



ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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



ORSAM WATER BULLETIN

15 December – 21 December 2014

- ❖ **Iraqi Diyala residents face ISIS ‘water war’**
- ❖ **Iraq Repels ISIS Occupation of Strategic Mosul Dam**
- ❖ **Google Maps renames 'Lake Assad' in Syria 'Revolution Lake'**
- ❖ **Five years needed to restore 50% of drought-ridden Iran's Urmia Lake**
- ❖ **'JD500m needed to meet water demand over next two years'**
- ❖ **Water corps to be closed, cutting water rates 9%**
- ❖ **UN predictions fall short: Gaza uninhabitable today**
- ❖ **US Donates \$10m for Rubble Removal in Gaza**
- ❖ **Israeli Know-How Helping Bring Clean Water to Rural China**
- ❖ **Israel's Tahal To Build New Water Plant In Remote Area Of Russia**
- ❖ **The Shamir Drilling Project**
- ❖ **The half-full glass: Could ‘water diplomacy’ bring peace to the Mideast?**
- ❖ **UN Adopts Resolution on Palestinian Sovereignty over Natural Resources**
- ❖ **Egypt open to River Nile negotiations**
- ❖ **Egypt denies Ethiopia row over dam study deadline**
- ❖ **President El Sisi Demands Egypt asks Absolute Right over Nile**
- ❖ **Al Ain summit probes role of water in Arabia**
- ❖ **International Water Summit: Premier Global Forum To Drive Actionable Water Security Solutions**

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- ❖ **China Exim Bank lends Ivory Coast \$91 mln for water upgrades**
 - ❖ **ADB approves \$42.9m for Fata irrigation project**
 - ❖ **Climate Change Could Cause 18 Percent Drop In Food Production By 2050, Study Says**
 - ❖ **World's Largest River Diversion Project Now Pipes Water to Beijing**
 - ❖ **Don Sahong Dam Threatens Mekong Fisheries**
 - ❖ **Volume of world's oldest water estimated**
 - ❖ **Amazonian tribe take initiative to protect their lands from dam Project**
 - ❖ **Argentina moves forward with \$1.84 bln Neuquen dam Project**

❖ **Iraqi Diyala residents face ISIS ‘water war’**

An Iraqi official warned on Saturday of a “humanitarian disaster” after Islamist militants diverted Al-Roz River away from Bildozi district in the eastern province of Diyala, affecting thousands of people in what he described as a “water war,” in an interview with a local news outlet.

“ISIS, for the fourth consecutive day, diverted Al-Roz River, considered to be an essential water source to Bildozi, and supplying drinking water to 150 thousand people as well as irrigating vast areas of land,” Diyala MP Furat al-Timimi told Al Sumaria News, adding “thousands of people in Bildozi and other adjacent areas will be affected if water is not returned to its previous course into the river.”

Timimi described Al-Roz as the “main river” seeping into Bildozi, which is located 30 kilometers east of Diyala’s capital Baquba.

He said diverting the river took place following ISIS militants taking control of the strategic Nadhim Al-Sudour Al-Arwaai dam, 45 kilometers northeast Baquba since July.

On Dec. 12, Bildozi’s municipal committee warned that winter crops and produce would be highly affected if ISIS continue to control the dam, which regulates how much water flows into Al-Roz and the Bildozi district.

While the U.S.-led coalition tried last month to use its airforce to open the gates of the dam, “ISIS closed it again to hurt people by waging a water war,” said al-Timimi, urging for the need to liberate the area.

So far, about one third of Iraq including parts of Diyala are still under ISIS’s control.

Delay in evacuating Yazidis

Elsewhere in Iraq, others continue to suffer as a result of ISIS military control. Thousands of Yazidis continue to be trapped in Mt. Sinjar in the northern province of Mosul in Iraq, the Associated Press reported an Iraqi MP as saying on Friday.

Mahma Khalil, himself a member of Iraq's minority Yazidis, said sporadic clashes between Iraqi Kurdish fighters and ISIS extremists, as well as other logistic problems, were delaying the evacuation of the last Yazidis.

Fighting was still underway near the mountain, said Khalil.

He called for the need to plan and prepare for logistics and transportation which contributed to the delay.

However, Khalil said Iraqi Kurdish peshmerga fighters were able to ease the plight of the thousands of Yazidis still trapped on Mt. Sinjar and delivered food and supplies to them.

The evacuation of many Yazidis in Sinjar followed the Peshmerga's advances on Thursday, when they managed to retake some ground lost last summer to ISIS militants and opened up a corridor to the mountain.

The development was an incremental step in the battle to retake the town of Sinjar, at the foothills of the mountain by the same name, which fell to the ISIS group in early August.

Nawaf Khalil, a spokesman for the powerful Kurdish Democratic Union Party, said that Syrian Kurds militiamen also were able to open up another corridor between their region of northeastern Syria and Mt. Sinjar in neighboring Iraq.

Speaking in Syria, Khalil said that the Syrian Kurdish fighters also captured nine villages from IS militants.

Bombings kill 10 in Baghdad

Security concerns also remain in the capital Baghdad, where bombs targeting commercial streets and an army patrol killed 10 people in and around the capital, Iraqi authorities said.

Police officials said a bomb exploded in a commercial street in the town of Madain, about 20 kilometers (14 miles) southeast of the capital, killing four people and wounding nine others.

In the northern Baghdad suburb of Taji a bomb blast near shops killed three people and wounded 11 others. A roadside bomb struck an army patrol in the western suburbs, killing three soldiers and wounding six others, police officials said.

Medics confirmed the casualty figures. All officials spoke on condition of anonymity because they were not authorized to speak to the media.

“Iraqi Diyala residents face ISIS ‘water war’”, 20/12/2014, online at: <http://english.alarabiya.net/en/News/middle-east/2014/12/20/Iraqi-Diyala-residents-face-ISIS-water-war-.html>

BACK TO TOP

❖ Iraq Repels ISIS Occupation of Strategic Mosul Dam

Baghdad, Dec 16 (Prensa Latina) Kurdish forces repelled the extremist group Islamic State's attempt to take back control of the Mosul dam, the most important in northern Iraq, an official source reported today.

Head security official at the Mosul Dam Muhedin al-Mazuri said at least 15 extremists were killed and dozens seriously injured as a result of the air strikes in the area.

The combats were concentrated about 7 km south of the dam, near the villages of Al Shiha and Jerab Kober, occupied by the Islamists, Al Mazuri added.

ISIS took the dam last June and controlled it for 20 days until it was retaken by Kurdish forces after a strong offensive.

After that, extremists have tried unsuccessfully to occupy the dam, a strategic water reservoir in Iraq, located 23 km southwest the city of Dohuk.

“Iraq Repels ISIS Occupation of Strategic Mosul Dam”, 16/12/2014, online at:

http://www.plenglish.com/index.php?option=com_content&task=view&id=3375151&Itemid=1

BACK TO TOP

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❖ Google Maps renames 'Lake Assad' in Syria 'Revolution Lake'

“Lake Assad,” a man-made body of water in northern Syria, has been renamed “Revolution Lake” on Google Maps.

The lake in northern Syria was completed in 1974 under the rule of Hafez al-Assad, father of current President Bashar al-Assad.

Water from the Euphrates River was held back by the construction of the Tabqa Dam, and then used to flood the area downstream of the new hydroelectric facility - the construction of both lake and dam was funded by the then Soviet Union.

The lake covers 610 square kilometres, and supplies most of the drinking water to the key city of Aleppo via a pipeline.

The lake lies some 40 kilometres east of the city of Raqqa – it was previously the only provincial capital to be fully wrested from government control during the almost four-year long civil war between embattled President Assad and various rebel groups.

However, Raqqa was quickly overrun by militants from Islamic State, who now use the city as their capital in Syria.

Raqqa is Being Silently Slaughtered, an activist group that documents abuses and massacres inside the Islamic State base, thanked Google for renaming the lake, a move hailed by other opposition supporters as “symbolic.”

‘Water wars’

This is not the first time that the lake and the hydroelectric dam that created it have played a role in Syria’s war.

In February 2013, rebels claimed to have taken control of Tabqa Dam, which ordinarily produces approximately 150 megawatts of electricity.

Analysts speculated that the seizure of Tabqa Dam could be a major win for the rebels, who would have control over a significant energy source.

Forces supportive of Assad have consistently squeezed rebel-held areas by cutting off electricity, in an attempt to turn the population against the insurgency.

However, some six months later, President Bashar al-Assad shelled the rebel-held dam, built by his father decades earlier.

The moves were all part of what analysts have dubbed a “water war” between militants and government forces.

Since July 2014, residents of Aleppo and Raqqa city are now forced to draw water from potentially contaminated and unreliable sources, since a six-metre drop in the water levels of Lake Assad/Revolution Lake.

A member of the Syrian opposition coalition with knowledge of the dam told al-Jazeera that the drop was caused by Islamic State engineers over-exerting the Tabqa Dam, reportedly working it 24 hours a day.

Nouar Shamout, a researcher at UK-based think tank Chatham House, explained that, with Raqqa under Islamic State, the waters of Lake Assad/Revolution Lake were being used as a tool to “escalate fatalities and migration rates.”

The water war is not confined to a conflict between pro-government forces and Islamic State militants.

On Tuesday, the Syrian government released 60 prisoners after being threatened by the Omar Brigade, one of an estimated 1,000 militant groups fighting Assad’s forces in Syria, Lebanese news site Now Media reported.

The group had warned that they would cut off water and electricity supplies to government-held areas in the north-western province of Hama unless the prisoners were freed.

In 2003, Syrian documentary maker Omar Amiralay went to the lake to speak to people whose homes had been destroyed by the flooding of the area.

Amiralay's first film, made in 1970, was titled "Film Essay on the Euphrates Dam," in which he praised the ruling Ba'ath party of the Assad family for their innovation and progressive development, represented in the dam's construction.

However, subsequent films were more critical of the lack of economic development in the area, and of the tactics used by the party to shore up support among families living around the dam.

“Google Maps renames 'Lake Assad' in Syria -'Revolution Lake- ,18/12/2014, online at:
<http://www.middleeasteye.net/news/google-renames-lake-assad-syria-revolution-lake-1331300429#sthash.sou5Xled.dpuf>

BACK TO TOP

❖ Five years needed to restore 50% of drought-ridden Iran's Urmia Lake

Iranian top official says only five years are needed to revive vast-drought plagued Urmia Lake. The deputy head of Department of Environment (DOE) within the President's Office, Esmail Kahrom told Trend Dec. 17 that during the current year the water level in Lake Urmia has risen by about 30 centimeters.

