come from outside [and see Addis Ababa] it is very disturbing—it's one of the most polluted cities in the world," Manaye says.

Making the most of existing waterways and constructing ponds and parkways to absorb runoff would help make the city more attractive and offer huge investment opportunities for recreation and tourism, Manaye says.



Currently the city has very few parks, and a common lament from ex-pats in Addis Ababa is its lack of water features. In most global cities water bodies within developments can be used to boost marketing and contribute to increased property values.

"There is huge potential for regeneration is Addis," Manaye says. "Water gives life to a city."

Issues related to water, rivers and runoff are given increasing precedence due to the effects of climate change. The result, according to those pushing for improved drainage systems, is the need for radically different thinking at all levels to manage infrastructure and water issues. But that could be hard to achieve, partly due to Ethiopians' tendency to accept hardships and soldier on.

"It's not normal but it becomes normal," Meleshew says of water shortages in Addis Ababa. "We adapt."

"Water, Rivers and Runoff Challenge Ethiopia's Expanding Capital", 01/07/2014, online at: http://www.ipsnews.net/2014/07/water-rivers-and-runoff-challenge-ethiopias-expandingcapital/?utm\_source=Circle+of+Blue+WaterNews+%26+Alerts&utm\_campaign=291088560e-RSS\_EMAIL\_CAMPAIGN&utm\_medium=email&utm\_term=0\_c1265b6ed7-291088560e-250657169

## BACK TO TOP



### \* Kerala asserts its ownership rights over dams

A day after Tamil Nadu claimed the ownership of four dams located in Kerala, Chief Minister Oommen Chandy sought to dismiss it as baseless and asserted the State's right of ownership over the contentious dams.

"All the four dams, Mullaperiyar, Parambikulam, Peruvaripallam, and Thunakadavu, constructed on a cost-sharing basis between Kerala and Tamil Nadu, are located in and owned by Kerala but are operated and maintained by Tamil Nadu," the Chief Minister told media persons here on Sunday.

The National Register of Large Dams had clearly listed these dams under Kerala's ownership and this itself had closed the possibility of an ownership dispute, he said.

While terming the ongoing controversy over these dams as "unwarranted," Mr. Chandy said that Kerala was committed to honour the water sharing pact between the two States. '

'This, however, does not mean that we are relinquishing our rights over these dams,'' he said, adding that the Fourth Schedule of the agreement limited Tamil Nadu's role to its maintenance and operation. Further, he pointed out that Kerala was the sole authority to maintain the law and order of the areas where these dams were located, in addition to issuing licences permitting tourism, fisheries, and related activities in these dams.

According to him, the dams were constructed and maintained on a cost-sharing basis of 61:5 by which Tamil Nadu expends 61 paisa against every 5 paisa from its counterpart. Besides, Kerala is also entitled to receive specific quantity of water from these dams in every water year.

Earlier on Saturday, Tamil Nadu Chief Minister Jayalalithaa had stated that the National Dam Safety Committee in December 2013 had accepted Tamil Nadu's claim of ownership over the four dams and would include it in the National Register of Large Dams after receiving similar demands from other States.



#### WATER RESEARCH PROGRAMME -Weekly Bulletin-

## **Stranded Keralites**

Regarding the efforts to rescue Keralites stranded in Iraq, Mr. Chandy said the State government was in constant touch with the Indian Embassy in Iraq as well as with the Union Ministry of External Affairs.

"Kerala asserts its ownership rights over dams", 30/06/2014, online at: http://www.thehindu.com/news/national/kerala/kerala-asserts-its-ownership-rights-over-dams/article6161249.ece

### BACK TO TOP



## \* Turkish firm to invest in Ghana

A Turkish firm, Tanka Tem Mechanic that specialises in designing water and waste water treatment plants and equipment is to explore the possibility of doing business in Africa, especially Ghana.

According to the company after exploring the European and Asian markets, it was now the turn of the African continent to benefit from the expertise of Tanka Tem Mechanic.