He also said Iran's government has allocated \$522 million for work needed on the restoration of the Lake Urmia.

Lake Urmia, in the northwestern corner of Iran, is one of the largest permanent hypersaline lakes in the world and the largest lake in the Middle East.

According to the United Nations Environment Program, scientists have warned that continued decline would lead to increased salinity, collapse of the lake's food chain and ecosystem, loss of wetland habitat, wind blown "salt-storms," alteration of local climate and serious negative impacts on local agriculture and livelihoods as well as regional health.

The area of Lake Urmia was about 6,100 square kilometers until 1995, but the illegal use of water flowing into the lake for watering by the rural population, construction of dams and illegal objects on its banks, caused the lake to dry up by 90 percent. However, unexpected long-days rains during last months raised hopes for restoration of the lake.

Iran is in an arid zone, some 65% of its territory has an arid or hyper arid climate, and approximately 85% of the country an arid, semi-arid or hyper arid environment.

The specific features and location of Iran causes it to receive less than a third of the world average precipitation.

Kahrom said Iran receives only 250 millimeters of precipitation, while the average global level is 850 millimeters in annum.

The Iranian official added that the irrigation system around Urmia Lake should be developed and modernized. The cost of converting traditional flood irrigation methods to sprinkle and trickle irrigation systems are huge, but if the plan was successful, the government projected that some 40 percent of irrigation water resources could be delivered to the lake.

"The watershed around Lake Urmia holds 7 billion cubic meters (bcm) of water annually, the shares of rivers, spring and precipitation are 5.5 bcm, 0.5 bcm and one bcm respectively. We can reduce the

irrigation needs and deliver some 2.8 bcm of watershed resources to Lake Urmia annually. With this amount, the lake would be revived by 50 percent in the next five years," he said.

Kahrom said Iran receives 420 bcm of precipitation annually, but water management in Iran has been neglected, "We only use about 90 bcm of this volume. On the other hand, Iran's agriculture sector shares 93 percent of water consumption, while the irrigation system hasn't been modernized and farmers use flood irrigation methods".

The amount of wasted water in Iran is about 330 bcm, including the 30 bcm evaporation volume in lakes and dams per year.

The Iranian government allocated a credit line of about \$450 million (based on official US dollar at 26,500 rials) for modernizing the irrigation system in the current fiscal year, which will end on March 20.

"Five years needed to restore 50% of drought-ridden Iran's Urmia Lake", 17/12/2014, online at:
http://en.trend.az/iran/society/2345012.html?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=fa88b4baa1-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-fa88b4baa1-250657169

BACK TO TOP

❖ **'JD500m needed to meet water demand over next two years'**

AMMAN -- The water sector needs over JD500 million during the next two years to address the unprecedented demand for the resource as a result of hosting massive numbers of Syrian refugees, according to Water Minister Hazem Nasser.

During a meeting with an official German delegation last Thursday, Nasser said the ministry also needs another JD1.5 million in urgent assistance to drill wells in the northern region before the start of summer, according to a statement e-mailed to The Jordan Times.

The minister told the German delegation that Jordanians are sharing the burden of water shortage with Syrians, highlighting that refugees and local communities cannot be separated, which necessitates implementing projects in all areas hosting Syrian refugees.

Nasser underscored that Syrian refugees make up over 30 per cent of the northern region's population.

The German delegation commended Jordan's efforts in managing the water sector under the current conditions, and expressed their government's commitment to providing Jordan with all kinds of support.

The delegation included representatives from the German federal ministry for economic cooperation and development, the German Development Bank and the German Development Cooperation.

The delegates outlined their government's plans to provide Jordan with additional assistance, especially in the water sector, according to the ministry statement.

Also on Thursday, Nasser met with a US delegation, headed by Kenneth Hyatt, deputy undersecretary for international trade, and urged the US government and institutions to support and develop Jordan's water industry.

He said the Kingdom is keen on expanding cooperation with the US in the field of wastewater technologies, especially the treatment of industrial wastewater.

The minister added that US support for the sector enabled the country to alleviate the pressure on water as a result of hosting massive numbers of Syrian refugees, which has raised water demand to record levels.

During the meeting, Nasser briefed the delegation on the ministry's plans and programmes to manage the water sector and its campaign to protect networks and aquifers from violations.

Hyatt expressed the US government's interest in expanding investments and commercial cooperation with Jordan, as well as providing solutions in the field of water management.

'JD500m needed to meet water demand over next two years', 14/12/2014, online at:
https://www.zawya.com/story/Jordan_needs_JOD500m_in_next_2_years_for_water_shortages-ZAWYA20141214044035/?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=9b7ac5db3e-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-9b7ac5db3e-250657169

BACK TO TOP

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❖ **Water corps to be closed, cutting water rates 9%**

The government appointed committee will recommend closing the water corporations.

The committee examining efficiency in Israel's water economy will today recommend that the water corporations be closed down, and that this will bring a 9% fall in water rates. The office of Minister of National Infrastructures Energy and Water Resources Silvan Shalom, who appointed the committee with former Minister of Finance Yair Lapid, confirms the details.

Only last week was it published that the Public Utilities Authority (Water) approved a 10% fall in water rates from January 1, 2015, which resulted from streamlining at the water corporations, prices changes and balancing accounts at the Mekorot National Water Company. This rate reduction follows a 5% fall in prices in January 2014 and a 0.5% fall in July 2014.

The committee's recommendations will need to be approved by the Knesset while local authorities and municipalities are expected to oppose the measure. It looks likely that no more water corporations will be established, while a government authority will be set up to manage the water network.

“Water corps to be closed, cutting water rates 9%”, 18/12/2014, online at: <http://www.globes.co.il/en/article-water-corps-to-be-closed-cutting-water-rates-9-1000994418>

BACK TO TOP

❖ UN predictions fall short: Gaza uninhabitable today

Five months ago the world watched in horror as the bully of the Middle East, Israel, launched the most brutal massacre on the Palestinians of Gaza since the Nakba (perhaps more brutal, Palestinian friends in Gaza have said).

Lasting over twice as long as the 2008-09 war on Gaza (formerly the most-brutal massacre since the Nakba), and killing over 800 more Palestinians than in the attack six years ago, the July-August 51-day offensive [killed 2,131 Palestinians](#) and injured over 11,000, and destroyed tens of thousands of homes, buildings, businesses, [hospitals](#), Gaza's [only power plant](#) and other [key components of Gaza's infrastructure](#).

Palestinian and foreign activists and journalists within the 40 kilometer-long strip of open-air prison tweeted and live-streamed images more horrific than the best Hollywood productions. Weathered journalists [broke down sobbing](#) at the sight of Palestinian civilians, especially children [being targeted like prey](#) by one of the world's most wickedly powerful armies and navies. Doctors who have seen the mutilated corpses and scarcely-living bodies of Palestinian elderly, men, women and children many times before were [yet still appalled by the brutality](#) of these latest attacks.

Worldwide, protesters, journalists of integrity [called the bombardment of Gaza genocidal](#) (as [Israeli officials and politicians called for genocide](#)). One of the most shocking of many images was that of 4-year-old [Saher Abu Namous's half blown-off head](#), his father cradling him and wailing. [Entire families were murdered](#) in this latest Israeli offensive. Not for the first time, the Israeli army bombed [schools hosting internally displaced](#), [hospitals](#) (including a [rehabilitation hospital](#) for disabled and invalid), and entire neighborhoods.

As with prior military operations, the Israelis in 2014 targeted water and sewage lines, electricity networks, [hospitals](#), [primary health centers](#), [ambulances](#) and [medics](#), bridges and major roads, key governmental buildings, schools and universities. They went further and attacked water, electricity and sanitation personnel, killing at least 14, the UN's [Office for the Coordination of Humanitarian Affairs \(OCHA\) noted](#). The resulting electricity, water and sanitation crises are such that until November, power was out 18 hours a day, and just 10 percent of the 1.8 million Palestinians get water once a day (for a matter of hours). As of mid-November, [Oxfam reported](#), power cuts were 12 hours per day in some areas.

While the bombs rained down, some Israelis pulled up seats to watch the bloodshed, as [21st Century Wire](#) noted: *“Old sofas, garden chairs, battered car seats and upturned crates provide seating for the spectators. ...Some bring bottles of beer or soft drinks and snacks. ...Nearly all hold up smartphones to record the explosions or to pose grinning, perhaps with thumbs up, for selfies against a backdrop of black smoke.”*

The Israeli army [used the same banned weapons](#) on Palestinians this summer that they've used in the past two massacres, as well as ["armour piercing bombs"](#) which have “high explosive capabilities” and were used on Palestinian homes. Weapons-seekers flocked to Israel after seeing the effects of its weaponry and technology. [Israel's weapons industry thrives with each massacre](#) of the Gaza testing ground.

Strangling and starving Gaza

In [September 2005](#), the 8,500 Israeli colonists finally, unwillingly leave their homes on stolen land. With no Jewish colonists in Gaza, Israel has since been free to lock-down all of Gaza and bomb whenever the whim occurs, with no fear of any Israeli loss of life. The Israelis have waged wars against Gaza every year or two since pulling their colonists out.

Since the [June 28, 2006 Israeli repeating bombing of Gaza's sole power plant](#)—destroying all six transformers – Palestinians in Gaza have neither been allowed to import the transformers and materials needed to rehabilitate the plant, nor offered an alternative solution. Through the now-destroyed tunnels, Palestinians did import smaller transformers and got the power plant hobbling again, but never to full capacity.

[In a 2006 report](#) on Israel's bombing of Gaza's power plant, B'Tselem called for Israel to:

“Cover the expenses needed to return the power plant to full capacity; Finance the upgrading of the infrastructure to transfer electricity from Israel to the Gaza Strip; Permit the entry of the equipment needed to rehabilitate the power plant, without delay.”

However, Israel did none of the obliged, nor has it ever paid (in any sense of the word) for the reconstruction of buildings and infrastructure it has repeatedly targeted over the years.

The supply of electricity bought from Israel and Egypt doesn't suffice for Gaza's now 1.8 million Palestinians. The crisis impacts on every facet of life: hospital functions, sanitation, water supply, refrigerators and appliances, and education.