The Administrative Manager of the company, Mr Ekrem Dagtekin, who disclosed this to the Daily Graphic at a business exhibition in Istanbul, Turkey, said Tanka Tem Mechanic had been in business since 2004 with a vision to create a company that could solve most of the world's most difficult environmental problems relating to water treatment, reuse of waste water, fire fighting, among other challenges.

He said through significant investments in developing water and waste water technologies and fire fighting systems, the company was able to offer state-of-the-art water and waste water treatment capabilities that could be found in a lot of applications around the world.

On the decision to come to Africa, Mr Dagtekin said, "partnership is a key driving force as we strive to establish long term relationships with our customers, engineering firms, suppliers and representatives. We value these relationships and consider them our most important assets".

"With thousands of water and waste water systems built for customers worldwide, we have established a reputation for design, engineering and manufacturing excellence", he added.

Mr Dagtekin was of the view that optimising the performance of treatment chemicals and equipment could dramatically minimise overall costs and maximise return on investment and provide creative solutions to help meet most stringent water quality requirements.

He was happy that the company had maintained its challenging position within the industry regardless of the economic crises, trade barriers and drastic change that swept the world, and added



that "since our establishment, we have been able to complete all our contracts in accordance with acknowledged international and local codes and standards with the help of our sizeable pool of equipment and capable personnel".

"Turkish firm to invest in Ghana", 03/07/2014, online at: http://www.ghanaweb.com/GhanaHomePage/business/artikel.php?ID=315355

## BACK TO TOP



### Damming The Mekong River: Economic Boon Or Environmental Mistake?

It's 9 a.m. and the Mekong River at this hour is still peaceful: just a few fishermen casting nets into a large pool below the area called Si Phan Don, or "4,000 islands."

It's a popular tourist destination in Laos, where Southeast Asia's most storied river splits into nearly a dozen channels before coming together again below the islands of Si Phan Don, for the journey to Cambodia, Vietnam and the South China Sea. Cambodia is on my left, Laos to the right.

Suddenly, my guide points and says, "There!"

Dead ahead, no more than 30 yards away, are two or maybe three Irrawaddy dolphin — native to the Mekong and Myanmar's Irrawaddy river — which gives them their name. And environmentalists worry they may be gone soon if Laos proceeds with its plans to construct the Don Sahong Dam about a mile or so upriver.

"The Don Sahong dam is a big threat to the pool underneath the dam site," says Amy Trandem, Southeast Asia project director for International Rivers, an advocacy group. "By changing the hydrology and fisheries and sediment, the dam will have a large impact on dolphins, which are very sensitive to change. And most likely, they'll disappear for good."

Hyperbole? The driver points my boat up the Hou Salong channel, and 20 minutes later, we arrive at the dam site. It's a fast-moving section of water, maybe 50 yards wide and bounded by dense jungle on either side.

My first thought is: What's the big deal? Why does damming just one channel of the river here scare so many people?

It turns out that this channel is the only one that works — for fish.



"The Hou Sahong channel is right now the only channel that fish are able to migrate up and downstream on a year-round basis," says Trandem. "Other channels all have obstacles — waterfalls or man-made structures catching fish."

Trandem worries not only about the fish, but the people who catch them. And so do they. Almost everyone here fishes for a living, and while the dam might bring temporary construction jobs, what happens afterward?

A local whose family has fished here for generations — and who doesn't want to be named — isn't optimistic.

"We export the fish in this area every season, so if the hydropower dam comes, all the people (who fish for a living will have) no more jobs," he says. "No more fishing after dam."

He says almost everyone who lives in the villages around here say the same thing — or would, if they were allowed to speak openly. But Laos is a one-party communist state where dissent isn't tolerated. What would happen if you did speak out against the dam, I ask him. He makes a slashing gesture across his throat.

"We have no against," he says. "If they do a thing, then we follow them. ... We cannot say no."

Peter Hawkins is the environmental manager for the Don Sahong project and one of the few involved willing to speak publicly about it. He says the concerns of locals and environmentalists are valid. But he also says they've been dealt with.

"I'm confident that the mitigation measures we can employ here will allow fish to pass the barrier we're going to create. From studies we've done, the impacts people are saying the project will cause, change in flow, quality, sediment distribution, fish food, none of those things are going to arise from this project."



The risks the dolphins downstream face are real, Hawkins says, but he says that's because of bad fishing practices, tourism and poor management. As for migratory fish that use the Hou Salong channel, Hawkins says, the fish passageways his company, Megafirst, are building around the site should take care of the problem. And if they don't?

"We have the opportunity, if we do not have 100 percent success rate in terms of passage, we can continue to improve those bypasses. There are other channels we could modify," Hawkins says. "So we see this as a work in progress."

A few hundred miles upstream, there's another work in progress, which environmentalists fear even more: the Xayaburi Dam. Unlike the Don Sahang, this dam — which the government says is about 30 percent completed — will block the entire river.

Jian-hua Meng, a hydropower and dams specialist with the World Wildlife Fund, says the Xayaburi Dam is being built without any real knowledge of the downstream effects.

"We do see that Laos has every right to develop on its own pathway and should not be controlled by outside people them telling what to do and what not to do," Meng says. "But maybe in terms of the Mekong main stem, they have been listening to the wrong advisers."

Building dams isn't the same as building shopping centers or airports, Meng says. Water, he says, punishes every mistake you make — especially when it comes to fish migration. Fish passages, fish lifts, sluicegates have all been proven effective elsewhere, he says, but not on the Mekong — the world's most productive fishery.

"The effectiveness of such fish passage mechansims is quite OK, let's say, quite well proven for European or North American rivers, where we have small number of species that are well known," Meng says. "But in the Mekong, we don't have five fish species which we have to take care of, we have 70, maybe even more, and we have no clue about them. So building something for them to migrate up and down with, that's just guessing at the moment."



Trandem of International River says fisheries experts estimate that at least 43 species of fish are likely to go extinct because of the impact of the dam, including the Mekong giant catfish, the world's largest. Sedimentation — the silt the river carries downstream to Cambodia and Vietnam — is another problem. The Xayaburi will have major food security implications as well, Trandem says.

"By blocking sediment, we know that where there's a lot of agricultural productivity and rice growing, these areas are going to suffer a lot because they're no longer getting the same nutrients," she says. "And so this will have a significant impact, especially in the Cambodian flood plains but also in Vietnam's 'rice bowl,' which is really the center of rice production for region."

Vietnam and Cambodia aren't happy about either dam. They want work on both projects suspended while further study is conducted about the long-term effects they may have. Laos has ignored them until a few weeks ago, when it said it would "consult" with its neighbors on the Don Sahong. But it made no promises to stop work on either.

Several more dams are planned for the Mekong as well, as cash-strapped Laos tries to make good on its pledge to make the country the "battery of Southeast Asia."

"Damming The Mekong River: Economic Boon Or Environmental Mistake?", 04/07/2014, online at: <u>http://www.npr.org/blogs/parallels/2014/07/04/327673946/damming-the-mekong-river-economic-boon-or-environmental-mistake</u>

## BACK TO TOP



## \* Decisions on Lao Dams Give Mekong River a Respite But Concerns Linger

Two key decisions last week—one by the government of Laos and the other by a court in neighboring Thailand—appear to have provided a rare respite to Southeast Asia's Mekong River.

They could result in more hurdles for Laos as it scrambles to build two controversial dams along the Mekong that environmentalists say threaten the livelihood of millions of people relying on the regional artery.

The Lao government last Thursday decided to open the proposed Don Sahong dam to further scrutiny following claims by experts that it would disrupt one of the key pathways of fish migrating between Cambodia, Laos, Thailand, and Vietnam.

Two days earlier, a court in Thailand declared that it would hear a two-year-old lawsuit brought by villagers against the country's decision to purchase electricity generated by another Lao dam, the Xayaburi, which is under construction and which environmentalists believe will destroy the river's complex ecosystems.