In 2006, [B'Tselem noted](#): *“The sewage system is on the verge of collapse.”* [Mohammed Omer's photos of the village of Um al-Nasser](#), flooded with overflowed sewage in 2007, should have been a

wakeup-call if official institutional and NGO warnings are not. At least five drowned in their own sewage, including an infant. A year ago, [reports from Gaza showed the misery of Palestinians' homes flooded](#) with a combination of that same overflowed sewage compounded by heavy rains. Kids waded through sewage to get to school; elderly were, if lucky, paddled by small fishing boats. This, save the rains, was entirely preventable...if the UN and influential world bodies and leaders truly cared and dared to face up to the Israeli lobby.

In 2010, [it was revealed](#) that the Israeli authorities were implementing a plan to starve Palestinians. *“The security establishment had calculated the number of calories consumed by Gaza residents and used it to establish a 'humanitarian minimum', a bottom line to which it was possible to reduce food supply to Gaza without causing hunger or malnutrition....These procedures included mathematical formulas for calculating the quantities of food and the basic products Israel would allow into the Gaza Strip.”* The idea was mentioned back in 2006, when [Dov Weissglass said](#), *“The idea is to put the Palestinians on a diet, but not to make them die of hunger.”*

Power outages, 95 percent undrinkable water, constant fuel and cooking gas shortages, sewage and [sanitation crises](#), a shattered economy ([unemployment at 45 percent](#)) and manufactured poverty rendering 80 percent of the population dependent on inadequate and dignity-shattering food aid hand-outs (no vegetables or fruit, high carb, almost no protein); food insecurity ([72 percent insecure or vulnerable to food insecurity](#)), stunting (31.4 percent) and anemia (72.8 percent) among children. This is Gaza, and with each passing month, even each day, life is less and less tolerable. In August, 2012, [UNRWA questioned if by 2020](#) Gaza would be a livable place. We don't have to wait till 2020 for Gaza to be declared unlivable: it already is unlivable by any standards.

No crossing them

Since 2008, Israel has incrementally closed down three of Gaza's four commercial crossings, depriving Palestinians of adequate means for import and export. At present, the only operating (I use that term lightly) crossings are: Karem Abu Salem (commercial), Erez (transit), and Rafah (transit). The closure of Karni crossing, closed in March 2011, dramatically impacted on Gaza's economy. The Palestinian Centre for Human Rights (PCHR) [noted that](#) Karni *“is the biggest crossing in the Gaza Strip, in terms of its capacity to absorb the flow of imports and exports.”* [Gisha noted](#) that Karni, the “main transit point (via truck) for goods” was *“partially closed in 2007 save for the movement of grain and animal feed via conveyer belt. The conveyer belt was shut down in 2011.”*

Nahal Oz crossing, closed in 2010, was the primary point for entry of gas and other fuel. And the closed Sufa crossing was notably the main point of entry of construction materials. The sole remaining commercial crossing, Karem Abu Salem, does not have the capacity to allow in the amount of goods needed, assuming the Israelis were to allow them entrance in the first place.

[Al Akhbar reported](#): *“Karm Abu Salem crossing has a maximum capacity to receive 450 trucks a day while the Gaza Strip needs a total of 1,000 trucks every day of the year without any interruptions. Today, the crossing is not working in full capacity, allowing only about 320 trucks to pass through each day. ...According to the Gaza Chamber of Commerce, the crossing closed down for 130 days in 2014, which means it was not operational for 35 per cent of the year.”*

[PCHR noted](#) that closure of Karem Abu Salem has meant a cooking gas crisis. *“Israeli authorities only allow an average of 98 tons of cooking gas into Gaza per day. This limited quantity is less than half of the daily needs, which is 200 tons per day of the civilian population in the Gaza Strip during winter. The crisis has unprecedentedly aggravated for around six weeks due to cold weather and overconsumption in addition to the power outage and using gas as an alternative in many instances of electricity. The lack of diesel and benzene led to the aggravation of the crisis as a result of using the gas cylinder for cars or as an alternative for benzene to run generators.”*

Before ever visiting Gaza, I recall reading on how Palestinians overcame these fuel crises. At one point, they used cooking oil as fuel for their vehicles (*“Gaza smelled like one big falafel shop,”* I was told). They also used [their kerosene lanterns \(baboor\)](#) to cook over, that one I saw. The Israelis learned of their ingenuity and [added kerosene to the banned items](#) list.

Israel has shattered Gaza's economy in a variety of clever ways: firing on farmers and bulldozing and burning their land; firing on fishers and stealing their fishing boats and equipment; bombing businesses and factories and preventing the materials needed to rebuild; drastically restricting imports. And banning exports save a token few trucks when Israelis need palm leaves for Jewish holidays. Oxfam in December 2014 noted: *“Under the blockade, exports from Gaza have fallen to around 2 percent of pre-blockade levels, with devastating impact on the economy. While some extremely limited exports to international markets have been approved, the transfer of produce to Palestinian markets in the West Bank - and markets in Israel - has been banned since 2007. These were traditionally the most important markets for producers in Gaza.”* And it isn't only produce. [Furniture, clothing, and a surprising number of other goods](#) which once flowed from Gaza's borders are banned from being exported.

Art of war

Norwegian doctor Mads Gilbert has shared the last three major wars with the Palestinians in Gaza. Recently, Israeli authorities banned him from entering Gaza, in spite of him maintaining a professional neutrality. [Gilbert said](#): *"I think the truth is the security risk because when I, as a white medical doctor with blue eyes and white hair, tell the real story of the realities in the sharp end of the Israeli attacks, the Palestinians change from being terrorists to being humans, the numbers change from being numbers to being people, and the children appear as yours and my children. ...this is actually a danger to the Israeli narrative and, in a way, the global reputation of Israel, which is partially falling apart now."*

Aside from Gilbert's heart-breaking observations on the slaughter of Palestinians, [he notes poignantly](#), *"The average age is 17.6 years, ...a child ghetto of 1.2 million children and young people are being denied the right to escape the bombs, to fly, because they cannot get out."* This, incidentally, was the third major massacre for Palestinians six years or older in Gaza since December 2008.

Six years ago, I was a month into what would be a year and a half stay in Gaza (followed by another cumulative year and a half over the years). In December 2008, the situation in Gaza was already desperate. Back then, Palestinians in Gaza were already feeling the choke of closed borders, no exports, sadistically-limited imports ([between 30-40 items](#)), and the beginning of cold winter months during which they would suffer in darkness without the means to even heat water.

The 23-day in 2008-09 offensive killed over 1,400 Palestinians. I shared the three plus weeks of hell, losing my own fiends to Israeli bombs and bullets, meeting tortured parents and families whose children had been shot dead point blank by Israeli soldiers. Like Amer al Helu's infant daughter Farah; like 4-year-old Ahmed al-Samouni with two bullets to his chest; like [KhaledAbed Rabbo's 2 and 7 year old children, shot dead](#) by soldiers casually snacking on junk food.

[Canada's CBC interviewed then-frantic me](#) some days after my [medic friend Arafa was murdered](#) by an Israeli dart-bomb shot directly at his ambulance, [after the media building I was in was bombed](#), and after I had seen more mutilated bodies and [white-phosphorous-charred skin](#) than I could have imagined. My interview-balancing counterpart, a Canadian volunteering at an Israeli base, gushed about the weather and what a relaxed time he was having... and, oh yes (to the prompting of the CBC host), he did have to run down to the bomb shelter the other day. I'd just finished saying there were

no bomb shelters in Gaza, everything was a target, the Israelis were even bombing schools, kindergartens, hospitals.

The white phosphorus was a first for Gaza. The [flechette bombs](#) (shells packed with thousands of razor-sharp dart-nails) were old news. [Reuters cameraman Fadel Shana was martyred by such a shell](#) while filming victims of Israeli shelling in Johr ad-Dik in April 2008. Shana, like other Palestinian journalist maimed and martyred by Israeli attacks, wore the markings of a journalist when targeted.

Post-massacre, as I'd walked through the ruins of Ezbet Abed Rabbo to the east of Jabaliya, my friend from the neighborhood (whose mother was killed in the very first minutes of bombings as she walked to buy bread), joked in the way oppressed people do when getting on with life, "[they make like art here](#)," gesturing to the graveyard of houses surrounding us.

In November 2012, the Israelis "[mowed the lawn](#)" again, [murdering over 170 Palestinians](#). During the 8 days of slaughter, [Israeli figures called](#) to "blow Gaza back to the Middle Ages, destroying all the infrastructure including roads and water," and to "Flatten all of Gaza. There should be no electricity in Gaza, no gasoline or moving vehicles, nothing," said the deputy Israeli Prime Minister Eli Yishai and Gilad Sharon respectively.

But these massacres haven't been without a fight. In spite of the massive power imbalance, Palestinian resistance have fought back by any means possible, [as is their right](#), as noted in the [UN General Assembly](#). For those who call for Palestinians to be non-violent (they are, the media just doesn't speak of the murdered, [Bassem Abu Rahmes](#) of Palestine), I quote [political analyst Sukant Chandan](#):

"What we have is a largely defenseless population who has been usurped historically, who have been boxed into a ghetto of nearly 2 million people, in a tiny strip of land... and these people haven't got the right to resist? Absolutely Palestinians have the right to resist, and they should have more rockets, they should have better rockets, and they should have a Resistance that can match conventionally one of the biggest genocidal entities on the planet, which is the white, colonial state of 'Israel'."

Status Quo and 2015?

There are daily mini-massacres that go largely unnoticed, whether on the sea, in the Israeli-imposed "buffer zone" or by [denying Palestinians the right to exit](#) for health care unattainable within the confines of Gaza.

On December 6, Israeli gunboats machine-gunned Palestinian fishers 2-3 miles off the coast, surrounded and abducted 12 fishers, and stole their boats. A few days prior On Dec 3, a Palestinian fisherman was critically injured by shrapnel to his head after Israeli navy shelling, [Maan News reported](#).

On November 22, an Israeli soldier shot and killed a Palestinian bird hunter 500 metres from the border, east of Jabaliya, shooting him in the back. The same day, in southeastern Gaza, an Israeli soldier shot a 17-year-old Palestinian in the chest. He was 1500 meters from the border. The combination of Israeli jeeps present at the border and [the remotely-controlled](#) machine gun towers make Gaza's border region – the most fertile area of Gaza – a killing field.

Naturally, these incidents, daily realities for Palestinians, didn't make the headlines.

Now, nearing the end of 2014, the reports coming out of Gaza are even more dismal than one could imagine. After lofty 5.4 billion pledges of rebuilding Gaza, virtually none of the [20, 000 homes destroyed or badly damaged](#), including entire [neighborhoods like Sheyjaiyee](#), have been rebuilt. Palestinians stand blinking, wondering when and if that promise will materialize. At the end of October, [the NY Times reported](#), “Officials say they have yet to collect a dime of the [\\$5.4 billion that international donors have pledged](#) to the effort.”