"Definitely, the two decisions last week are positive signs and the result of efforts from the downstream countries and from civil society organizations," Marc Goichot, a hydropower expert at the World Wide Fund for Nature (WWF), told RFA. "The pressure is building up steadily and strongly."

In April, the leaders of Cambodia and Vietnam had pressured Laos to allow the Don Sahong dam to come under a regional consultation process when they met at a summit of the Mekong River Commission (MRC) established to coordinate dam projects on the river.

Thailand, the fourth member of the MRC, had pushed for the Don Sahong dam to undergo the full "Procedure for Notification, Prior Consultation and Agreement" or PNPCA as outlined in the 1995 Mekong River Agreement that led to the formation of the commission.



The pressure from the ground against the Don Sahong, meanwhile, came from 200,000 people who have signed a petition launched by WWF.

"The petition is still running. Thus, this number is increasing every day," Goichot said.

# Surprise



RFA map showing the location of the Xayaburi and Don Sahong dams.

Laos had previously agreed to only notify MRC members of the progress of the dam, which it wanted to begin building in December.

But Deputy Lao Minister of Energy and Mines Viraphonh Viravong sprang a surprise at the MRC



council meeting in Thailand's capital Bangkok last week by saying that his country would agree to resubmit the Don Sahong project to the prior consultation process.

"The change from notification to prior consultation means that everything we have put on the table will be put on the record," Viraphonh said.

But his clarification to the media later that preparatory work for the dam building would continue even though construction would not begin during the six-month consultation process has raised suspicions that Laos is using a delaying tactic.

"Worryingly, the interventions from the representatives from Laos at the MRC Council meeting in Bangkok give the impression that the prior consultation will just be a formality, and that the outcome will be a slight delay in the start of the construction, and, at best, a small change in the design—very much consistent with the model of the Xayaburi dam case," Goichot said.

A site visit early last month by global environmental group International Rivers confirmed that workers have begun construction of a bridge connecting the mainland to an island near where the Don Sahong dam would be built. The bridge will create an access route for construction.

"Laos' decision to submit the Don Sahong Dam for prior consultation appears to be yet another empty political promise," International Rivers Southeast Asia Program Director Ame Trandem told RFA.

"Rather than undergoing the consultation process in good faith and seeking agreement from neighboring countries over whether to build the project, the Lao government has already announced its intentions to proceed with building the dam," she said.

Laos, eager to become the "battery of Southeast Asia," had already set a "bad precedent" with the Xayaburi Dam, by building the project during consultations and declaring the process closed without the agreement of neighboring countries, Trandem added.



"They probably believe they can get away with the same bad process with the Don Sahong Dam, as the procedures have yet to be reformed and they are allowing entering into the process without planning to really engage in meaningful consultation with neighboring countries."

# 'Fig leaf'

As Laos had planned to launch work on the Don Sahong in December, the six-month consultation period it has agreed to would only delay its plans for a month, experts noted.

"So the Lao concession in Bangkok seems very much like a fig leaf for the government's ultimate intention to build the dam," said Milton Osborne, a Southeast Asian expert at the Lowy Institute, an international policy think tank in Sydney, Australia.

The Lao Government has shown itself adept at "gaming the rules and regulations" stemming from the 1995 Mekong River Agreement, he wrote on his blog.

MRC Chief Executive Officer Hans Guttman acknowledged that under MRC regulations, there is no need to suspend or stop the Don Sahong project during the consultation process.

Unless the four governments remedy the existing problems with the regional decision-making process, the Don Sahong dam is likely to follow the same problematic path as Xayaburi, "where science, accountability, and the public's well-being takes a back seat to private interests," Trandem said.

Construction on the Xayaburi Dam, the first of 11 dams proposed for the Lower Mekong River, began in 2012.

Environmentalists warn it could open the floodgates for the other dams to go forward, with significant consequences for the river and people living along it.



### Questions

The Thai court decision has raised questions over the Xayaburi's future.

The Thai Supreme Administrative Court asserted that it has jurisdiction to hear a lawsuit filed by villagers living along the Mekong River.

Thirty-seven Thai villagers filed a case nearly two years ago saying a power purchase agreement signed between the Electricity Generating Authority of Thailand (EGAT) and the Xayaburi electricity generating company in Laos is illegal, approved without an assessment of the project's environmental and health impacts and without consultations in Thailand.

Any court decision that questions the validity of the power purchase plan could dampen the U.S. \$3.5 billion dam project, experts warn.

"The decision by the Thai Supreme Administrative Court to take on the Xayaburi Dam's lawsuit was a positive step forward as the Thai government must also be held accountable for their role in allowing the project to proceed," Trandem said.

Thailand has been one of the main drivers behind the dam as it is building and financing it and planning to purchase the bulk of its electricity.

"By committing to investigate whether the constitutional rights of Thai villagers were violated, as well as the Mekong Agreement, we hope this case will cancel Xayaburi Dam's power purchasing agreement and that future dam projects will undergo greater scrutiny before major agreements are signed," Trandem said.

The EGAT and four other government bodies hauled to court have about three months to respond to the claims made against them before the lawyer representing the impacted Thai communities responds to the submissions.



The Thai court's decision to accept the case filed by Thai villagers may also open the floodgates to more suits.

"It's setting a precedent that should apply to other dams in Laos that have clear transboundary impacts," said WWF's Goichot. "Villagers from Cambodia, Thailand, and Vietnam might consider legal action against Don Sahong."

"Decisions on Lao Dams Give Mekong River a Respite But Concerns Linger", 01/07/2014, online at: http://www.rfa.org/english/commentaries/east-asia-beat/mekong-07012014231654.html

### BACK TO TOP



#### WATER RESEARCH PROGRAMME -Weekly Bulletin-

# Cutting up the Mekong

Laos has relented and agreed to consult its downstream neighbours over a proposed dam project, but it is under no obligation to act on their concerns

Laos should be applauded for the decision to consult its neighbours in the <u>Mekong</u> River basin over the controversial Don Sahong Dam project.

Laos Deputy Minister of Energy and Mines Viraphone Viravong said at a meeting of the <u>Mekong</u> River Commission (MRC) last week in Bangkok that Laos had decided to consult all stakeholders following concerns over the project.

Last September Laos informed the commission that it would build the Don Sahong hydropower project in Khong district in Champasak province to generate 260MW of electricity for domestic consumption. Vientiane gave the go-ahead for a Malaysian developer to conduct a feasibility study and invest in the project.

The proposed location is on the five-kilometre-long Hou Sahong, a channel of the <u>Mekong</u> approximately two kilometres upstream of the Laos-Cambodia border. The dam will span 100 metres and reach 30 metres in height.

However, Cambodia and Vietnam downstream have raised serious concerns about the dam's potential social and environmental impacts. It would likely block a channel used by migrating fish and also limit water flow. The <u>Mekong</u>River provides the lifeblood for agriculture and fisheries in those countries.

But, since the dam would be built within its own territory, Laos is not obliged to consult any of its neighbours over the project. There is neither a regional agreement nor any other international legal obligation for Laos to ask permission from other countries to construct the dam.

As a member of the MRC, Laos is required simply to "notify" the commission and its members namely Cambodia, Thailand and Vietnam - of its proposal. The 1995 agreement that forged the four-



country MRC does not require Laos to do any more.

The notification process is one of three prerequisites for the development of water-use projects in the Lower <u>Mekong</u>Basin. Notification is required for year-round intra-basin projects and inter-basin diversion projects on the Mekong's tributaries, and for wet-season water use on the mainstream. Information from this process helps MRC member countries plan other water-use projects.

The other two processes are prior consultation and agreement, but these only apply to proposed projects on the mainstream in the dry season, diversion of mainstream water to other basins during the wet season and diversion of surplus water to other basins in the dry season.

Lao minister Viraphone explained that Vientiane had voluntarily decided to allow region-wide consultation on the Don Sahong project to maintain a spirit of cooperation. By doing so, the Laos government has demonstrated its commitment to developing the dam in a responsible and sustainable manner, he said.