The 106,000 Palestinians rendered homeless ([40,000 of whom are staying in emergency shelters](#); many others living in the shells of their homes or in ramshackle tents) face cold rains and flooding. In its [latest situation report](#), [UNRWA noted](#) extreme weather in Gaza and said a state of emergency was declared on November 27 “in Gaza City after severe flooding over a 48 hour period,” noting the evacuation of hundreds in flooded areas in Sheikh Radwan district.

[Sara Roy notes](#) the insidious nature of what rebuilding plans there are: Israel gets to decide who (if any) receive cement and building materials, and a “*permanent and complex permit and planning system similar to the one Israel uses in [Area C of the West Bank](#), which is under total Israeli control*,” is being planned for Gaza.

Oxfam's [December 2014 report](#) notes that Gaza needs “at least 89,000 new homes, 226 new schools, as well as massive repairs to other infrastructure.” Even prior to the summer IDF military operation, Gaza faced a deficit of 71,000 housing units, [OCHA noted](#). [Gisha reported](#) that “around 5 million tons of construction materials are required just for the most immediate needs. With 52,351 tons - or 1% - entering since the ceasefire, at this rate it would take more than 23 years to meet “immediate”

needs alone.” According to [PCHR](#), “*For almost 8 consecutive years, Israeli forces have continued to prevent the delivery of construction materials to the Gaza Strip.*”

Egypt has kept the Rafah crossing closed since October 25, justifying this after a suicide bomb killed 33 Egyptian soldiers, even though there is no evidence linking the bombing and Gaza. Only [as of November 26](#) was the crossing briefly opened (for 2 days), allowing just 300 Palestinians in Egypt to return to Gaza, and briefly [again from November 30 to December 2](#). A reported [6,000 more Palestinians remain stranded](#) in Egypt or third countries. In early December, [OCHA reported](#) that 10,000 Palestinians wait to exit Gaza, including over 1,000 medical patients.

Egypt has also long-since destroyed the network of tunnels which were known as Gaza's “lifeline” for a very good reason: they imported the goods, including building materials, that Palestinians needed and Israel bans. They also served as an alternative conduit to the normally closed Rafah crossing, and having seen them I can attest they were far more efficient than the bureaucracy of the Egyptians' border crossing terminal. But they are largely extinct, and reports have [Egypt creating a buffer zone](#) extending 1 km to ensure the tunnels don't re-manifest, and to tighten the already strangling noose on Palestinians in Gaza.

During the summer Operation Protective Edge in Gaza, protests raged around the world. Indian peace activist and journalist, Feroze Mithiborwali, noted at a recent Beirut conference in solidarity with Palestine, “*In practically every town and city across India, there were pro-Gaza, pro-Palestine demonstrations. There was a continuous spate of protests across India.*” South African delegate Firoz Osman, of [Media Review Network](#) said, “*Two hundred thousand people came out to demonstrations to support Gaza. That's even more than when Mandela was released.*”

So there is an increased awareness of the unjust plight of Palestinians in Gaza and throughout occupied Palestine. But as we approach the end of the year, a time when much of the West will be preoccupied by holiday shopping and celebrations, will this awareness be enough to sustain pressure on Israel and prevent a new massacre of Gaza? Will it be enough to pressure both Israel and Egypt into allowing building materials into Gaza and opening the Rafah crossing to Palestinians needing to re-enter or to exit Gaza? Will it be enough for American citizens to call for an end to the billions of dollars of aid given to Israel, let alone munitions, including [a reported 3,000 more precision-guided munitions](#) of the type used over the summer? Or for British citizens to demand Britain end [arms export to Israel](#)?

Mads Gilbert said it spot on: *“As a doctor, I say don’t send more bandages, don’t send more drugs, and don’t send equipment. Stop the bombing, lift the siege, treat the Palestinians as humans, include them in the human family, protect them by international law and find a peaceful political solution to the occupation of Palestine. That’s the preventative medicine of this mayhem that is going on.”*

The status quo of Palestinian suffering in Gaza cannot continue as it has these past 8 years.

“UN predictions fall short: Gaza uninhabitable today”, 21/12/2014, online at: <http://rt.com/op-edge/216507-israel-palestinians-gaza-massacre-uninhabitable/>

BACK TO TOP

❖ US Donates \$10m for Rubble Removal in Gaza

RAMALLAH, December 16, 2014 (WAFA) – The U.S. Consulate General in Jerusalem and the US Agency for International Development (USAID) in the West Bank and Gaza Mission announced a \$10 million donation to the United Nations Development Program (UNDP) for the removal of rubble in the Gaza Strip.

The donation comes as part of a pledge made by US Secretary of State John Kerry at the October 2014 Gaza Donors Conference held in Cairo.

The US government, through USAID, has pledged \$10 million to assist in the Gaza Emergency Removal and Crushing of Rubble and Debris Management Project, which is being implemented by UNDP.

The government's investment will result in the removal of 649,177 tons of rubble and waste material from destroyed public and private buildings in areas throughout the Gaza Strip.

These efforts will facilitate work by the Palestinian Water Authority and the Coastal Municipalities Water Utility to assess and repair infrastructure buried beneath the rubble and restore essential water and sanitation services.

The contribution to the rubble removal initiative will generate approximately 116,852 days of employment and bring immediate relief to more than one million Palestinians living in the affected areas in Gaza.

At the October 2014 Gaza Donors Conference in Cairo, Secretary of State John Kerry announced \$414 million in US assistance to the Palestinians, which included \$212 million to be delivered through USAID. The \$10 million for rubble removal is part of this commitment.

At that conference, Kerry also designated \$25 million in financial support for the six hospitals in the East Jerusalem Hospital Network and \$20 million for direct humanitarian assistance in Gaza. The money for the hospitals was transferred in November.

The US government will deliver additional funds to support critically needed relief and early recovery efforts in Gaza as it remains committed to continuing to address the needs of the Palestinian people.

More than 2,160 Palestinians were killed, while more than 10,000 were injured during the military offensive which lasted for 51 days. At least 40,000 homes were damaged, 9,600 structures fully demolished, 7,600 structures partially demolished, and 277 schools were also damaged during the summer Israeli aggression on Gaza.

“US Donates \$10m for Rubble Removal in Gaza”, 16/12/2014, online at:
<http://english.wafa.ps/index.php?action=detail&id=27324>

BACK TO TOP

❖ Israeli Know-How Helping Bring Clean Water to Rural China

Israeli technology will soon be helping to bring clean water to rural China.

Last month, Economy Minister Naftali Bennett was in China to launch the Shangdong Water City Project and discuss the innovative project that will pair Israeli technology with China's expansive growth.

"Israel and China are natural partners for technological and business cooperation," Bennet said. "We have extensive experience in management of water resources and the Water City Project will help open the Chinese market to Israeli water companies, as well as advancing bilateral relations."

Shangdong, which is located halfway between Shanghai and Beijing, is a largely agricultural area that has been plagued with water issues for years, including over-usage of groundwater, brackish water, soil erosion and pollution.

As recognized leaders in water management, especially in the agricultural sector, Israel was the natural fit for the international partnership, yet it was a visit the to the 'start-up' nation that ultimately sealed the deal between the two countries.

Last May, Chinese officials visited Israel to see the country's innovation first-hand and were impressed with what they saw.

Yongjie Chen, deputy general secretary of the China Center for International Economic Exchanges, said after his visit, "I knew Israel was a leader in technology, and I also knew its accomplishments were out of character for a nation of its size, but you have to come to Israel to understand what the term 'start-up nation' really means."

On the same visit Chen Gang, Mayor of Xiang He City, located outside of Beijing said that the technologies he saw thriving in Israel were just what was needed in his country.

"Environmental technology, water technology and renewable energy systems are very important to us." Chen said.

Already the first phase of the water project has started, with China completing infrastructure improvements to help bring more water to Shangong this week. Construction has also begun on

offices, labs, classrooms, and amenities that will ultimately house dozens of Israeli tech companies to help transform the region and foster collaboration between both nations.

“Israeli Know-How Helping Bring Clean Water to Rural China”,15/12/2014, online at:
<http://www.jspacenews.com/israeli-know-helping-bring-clean-water-rural-china/>

BACK TO TOP

❖ Israel's Tahal To Build New Water Plant In Remote Area Of Russia

Israeli global engineering and construction group Tahal and Russia's Vodokanal signed an agreement for the planning, design and construction of a water treatment plant and pumping system in Yakutsk, a remote area of eastern Russia. The new plant will have a capacity of 115,000 cubic meters per day. Owned by the Kardan Groupas, Tahal has two main business units – TAHAL Assets B.V., for strategic investments, and TAHAL Group B.V., for project execution. TAHAL was established in 1952 with the aim of meeting Israel's greatest challenge – transforming its arid, ancient lands into the fertile fields of the modern state, starting with the design of the National Water Carrier project to many other national infrastructure projects. Since that time, and following hundreds of successful projects in more than 50 countries, TAHAL has become a key player in water, sanitation and agricultural development.

The company describes its new venture as a turnkey project encompassing all the stages from planning to operation and is expects it to last for approximately 40 months. The value of the project is said to be \$ 67 million.

Most of the funding for the project has been provided by the European Bank of Reconstruction and Development EBRD, and the balance is being funded by the Republic of Yakutsk.

Tahal said that the project will be a challenge in engineering and execution of design and construction of such a large scale facility using advanced technologies in one of the coldest cities in the world. The agreement, it boasts, positions TAHAL Group as a leading company in the significant and strategic market of Russia and the CIS, where it already participates in projects worth tens of millions of dollars.

"Israel's Tahal To Build New Water Plant In Remote Area Of Russia", 15/12/2014, online at: <http://jewishbusinessnews.com/2014/12/15/israels-tahal-to-build-new-water-plant-in-remote-area-of-russia/>

BACK TO TOP

❖ The Shamir Drilling Project

The Shamir drillings in the Upper Galilee help Israel deal with its chronic water shortage. These three drillings, which provide critical support to Israeli agriculture in the north

Are being executed with the support of JNF USA's Parsons Water Foundation. In addition, Friends of KKL-JNF in Australia, Canada, and Germany help support scientific and applied research on the water drilled from the Shamir, and have assisted in the building of the Shamir Reservoir.

Israel, located in one of the driest regions in the world, is in a perpetual state of water crisis. Historically, water has often been, as in the biblical case of Isaac and the Philistine shepherds arguing over well ownership, a cause of great dispute. In the thousands of years since that particular conflict, water scarcity in the region has been exacerbated by rapidly growing populations, ambitious development plans, and prolonged periods of drought. The current annual deficit in Israel's renewable water resources is almost 131 billion gallons.

Though the picture seems grim, Israelis have an international reputation for pioneering innovative solutions to the water challenge. On a quiet hillside in the northeastern Galilee, for example, a group of hydrologists and farmers are reaching back into the past in order to guarantee a viable source of water for future generations. The Shamir project, a partnership between the Israeli government, the Upper Galilee and Golan Heights Water Associations, and Jewish National Fund's Parsons Water Fund (through the generous support of Evelyn G. Lipper, M.D. and the EGL Charitable Foundation), is drawing unprecedented amounts of water from a 5,000 year-old (according to carbon dating) artesian aquifer.

The Shamir complex (named for the kibbutz above which it is located) includes three drills, each around 1.5 kilometers deep, spread over a hilly area sloping down from the Golan Heights into the Hula Valley.

One of the deepest drilling operations in the world, Shamir taps into two and a half billion cubic meters of water, more than half the volume of the Sea of Galilee. Contained at a tremendous pressure, the drills release 600 cubic meters (around 16,000 gallons) of water per hour.

“Just to give a sense of proportion,” says Yigal Hen of the Golan Heights Water Association, “that’s enough water to irrigate 80% of Israel’s apple crops for an entire year.”

“The Shamir Drilling Project”, 16/12/2014, online at: <http://www.jpost.com/Green-Israel/Water-for-Israel/The-Shamir-Drilling-Project-384819>

BACK TO TOP

❖ **The half-full glass: Could ‘water diplomacy’ bring peace to the Mideast?**

Water could be the main factor in even bloodier conflicts than those we have become accustomed to. But it doesn't have to be that way: Water could also be a source of security, prosperity and peace.

By Netta Ahituv || 29.11.14 || Source: [Haaretz](#)

We should not let ourselves be fooled by the rainstorm that lasted for several days this week. The Middle East has always had a water shortage. Conflicts and treaties over water are mentioned as far back as the Bible, and recently the journal Climatic Change published a study claiming that a drought was responsible for the collapse of the Assyrian Empire 2,700 years ago. A water shortage and population density are still typical of the region, and even though political and religious circumstances play a part in the conflicts and treaties of our own day, the role of water cannot be discounted.

Advanced technology, desalination and water recycling have helped Israel to overcome its initial disadvantages and become a kind of regional water superpower. The gap between the bleak water situation in the neighboring countries and Israel's much better one is the key to understanding the future of the Middle East. Estimates say that while almost 634 million people will be living in the Middle East by 2050 – that's double the current population – the water sources are drying up and the amount of precipitation is decreasing.

Water could be the main factor in even bloodier conflicts than those we have become accustomed to. But it doesn't have to be that way: Water could also be a source of security, prosperity and peace. This vision brings with it the concept of “water diplomacy,” a hot field in international relations that is based upon a simplistic equation that states: “A thirsty neighbor is a dangerous neighbor.”

Catastrophe or peace

In Amman, Jordan's capital, 50 percent of the water leaks out of the pipes and inhabitants receive water twice every two weeks. Roughly 10 million cubic meters of water evaporate from the Aswan Dam every year, to be lost forever. In the Nile Delta, near Cairo, the water has become an open sewer into which millions of inhabitants empty their waste. In Turkey, dams are being built at the sources of the Tigris and Euphrates rivers, preventing the water from reaching Syrians and Iraqis. Tehran has running water, but the inefficient sewerage system there causes sewage to leak into the groundwater. The groundwater in Kuwait is full of oil that trickled into it when it was poured out during the first Gulf War. Since the second Gulf War, roughly 70 percent of the population in the areas where combat took place have not been receiving a steady supply of water.

By comparison, inhabitants of Israel, which started out with the toughest situation of all (besides Jordan), enjoy a constant, steady water supply, and farmers receive as much water for their crops as they need. "Thanks to strategic management, which includes reuse of water for agriculture, desalination of seawater, reducing the rate of waste, establishment and maintenance of good and effective systems and proper pricing of water, Israel's water economy is stable and good," says Oded Fixler, senior deputy director of the Water Authority.

Avraham Tene, chairman of the Water Desalination Administration at the Water Authority, adds that the average amount of precipitation in Israel is 1.2 billion cubic meters, while we consume roughly 2.2 billion cubic meters. "We make up the difference with technology, water conservation, recycling and returning water to agriculture and desalination," he says.

A visit to the Palmahim Desalination Plant shows how water facilities in Israel have become a pilgrimage site for researchers and scientists from all over the world. It takes 20 minutes for a drop of water to complete the desalination process and become drinkable.

“The plant stops desalination work at peak electricity consumption times to keep costs down, while at the same time using energy provided by salt water that remains after the desalination process,” explains Avner Hermoni, the director of the plant.

As expected, Energy and Water Resources Minister Silvan Shalom has the highest praise for Israel’s water economy. “Israel recycles 87 percent of its water, much more than any other country on earth,” he says. “Second place is 25 percent, and third place is 10 percent. We also use desalination wisely and we water our crops with drip irrigation systems, which were invented here back in the 1960s.”

“We can take a pessimistic or an optimistic view,” says Prof. Haim Gvirtzman, a hydrologist at the Institute of Earth Sciences at the Hebrew University of Jerusalem. “Either a holocaust, in the sense of a regional catastrophe, will happen here or Israel can export its successful water model to the region’s countries as part of peace treaties. I take the optimistic view – water is a bridge to peace.”

Oil is losing its importance

As we approach the second half of the second decade of the 21st century, it may be said that the predictions of a regional water apocalypse did not come true. But there were still internal conflicts, many of them fueled by a shortage of water.

Micheline Calmy-Rey, the former foreign minister of Switzerland, had good reason to announce in 2011 that in the future, the most important geopolitical resource in the Middle East would be water, not oil. Much has been written about the connection between the drought in Syria, which lasted from 2006 to 2009, and the outbreak of the civil war there, and naturally, water is one of the weapons being used in the ongoing fighting there. Islamic State’s takeover of the Tabqa Dam on the Euphrates River in Syria’s Raqqah Governorate in February 2013 was one of the worst blows that the Syrian regime has suffered during the war.

The field that the United Nations calls “environmental diplomacy” (water diplomacy is one of its subcategories) is definitely necessary in a region where more than 50 percent of the water sources are shared by two or more countries. The most prominent example of this is the Tigris River, which passes through Turkey, Iran, Syria and Iraq.

“Environmental issues are unique in that they can make connections between people in ways that other fields, mainly political ones, cannot,” says Gidon Bromberg, the Israeli director of Friends of the Earth Middle East.

Officials of Friends of the Earth are about to publish a long article in the International Journal of Water Governance, a scientific journal, claiming that the water crisis, and the environmental problems of the Middle East in general, can be the keys to opening the gates of peace. In their article, they write that a look backward over the history of water problems in the world shows that contrary to the theory that water shortages lead to conflict, the lack of fresh water actually promotes cooperation between countries.

Sinaia Netanyahu, the chief scientist of the Environmental Protection Ministry, clarifies the issue of possible cooperation among countries in the region and cites the countries of Europe, which are connected to the same power grid and transfer electricity to one another when necessary, as an example.

Francesca de Chatel, a Dutch researcher specializing in water issues in the Arab world and the Mediterranean region, recently received her doctorate from the Institute of Science, Innovation and Society at Radboud University in The Netherlands. Her dissertation topic was the water crisis in Syria – and she is pessimistic regarding a solution to the water problem in the Middle East. She has visited every country in the region, paying particular attention to water and the cultural relationship

to it. For example, she studied the different approaches toward water in Christianity, Islam and Judaism, and interviewed thousands of people living in the Middle East.

De Chatel says that while people are aware that there is a water problem in the region, they do not understand how critical the problem is. She adds that governments cannot deal with the problem at present, and definitely cannot create long-range policy on the issue.

Despite her pessimism, de Chatel does not believe that wars over water will be breaking out here – for the simple reason that war is more expensive than finding a solution to the water crisis. She recalls that a high-ranking Israeli general told her: “There is no reason for us to conquer the Jordan River basin as long as it is cheaper to desalinate water.”

De Chatel is also skeptical of the possibility that Israel will sell desalinated water to its neighbors since most of the countries are too poor to buy it. While desalination itself is fairly inexpensive (the desalination process comprises roughly 13 percent of the price of water for consumers), transporting water is a costly affair. But, she says, internal conflicts and uprisings by a thirsty populace against the government, as happened in Tunisia, Libya, Egypt and Syria, will increase.

Water as a weapon against Islamic State

Although the price of transporting water is high and the country in question is a poor one, the water agreements between Israel and Jordan, which went into effect when both countries signed a peace treaty in 1994, have been a shining success. For 20 years, Israel has been providing the Kingdom of Jordan with 55 million cubic meters of water per year. Besides the fact that providing water to Jordan is part of the peace treaty, Israel also has a political-security interest in doing so.

“Security stability in Jordan and preventing the undermining of the current regime are important to Israel,” says Dr. Oded Eran, Israel’s former ambassador to Jordan and the European Union and today a senior research fellow at the Institute for National Security Studies. “Jordan faces two existential

threats: One is the entry of a million-and-a-half Syrian refugees on top of the half-million refugees from Iraq who arrived there in 2003, joining the previous waves of Palestinian immigration of 1948 and 1967. The other is posed by Islamic State, which has infiltrated it with local cells, mainly in places where there is a water shortage that causes economic hardship.”

But while the water agreements with Jordan rise above political differences of opinion, among the Palestinians water and politics are intertwined. De Chatel believes that ideological differences are keeping the issue from being resolved.

“While Israel believes that the transfer of desalinated water to the Palestinian Authority solves the problem, the Palestinians view as highly important what they call ‘the right to water’ – the idea that the PA can be responsible for the water sources in the territories, which Israel does not allow them to do at the moment,” she says.

Both the PA and Israel must also deal with the question of Gaza, which suffers from contaminated water sources due to overuse and the lack of sewage treatment plants. Because of the shortage, people drill private wells, which only makes matters worse. An international project to construct a desalination plant in Gaza has been around for some years, but has not yet been carried out.

To help the inhabitants of Gaza receive more water, Israel has two options: either to sign agreements for continued provision of water to Gaza, as it did after Operation Protective Edge when it transferred five million cubic meters of water to Gaza as humanitarian aid, or allowing Gaza to operate a desalination plant and assist it by providing power to run it. A desalination plant of this kind might also be an important factor in preventing the next war.