The MRC secretariat will now review studies of the project and allow member countries to voice any concerns that arise. Laos has pledged to take all concerns into account and adjust or even redesign the project accordingly, to minimise negative impact.

However, the story doesn't end there. The process of prior consultation has been given a meagre sixmonth timeframe, after which Laos still has full authority to do as it pleases with the Don Sahong project - including ignoring the concerns and advice of its neighbours. Thus, its fellow MRC members and civic activists have a strong obligation to continue closely monitoring the project.

The <u>Mekong</u> is the lifeblood of this region. If we allow any individual country to endanger its flow, we are inviting disaster downstream.

"Cutting up the Mekong", 01/07/2014, online at: <u>http://www.nationmultimedia.com/opinion/Cutting-up-the-Mekong-30237467.html</u>

## BACK TO TOP



# \* Mekong Delta faces major water crisis

Speaking at a conference in Ninh Binh Province titled "Green Growth on the Rise in the Mekong River Basin," Le Duc Trung, Director General of the Viet Nam National Mekong Committee (VNMC), told delegates on July 1 that water resources in the Mekong Delta are facing great challenges due to increased population, expansion of irrigated areas and construction of mainstream hydropower projects.

"Like many other countries in the region, Viet Nam is also facing many challenges of using water resources in a sustainable manner," he said.

"These challenges include reduced amount of water in both surface and groundwater coupled with increasingly degraded water quality and threats from flooding, drought, sea level rise, natural disasters and coastal erosion," he warned.

The Mekong Delta in Viet Nam covers an area of about 3.96 million hectares, accounting for 5 per cent of the area of the Mekong River Basin and accommodates more than 22 per cent of the total population of the country.

It receives about 475 billion cubic metres of water every year from the Mekong River and 160 million tonnes of sediment and accompanied nutrients, ensuring its vast agricultural potential. Mekong River water also creates and maintains wetlands in Viet Nam.

Experts, however, have long warned that many of the planned hydropower projects, when completed, would cause significant impact on the environment, especially the water resources, and endanger the livelihood of the basin's inhabitants especially in the Mekong Delta, which ensures food security for about 85 million Vietnamese as well as the global need.

The Mekong River Commission, an intergovernmental group known as MRC, estimates that by 2013, there were at least 77 hydropower projects planned on Mekong River's tributaries and 11 mainstream hydropower projects/dams planned in the Lower Mekong Basin, which is home to more than 60 million people.

According to the Global Green Growth Institute (GGGI), a multilateral international organisation working with countries to discover and realise their green growth potential, the adverse impacts from man-made developments and consequent environment changes have forced affected countries to further enhance protection for water.

Dr. Imran Habib Ahmad, Director of East Asia and Pacific of GGGI, said the gap between global demand for fresh water resources and available supply was expected to be about 40 per cent in 2030 and the Mekong River Basin was not an exception to this challenge.

Since October 2013, GGGI has been working closely with VNMC to develop and apply a systematic approach to water resources management in the Mekong Delta.

Juhern Kim, a senior advisor with GGGI, said some of the challenges that must be tackled in water resources management in the Mekong Delta included overexploitation of water resources, lax law enforcement for parties that pollute water resources and lack of job opportunities to boost the development of the Mekong Delta.


## WATER RESEARCH PROGRAMME -Weekly Bulletin-

Victor Vazquez, a water specialist with the World Bank Viet Nam, said poorly managed "extreme water" could cost countries more GDP growth than many economic recessions, requiring countries such as Viet Nam to consider water as a cross-sectional issue.

According to Vazquez, better water management means better allocation of water between competing users, improved regulatory reforms and increased opportunities for private sector financing, among other tasks.

The conference was co-organised by GGGI and VNMC.

"Mekong Delta faces major water crisis", 06/07/2014, online at: http://english.vietnamnet.vn/fms/environment/106568/mekong-delta-faces-major-water-crisis.html

## BACK TO TOP