“The half-full glass: Could ‘water diplomacy’ bring peace to the Mideast?”, Haaretz, 21/12/2014, online at: <http://mideastenvironment.apps01.yorku.ca/2014/12/the-half-full-glass-could-water-diplomacy-bring-peace-to-the-mideast-haaretz/>

BACK TO TOP

❖ UN Adopts Resolution on Palestinian Sovereignty over Natural Resources

NEW YORK, December 20, 2014 – (WAFA) – The United Nations General Assembly (UNGA) overwhelmingly adopted Friday a resolution on permanent Palestinian sovereignty in the occupied Palestinian Territory (oPT) over their natural resources.

The Permanent sovereignty of the Palestinian people in the Occupied Palestinian Territory, including East Jerusalem, and of the Arab population in the occupied Syrian Golan over their natural resources was adopted by an overwhelming majority of votes in the UNGA sixty-ninth session.

According to a UN press release, 165 states voted in favor of the resolution and 6 states voted against (Canada, Israel, Marshal Islands, Micronesia (Federated States of) Palau, and United States) with 9 abstentions (Australia, Cameroon, Cote D'Ivoire, Honduras, Panama, Papua New Guinea, Paraguay, Tonga, and Vanuatu).

Through that resolution, the Assembly demanded that Israel cease exploiting, damaging, depleting and endangering the natural resources in the Occupied Palestinian Territory and the occupied Syrian Golan. It also called for immediate and safe removal of all unexploded ordnance in the Gaza Strip, and for support for the efforts of the United Nations Mine Action Service in that regard.

The resolution was one among 38 resolutions, including seven that required recorded votes, and five decisions that the UN General Assembly passed on a range of issues. The General Assembly adopted without a vote another resolution titled Assistance to the Palestinian People.

According to the UN press release, the resolution was introduced by representatives of Italy, Sebastiano Cardi, on behalf of the European Union (EU). The resolution text urged Member States, international financial institutions of the United Nations system, intergovernmental and non-governmental organizations and regional and interregional organizations to extend economic and social assistance to the Palestinian people, in cooperation with the Palestine Liberation Organization, and through official Palestinian institutions.

It stressed the importance of following up on the results of the Cairo conference on Palestine, “Reconstructing Gaza”, to promote economic recovery and reconstruction in a timely and sustainable manner.

“UN Adopts Resolution on Palestinian Sovereignty over Natural Resources”, WAFA, 22/12/2014, online at: <http://mideastenvironment.apps01.yorku.ca/2014/12/un-adopts-resolution-on-palestinian-sovereignty-over-natural-resources-wafa/>

BACK TO TOP

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❖ Egypt open to River Nile negotiations

Egypt's President Abdel Fatah al-Sisi has told Ethiopian officials that his country remains open to formal talks for further cooperation over sharing the Nile waters.

Speaking in Cairo on Thursday as he received a delegation from Addis Ababa headed by the President of the Ethiopian Parliament, President Sisi said Egypt will not be involved in undermining cooperation between countries sharing the River Nile, including Ethiopia.

He reassured the Ethiopians that under him Egypt was opening a new chapter of relations with her neighbours in the region and Africa as a whole.

“Egypt cannot stand in the way of the Ethiopian people in their quest for development” Sisi said in reference to a controversial bid by Ethiopia to build a dam on the Nile which Cairo has rejected.

“ Nile River represents a source of development to the Ethiopians, it also means the source of life to the Egyptian people” Sisi added.

According to him, Egypt's share of the Nile water had remained steady at 55.5 billion cubic meters when the population was less than 20 million although its stake is bound to increase after the population reached 90 million.

The Egyptian leader claimed there are many opportunities for development between his country and Ethiopia through trade and investments.

He pointed out that Egyptian doctors have established a fund with a capital of \$500 million to provide health care services in Africa with a significant portion of this fund allocated for Ethiopia.

Sisi also spoke about combating terrorism not only militarily but also through social development and the fight against poverty.

“Egypt open to River Nile negotiations”, 18/12/2014, online at: <http://en.starafrica.com/news/egypt-open-to-river-nile-negotiations-official.html>

BACK TO TOP

WWW.ORSAM.ORG.TR

❖ Egypt denies Ethiopia row over dam study deadline

CAIRO – Egyptian Irrigation Minister Hossam Moghazi on Friday denied reports that Ethiopia had asked to extend the deadline for a technical study on the anticipated impact of a controversial mega-dam that it is building on the Nile River's upper reaches.

"The agreement between Cairo, Addis Ababa and Khartoum to allow a six-month period for carrying out the evaluation has not changed," Moghazi told The Anadolu Agency.

In recent days, certain Egyptian media outlets had reported that Ethiopia had asked to extend the sixth-month deadline to two years.

Moghazi, however, said some research firms that had been shortlisted by a tripartite technical committee to conduct two impact studies on Ethiopia's dam project had asked to postpone submission of their proposals.

He added that the committee had given the firms a December 30 deadline by which to submit proposals.

Since September, a Tripartite National Committee – a 12-member experts' panel responsible for aiding implementation of recommendations issued by an International Panel of Experts – has held two working sessions in Addis Ababa and Cairo.

At the two meetings, representatives of the three countries were able to produce a list of seven firms, one of which will be selected to conduct the studies.

Ethiopia says the multibillion-dollar Grand Ethiopian Renaissance Dam is needed to generate badly-needed energy. The project has strained Ethiopia's relations with downstream Egypt, which fears the project will reduce its historical share of water.

Addis Ababa, for its part, insists the new dam will benefit Egypt and Sudan, both of which will be invited to purchase the electricity thus generated.

Egypt and Ethiopia agreed to resume tripartite talks – along with Sudan – after Ethiopian Prime Minister Hailemariam Desalegn and Egyptian President Abdel-Fattah al-Sisi met on the sidelines of a June summit in Equatorial Guinea.

“Egypt denies Ethiopia row over dam study deadline”, 14/12/2014, <http://nazret.com/blog/index.php/2014/12/20/egypt-denies-ethiopia-row-over>

BACK TO TOP

❖ **President El Sisi Demands Egypt asks Absolute Right over Nile**

Cairo, Dec 19 (Prensa Latina) Egyptian President Abdel Fattah El Sisi, asked the Ethiopian Parliament for a resolution to recognize the absolute right of his country over the Nile River, announced the Executive official spokesman today.

The demand was made during a meeting last night with a delegation of the Ethiopian People Diplomacy, formed by prominent academicians, former ambassadors, religious leaders, artists, journalists, and other personalities, who are visiting this capital.

Both countries are involved in a conflict since the construction of a big dam in Ethiopia, which is the center of hydroelectric project for the local consumption and for exporting to neighbouring countries.

Egyptian authorities consider the dam, called the Renaissance, will decrease the Nile water flow through their territory, its only source of water supply. The Ethiopian Government rejects those concerns, as well as the 55,000 cubic meters of water designated by Egypt dating from the colonial period, considering null.

“President El Sisi Demands Egypt asks Absolute Right over Nile”, 19/12/2014, online at:

http://www.plenglish.com/index.php?option=com_content&task=view&id=3384751&Itemid=1

BACK TO TOP

WWW.ORSAM.ORG.TR

❖ Al Ain summit probes role of water in Arabia

Beginnings of oasis life in north west Arabia and early water management techniques will be traced at a regional conference that opened in Al Ain, UAE yesterday (December 14).

Being held at the Qattara Art Centre, the three-day conference, which is open free-of-charge to the public, is organised by Abu Dhabi Tourism & Culture Authority (TCA Abu Dhabi).

Historic environment experts from eight countries across the Middle East, Canada and Europe are expected to take part in conference.

“Attendees will be able to trace the water engineering and management practices throughout Arabia from ancient to pre-modern times,” said Mohamed Al Neyadi, director of the Historic Environment, TCA Abu Dhabi.

“At the same time they will learn of the water sustainability opportunities inherent across the Arabian Peninsula, the challenges of water management in fast growing cities and water saving irrigation strategies for improving food security across the Peninsula.”

Delegates will hear of the water management lessons passed down by the Bedouin of Jordan’s south-eastern desert and the water irrigation systems in some historical cities in Saudi Arabia.

A special session will be dedicated to the ancient and unique Al Falaj irrigation system which characterised the oases of Oman and Al Ain.

“Water uses in a historical context will be widely explored,” said Al Neyadi. “From the use of resources in Bahrain’s Dilmun period to the old water wells implemented in north west Kuwait and the cultural memory of historic water resources in Abu Dhabi’s Al Dhafra region.”

Post conference activities include dinner at the Al Ain Palace Museum and visits to the Hili Iron Age

falaj, Hili Archaeological Park and Oasis in Al Ain.

“This is a conference which probes history and will help take its lessons to impact and address the challenges of the future,” added Al Neyadi.

“Al Ain summit probes role of water in Arabia”, 15/12/2014, online at:

http://www.tradearabia.com/news/HEAL_271505.html

BACK TO TOP

❖ International Water Summit: Premier Global Forum To Drive Actionable Water Security Solutions

Global water leaders representing private industry, the public sector and non-governmental organizations (NGOs) will convene in Abu Dhabi next month to attend the International Water Summit (IWS). The global platform enables key industry players to exchange ideas, share the latest innovations in water management and to learn about the growing commercial opportunities in the Middle East and North Africa (MENA).

“IWS is a meeting of the minds,” said Hassan A. Arafat, a professor at the Masdar Institute of Science and Technology, the world’s first graduate-level, research-driven university dedicated to advancing real-world solutions to issues of sustainability. “No other conference unites the full spectrum of stakeholders – from researchers and economists to end users – required to seriously solve the world’s pressing water issues. Water security is a common problem and IWS enables the exchange of ideas that enables effective, viable action.”

Entitled ‘Promoting Water Sustainability in Arid Regions,’ IWS will examine the water-energy nexus and its long-term implications on regional and global food security and energy savings. The exhibition and conference, January 19-22, takes place during Abu Dhabi Sustainability Week (ADSW), hosted by Masdar, Abu Dhabi’s renewable energy company. IWS is also supported by Abu Dhabi Water & Electricity Authority, the Environment Agency of Abu Dhabi, the Regulation and Supervision Bureau and Abu Dhabi Sewerage Services Company.

IWS comes at an important time as MENA governments are ramping up desalination capacity in order to meet rising demands – a result of the region’s economic growth and expanding populations. Experts say part of the solution to addressing water security is through the deployment of innovative, new technologies that increase desalination capacity, while reducing the energy needed to process seawater into potable water.

H.E. Dr. Abdurrahman M. Al-Ibrahim, governor of the Saline Water Conversion Corporation of the Kingdom of Saudi Arabia, which is sending a delegation of senior energy ministers and officials, observed that IWS is “an opportunity to bring together – at one platform – engineers, researchers,

scientists, developers, technologists, manufacturers, public utilities, companies and more to discuss emerging opportunities to tackle regional and global water challenges. The platform, which encourages public-private cooperation, results in meaningful research and joint actions that accelerate projects into the field.

Leading NGOs view IWS as a premier event to facilitate the dynamic commercial partnerships needed to implement to goals set by policy makers. Najib Saab, secretary general of the Arab Forum for Environment and Development, said: “IWS plays a crucial role to bring together policy makers and experts from the corporate sector to exchange ideas and to propose actions. It’s also a perfect platform to disseminate public awareness on the issues of water management and security.”

Adrian Sym, executive director for the Alliance for Water Stewardship, agreed: “IWS provides space for frank and open discussions and the sharing of lessons – positive and negative – on engagement at a variety of levels. This has helped to build more trusting relationships over time, leading to better cooperation between all the players required to support sustainable water solutions.”

Industry leaders familiar with IWS appreciate the commercial opportunities the event can generate.

“As an important international water summit with high-level participants, IWS plays a vital role in putting water security issues on the global agenda, while demonstrating that a broad spectrum of technical solutions exist,” Soeren Hvilshoej, the director of International Water for Ramboll Engineering Company.

IWS is a key element of ADSW, which also includes the eighth World Future Energy Summit and the second EcoWaste, in association with Tadweer, Abu Dhabi’s Centre of Waste Management. The fifth assembly of the International Renewable Energy Agency and the seventh Zayed Future Energy Prize Awards ceremony will also take place during ADSW.

“International Water Summit: Premier Global Forum To Drive Actionable Water Security Solutions”, 19/12/2014, online at: <http://www.abudhabicityguide.com/news/news-details.asp?newsid=17658&newstype=Local%20News>

BACK TO TOP

❖ **China Exim Bank lends Ivory Coast \$91 mln for water upgrades**

ABIDJAN (Reuters) - China's Exim Bank and Ivory Coast have signed a loan deal worth 48.4 billion CFA francs (\$91.48 million) to finance water infrastructure work in Abidjan, the West African nation said on Wednesday.

Ivory Coast, French-speaking West Africa's largest economy and the world's top cocoa grower, is recovering from a decade-long political crisis and is seeking to renew long-neglected critical infrastructure.

Many neighbourhoods in the commercial capital Abidjan, a city of around five million inhabitants, do not have access to running water.

"The government's objective is to ensure that the city of Abidjan no longer has any water problems," government spokesman Bruno Kone said following a cabinet meeting during which ministers ratified the loan deal.

Kone said the loan agreed with the Export-Import (Exim) Bank of China last month was "semi-concessional" but declined to give further detail

"China Exim Bank lends Ivory Coast \$91 mln for water upgrades", 18/12/2014, online at: http://af.reuters.com/article/investingNews/idAFKBN0JW0FV20141218?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=fa88b4baa1-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-fa88b4baa1-250657169

BACK TO TOP

❖ ADB approves \$42.9m for Fata irrigation project

ISLAMABAD: The Asian Development Bank (ADB) has approved a loan of \$42.9 million to provide reliable irrigation for farmlands and non-cultivated lands in the Federally Administered Tribal Areas (Fata) of Pakistan.

The project will be completed in March 2020 and Fata secretariat will be the executing agency, said a statement issued by the ADB on Thursday.

ADB's concessional Asian Development Fund is funding the project with counterpart funds from the government of Pakistan amounting \$4.9 million.

"Irrigated farmlands in Fata will boost productivity and enable farmers to earn higher incomes by producing higher-value crops, including vegetables," Donneth Walton, an ADB Principal Natural Resources and Agriculture Specialist was quoted as saying in the statement.

"This will reduce poverty and boost household food security," Walton said.

Fata is located along Pakistan's northwestern border with Afghanistan and is spread over 27,000 square kilometers. The project area consists of three of seven semi-autonomous Fata agencies namely Bajaur, Khyber, and Mohmand with a population of 2.6 million whose vast majority depends on agriculture, livestock, and natural resources for their livelihood.

Pakistan has been battling militants in this semi-autonomous tribal belt since 2004, after its army entered the region to search for Al Qaeda fighters who had fled across the border following the US-led invasion of Afghanistan.

According to the statement today, poor water resource management has become a major obstacle to increasing productivity and improving the living conditions of the Fata inhabitants.

Due to low rainfall, many farmers in the project area rely on rain fed subsistence agriculture, which produces food staples such as wheat and maize. Some rely for irrigation mainly on groundwater taken from wells, with little utilisation of surface water.

As per the project, irrigated agriculture in Fata will be expanded through better use of the region's surface water resources. Instead of building costly water infrastructure, the project will use simple and small irrigation schemes that can be maintained by the local communities, including small gravity dams.

The project will also improve farm water management through activities such as terracing and land levelling, and watershed management through afforestation of the degraded watersheds.

“ADB approves \$42.9m for Fata irrigation project”, 18/12/2014, online at: http://www.dawn.com/news/1151641/adb-approves-429m-for-fata-irrigation-project?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=fa88b4baa1-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-fa88b4baa1-250657169

BACK TO TOP

❖ **Climate Change Could Cause 18 Percent Drop In Food Production By 2050, Study Says**

ROME, Dec 18 (Thomson Reuters Foundation) - Global warming could cause an 18 percent drop in world food production by 2050, but investments in irrigation and infrastructure, and moving food output to different regions, could reduce the loss, a study published on Thursday said.

Globally, irrigation systems should be expanded by more than 25 percent to cope with changing rainfall patterns, the study published in the journal *Environmental Research Letters* said.

Where they should be expanded is difficult to model because of competing scenarios on how rainfall will change, so the majority of irrigation investments should be made after 2030, the study said.

"If you don't carefully plan (where to spend resources), you will get adaptation wrong," David Leclere, one of the study's authors, told the Thomson Reuters Foundation.

Infrastructure and processing chains will need to be built in areas where there was little agriculture before in order to expand production, he said.

International food markets will require closer integration to respond to global warming, as production will become more difficult in some southern regions, but new land further north will become available for growing crops.

Based on the study's models, Leclere expects production to increase in Europe, while much of Africa will remain dependent on imports.

If climate change is managed correctly, food production could even rise 3 percent by 2050, the study said, as a higher concentration of carbon dioxide in the atmosphere has a fertilizing effect on plants.

Managing water resources is expected to be the biggest challenge for farmers stemming from climate change.

Water "may become dramatically scarcer much earlier than previously thought," Michael Obersteiner, another study co-author, said in a statement. (Reporting By Chris Arsenault; Editing by Tim Pearce)

"Climate Change Could Cause 18 Percent Drop In Food Production By 2050, Study Says", 18/12/2014, online at:
http://www.huffingtonpost.com/2014/12/18/climate-change-food-production_n_6349164.html?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=fa88b4baa1-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-fa88b4baa1-250657169

BACK TO TOP

❖ World's Largest River Diversion Project Now Pipes Water to Beijing

On Friday, Dec. 12, for the first time, Beijing residents who turned on their faucets to rinse vegetables or take showers may have been using water piped to the arid capital from distant Hubei province. The middle leg of China's ambitious and controversial South to North Water Project—the world's largest water transfer project ever—has just opened.

The water transfer scheme, first envisioned by Chairman Mao, is an engineering solution to an ecological discrepancy: China's population is concentrated in the country's relatively dry northern provinces, while water flows more plentifully in the south. Moreover, China has a fifth of the planet's population but only 7 percent of its freshwater resources.

The leg of the project that opened Friday, according to state-run *Global Times*, is a series of canals stretching 890 miles across northeastern China that will annually transport an estimated 9.5 billion cubic meters of water from central China to major cities on the north China plain, including Beijing and Tianjin.

If and when the final western leg of the project is completed, the canal system will reroute roughly 45 billion cubic meters of water annually across the country. (Alarmed Chinese geologists have raised questions about the costs and feasibility of drilling tunnels through western mountains to build aqueducts.) Construction costs for the first two legs have already reached nearly \$80 billion.

Scientists have raised many concerns about the potential unintended impacts of remaking China's river geography, but we won't see the full consequences for years. Top worries include the unknown effects on regional ecosystems; the impacts from climate change (with altered weather patterns, will there even be enough water available to be transferred?); and the extent of pollution in China's rivers (will adequate steps be taken to ensure the water quality in city faucets?).

India's Prime Minister Narendra Modi may be watching to see how China's experiment fares. His government appears to be reviving an old plan for its own National River Linking Project, a massive 9,320-mile scheme to redirect rivers to India's parched agricultural lands. While the plan has

languished on drawing boards for years, Modi approved construction of the first link in July. Whether India could actually pull off such a vast engineering feat—and whether it’s scientifically advisable—remains to be seen.

“World’s Largest River Diversion Project Now Pipes Water to Beijing”, 15/12/2014, online at:
http://www.businessweek.com/articles/2014-12-15/world-s-largest-river-diversion-project-now-pipes-water-to-beijing?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=9b7ac5db3e-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-9b7ac5db3e-250657169

BACK TO TOP

❖ Don Sahong Dam Threatens Mekong Fisheries

It is early morning along the Mekong River in Siphandone, site of the remarkable Khone falls in Southern Laos. Boats are beginning to pull up to the banks of the river, and fishers are unloading their daily catch to be sold at the nearby market. In just one season, particularly when there are heavy rains, a family in the area can earn up to 200,000 THB (roughly US\$6,000) from selling fish. This same catch will also be a staple in a family's diet. Studies have shown that wild fish make up roughly 80% of the animal protein that locals consume in this area.

Lives and livelihoods in Siphandone are intricately entwined with the Mekong River, which provides a means of transport, an economy, and most importantly, food security.

Siphandone, whose name means "4,000 islands," is a unique and picturesque section of the Mekong River. Made up of a series of complex channels winding around small islands and inlets, it is home to extensive wetlands, and is renowned for its abundant aquatic biodiversity and rich fisheries. According to Dr. Ian Baird, a geography professor who specializes in the Mekong, approximately 205 fish species are known below the Khone Falls and just under 200 species known above the Falls, many of which are migratory. Scientists have recognized the area as a critical bottle-neck for fish migration throughout the lower Mekong basin.

The Don Sahong Dam – the second dam proposed for construction on the lower Mekong mainstream – would block one of the main channels in the area that allows for year-round fish migration. Well over 100 species migrate through the Hou Sahong Channel, which is one of the largest channels in the area. Unlike other channels, it is free of waterfalls and large enough to support the year-round migration of big groups of large and small fish. If built, the Don Sahong Dam will entirely block the Hou Sahong Channel, endangering fish migration throughout the Mekong region, jeopardizing food and livelihood security in Laos, Cambodia, Thailand and Vietnam.

Despite being less than two kilometers upstream from the Cambodian border, no transboundary impact assessment has been carried out for the project. While the Environmental Impact Assessment (EIA) acknowledges the importance of the Hou Sahong Channel for fish migration, it does not look beyond the borders of Laos to address regional fishery implications.

The project is heavily reliant on the success of proposed mitigation measures which include re-engineering the channels on either side of the Hou Sahong and diverting more water to replicate the

characteristics of Hou Sahong, in order to attract fish to migrate up these alternate channels. However, the proposed mitigation measures have never been tested in the Mekong region. No information on which fish species the project would target for migration has been publicly shared, and the details behind the engineering design has not been explained. Experts fear these channels could fail to mitigate the loss of the Hou Sahong Channel for fish migration, not only because the design is untried but because the developer's assessments fail to take into account the diversity of fish species in the area, each with their unique characteristics and migration patterns. With insufficient baseline data about which species migrate up which channels and when, it is impossible to measure what the true impact of the Don Sahong Dam will be.

It is not clear who will be responsible if the project's proposed mitigation measures fail. What is clear is that millions of people whose lives depend on Mekong fisheries will bear the brunt of this ill-conceived project, not be the Lao Government or project developers, Mega-First.

An evaluation of the potential impacts of mainstream hydropower dams on Mekong fisheries published by the Mekong River Commission Secretariat in 1994 describes Siphandone as "an ecologically unique area that is essentially a microcosm of the entire lower Mekong River," and stated that "such a site is so rare in nature that every effort should be made to preserve all of Khone Falls [Siphandone] from any development."

The Governments of Cambodia and Vietnam have expressed strong concern over the potential impacts of the Don Sahong Dam, and have called for a moratorium on all dam building on the lower Mekong mainstream for a period of 10 years. The Don Sahong Dam is currently undergoing a regional consultation process, despite the fact that construction has already begun. Yet it is not too late to stop this disaster in the making.

"Don Sahong Dam Threatens Mekong Fisheries", 16/12/2014, online at: http://www.internationalrivers.org/blogs/259-4?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=8ead4e73b0-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-8ead4e73b0-250657169

BACK TO TOP

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❖ Volume of world's oldest water estimated

The world's oldest water, which is locked deep within the Earth's crust, is present at a far greater volume than was thought, scientists report.

The liquid, some of which is billions of years old, is found many kilometres beneath the ground.

Researchers estimate there is about 11m cubic kilometres (2.5m cu miles) of it - more water than all the world's rivers, swamps and lakes put together.

The study was presented at the American Geophysical Union Fall Meeting.

It has also been published **in the journal Nature**.

The team found that the water was reacting with the rock to release hydrogen: a potential food source.

It means that great swathes of the deep crust could be harbouring life.

'Sleeping giant'

Prof Barbara Sherwood Lollar, from the University of Toronto, in Canada, said: "This is a vast quantity of rock that we've sometimes overlooked both in terms of its ability to tell us about past processes - the rocks are so ancient they contain records of fluid and the atmosphere from the earliest parts of Earth's history.

"But simultaneously, they also provide us with information about the chemistry that can support life.

"And that's why we refer to it as 'the sleeping giant' that has been rumbling away but hasn't really been characterised until this point."

The crust that forms the continents contains some of the oldest rocks on our planet.

But as scientists probe ever deeper - through boreholes and mines - they're discovering water that is almost as ancient.

The oldest water, discovered 2.4km down in a deep mine in Canada, has been dated to between one billion and 2.5bn years old.

Deep surprises

Prof Chris Ballentine, from the University of Oxford, UK, said: "The biggest surprise for me was how old this water is.

"That water is down there is no surprise - water will percolate down into the rock porosity.

"But for it to be preserved and kept there for so long is a surprise.

"So when you think about what's down beneath your feet, it's more exciting than just some rock."

As well as the new estimates for the volume of the ancient water, the researchers used data from 19 different mine sites, studied as part of the Deep Carbon Observatory programme, to assess how much hydrogen was being produced through the underground chemical reactions.

Life's limits

Prof Ballentine said: "Until our most recent work, the hydrogen production in the continental crust was calculated to be negligible: close to zero.

"This was very wrong and our work shows the hydrogen production in the continental crust to be the equal to that produced in the oceanic crust. This doubles the estimate of hydrogen produced on Earth."

Prof Sherwood Lollar said the hunt for life in the deep crust was now a priority.

"It gives us a quantum change in our understanding of how much of the Earth's crust might indeed be habitable and have enough energy to sustain subsurface life.

"We want to now follow this 'treasure map', to go to these sites to characterise just how broad this deep hydrosphere is, to characterise the extent of ages, and then to try to understand the differences in the kinds of life we might find in one fracture versus another.

"And even more exciting is if we can understand the limit to life, understand where we don't see life in the subsurface, and understand what it is about some of these fractures that makes them inhospitable for life."

"Volume of world's oldest water estimated", 18/12/2014, online at: http://www.bbc.com/news/science-environment-30527357?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=8ead4e73b0-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-8ead4e73b0-250657169

BACK TO TOP

❖ Amazonian tribe take initiative to protect their lands from dam Project

After years of waiting for the Brazilian government to sort out their land rights, the 13,000 Munduruku Indians, who live beside the Tapajós river in the heart of the Brazilian Amazon, have decided to take action. Besides temporarily occupying an office belonging to Funai, the Brazilian government's Indian agency, they have started to demarcate the boundaries of the land they claim.

The dispute is over one of their main areas – a territory of 178,000 hectares (440,000 acres) around the village of Sawré Muybu. Funai promised them rights to this land 13 years ago. Juarez Saw, the *cacique* (chief) of Sawré Muybu, said: “We are tired of going to Brasília [Brazil's federal capital] and getting nowhere.”

In September, a group of Munduruku made one last attempt to put pressure on the authorities. Making another long journey to Brasilia, they met Maria Augusta Assirati, then president of Funai. In an exchange filmed by one of the Indians on his mobile phone, Assirati conceded: “You are right. It is essential that your land is guaranteed because the land is under pressure from loggers, miners and a series of other elements.”

However, in a tacit admission that she was being sidelined, Assirati added: “But I can't dictate the priority interests of the government.” Nine days later, she left office. A few weeks after that, the Munduruku started the long process of digging posts in the ground to mark out their land.

The Sawré Muybu land is contentious because it affects the government's plans to build a hydroelectric power station at São Luiz do Tapajós. Now that the giant plant of Belo Monte on the Xingu river is nearing completion, government attention has moved west, to the Tapajós, where it plans to build five large plants

If the São Luiz do Tapajós dam goes ahead, most of the Sawré Muybu land will be flooded. If the Indians are granted rights to this land, to which they are entitled under Brazilian law, the government is in a predicament. Under Brazil's progressive constitution, approved in 1988 in the first flush of democratic enthusiasm after two decades of military rule, Indians can be removed from their land only after authorisation by Congress and only “in the case of a catastrophe or an epidemic that puts at

risk the population or the sovereignty of the country”. Even then, the Indians must be allowed to return once the risk is over.

Building dams results in more deforestation, and deforestation is the main cause of reduced rainfall in the Amazon

At stake is a fundamental clash over the nature of development. The government has long argued that it needs to unlock the huge hydroelectric potential in the Amazon to provide energy for mining and other activities. Plans have been drawn up to turn almost all the rivers in the eastern two-thirds of the Brazilian Amazon region into reservoirs for hydropower.

But the Indians, other traditional communities and ecologists have long argued that real development benefits local communities and biodiversity, instead of destroying them. They are now receiving support from the scientific community. Antonio Donato Nobre, a leading climate scientist, recently spent three months reviewing scientific literature on the Amazon. He was “profoundly shocked” by what he learned. Climate change is no longer a prediction; it is happening now. “We are heading for the abattoir,” he says.

Nobre told the Guardian that hydropower expansion was a grave mistake. “Building dams opens the way for more deforestation, and deforestation is the main cause of reduced rainfall in the Amazon and elsewhere. Without forests the rain will end. What’s the point of building dams?” What Brazil should be undertaking now is a massive programme of replanting native forests, he says.

What angers Nobre is that alternatives are readily available. “Some 70% of peak-hour electricity consumption comes from showers. If all Brazilians used solar-powered water heaters, we would not need to build more hydroelectric dams in the Amazon.”

Nobre’s message may have gained resonance because of this year’s severe drought in São Paulo, the country’s economic powerhouse. This was largely caused by the unexpected absence of the “flying rivers”, which each year bring down a huge amount of moisture from the Amazon. Their disappearance has been linked by scientists to deforestation both in the Amazon and in the south-east of the country.

“Amazonian tribe take initiative to protect their lands from dam Project”, 22/12/2014, online at:
http://www.theguardian.com/global-development/2014/dec/22/amazon-munduruku-indians-brazil-tapajos?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=36f80f04fc-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-36f80f04fc-250657169

BACK TO TOP

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❖ **Argentina moves forward with \$1.84 bln Neuquen dam Project**

Dec 19 (Reuters) - [Argentina](#) has held a preliminary auction to award the contract to build a \$1.84 billion hydroelectric dam in the southern province of Neuquen, the country's Planning Ministry said on Friday.

A Russian state bank will finance 85 percent of the investment, with a 20-year loan at a fixed 6.5 percent annual interest rate and a 66-month grace period, the ministry said in a statement.

Construction of the dam called Chihuido, in Argentina's Patagonia region, will be managed by a consortium of the following Argentine companies: Helport, Chediack, Panedile, Eleprint, Hidroelectrica Ameghino and Spain's Isolux.

The Chihuido dam will add 637 megawatts to the electricity market, provide water for human and industrial consumption, as well as help control water levels of the Neuquen River, the statement said. (Reporting by Eliana Raszewski; edited by Hugh Bronstein and Gunna Dickson)

“Argentina moves forward with \$1.84 bln Neuquen dam Project”, 19/12/2014, online at: http://www.reuters.com/article/2014/12/19/argentina-dam-idUSL1N0U32L720141219?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=36f80f04fc-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-36f80f04fc-250657169

BACK TO TOP