

ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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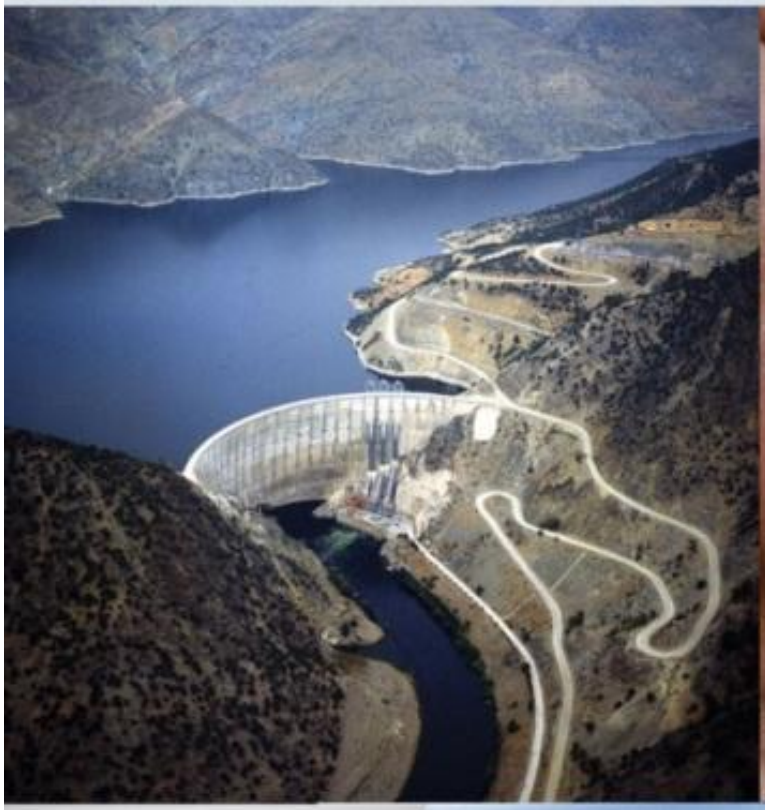



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❖ Istanbul Hosted The 3rd Internatıonal Water Forum

Recent floods, alarming water levels in lakes and dry winter seasons are on the agenda of scientists. The third Istanbul International Water Forum addressed the necessary precautions against water scarcity across the globe. The world is being hit by heavy rains and floods. The Balkans suffered from the worst flooding over the last 120 years. U.K. officials announced severe flood warnings in the Thames River, which reached record levels in April. Turkey's Çorum and Gaziantep provinces were also hit by heavy rains. More recently, daily life was disturbed by rain storms in Istanbul. The imbalances in weather conditions are predicted to only get worse in the near future.

The world, on the other hand, is facing a serious water scarcity due to population growth, desertification and unsustainable water consumption followed by increasing urban mass and industrial activities. It is foreseen that one out of every 10 people will be put at the risk of water scarcity by the end of the 21th century. At present, one out of every 15 people is confronted with the same problem.

In the light of alarming water levels in dams and lakes, agricultural life has entered into a hazardous period in Turkey. The 3rd International Water Forum dealt with the urgent actions and water issues around the world. The Turkish Forestry and Water Affairs Ministry hosted the conference between May 27 and 29 at the Haliç Congress Center. With the participation of Forestry and Water Affairs Minister Veysel Eroğlu and international scientists, the forum's main subjects were water safety and international water law.

The Istanbul International Water Forum is organized every three years by the Turkish Water Institute, a think tank under the Ministry of Forestry and Water Affairs, one year before the World Water Forum. Articles from the forum will be published in the International Water Resources Association's magazine "Water International." Speaking at the opening ceremony of the third Istanbul International Water Forum, Eroğlu said that it is critical for states to provide healthy water to their citizens. "One-third of the world's population does not have adequate water," Eroğlu said. Remarking that Turkey's governmental institution for international development, the Turkish Cooperation and Development

Agency (TİKA), is present in African countries, Eroğlu said, "Last year, we initiated a mobilization program through TİKA for $2.5 billion in Africa alone, through which we provide water." Eroğlu also called for the establishment of a fund to support access to water in disadvantaged countries, saying, "This should be raised in the upcoming seventh World Water Forum."

Benedito Braga, president of the World Water Committee, said that access to clean water is a human right and of great importance.
The three-day forum discussed issues of climate change, the water-food-energy-ecology nexus, water governance and integrated basin management.

Other subjects included the right to water and sanitation, national water laws, trans-boundary water cooperation and legislation on protection of water resources. Chaired by different moderators, the event welcomed leading international water experts. Apart from the thematic sessions, there were a series of panels with the participation of international institutions and organizations. A special area was allocated for exhibitions and stands at which water companies introduced their services and related products. The forum was ended with a technical visit to the Ambarlı Advanced Biological Wastewater Treatment Plant rendering service for 1.6 million people and the İkitelli Water Treatment Plant offering drinking water for 5 million citizens in Istanbul. Organized by the Turkish Water Institute, the forum ended with significant contributions for the seventh World Water Forum to be held in the Republic of Korea in 2015.

According to the U.N., 85 percent of the world population lives in the driest half of the planet. 783 million people do not have access to clean, drinkable water, and almost 2.5 billion do not have access to adequate sanitation. Between 6 and 8 million people die annually due to lack of drinkable water from disasters and water-related diseases.

“Istanbul Hosted The 3rd Internatıonal Water Forum”, 05/06/2014, online at:
http://www.dailysabah.com/science/2014/06/05/istanbul-hosted-the-3rd-international-water-forum

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❖ Syria threatened by lowest rainfall in 50 years

UNICEF says the lowest rainfall in over 50 years is latest threat to children in the Syria region and that challenges are compounded by funds running out for water, sanitation and hygiene programmes.

Parts of Syria are suffering their lowest levels of rainfall in more than half a century, placing more than 4 million children in the war-torn country at even greater risk, UNICEF warned today. The agency said its own work aimed at mitigating the region's worsening water and sanitation crisis is only 20 per cent funded for 2014.

Dennis McKinlay, Executive Director at UNICEF NZ said, "In any emergency situation, water, sanitation and hygiene services (WASH) are a top priority and in the fourth year of this conflict that remains the case.

"The Syrian conflict continues to be a humanitarian crisis with children at its very centre - nearly half of all those affected are children. After a harsh winter, Syrians and those in the surrounding regions are now facing an impending drought. In order to provide lifesaving access to WASH services we urgently need increased funding for Syria, Lebanon, Jordan and Iraq."

Water scarcity in Syria is now so acute that it may soon drive more civilians to leave their homes, adding to the 6.5 million people already displaced by the conflict. In Lebanon and Jordan, meanwhile, tensions between local communities and Syrian refugees are being heightened by competition over limited resources, including dwindling water supplies.

The current drought, combined with more than three years of a conflict which has left much of Syria's water infrastructure in ruins, is gravely impacting availability of water. To draw attention to the severity of the problem, UNICEF today issued a special alert on the water, sanitation and hygiene situation - Drying up: The growing water crisis facing Syria and the region.

"The scarcity of safe water - adding to the impact of the ongoing conflict and the intense summer heat - raises the real risk of more population displacement and the spread of disease among

vulnerable children," said Maria Calivis, UNICEF Regional Director for the Middle East and North Africa.

"Syria threatened by lowest rainfall in 50 years", 06/06/2014, online at: http://tvnz.co.nz/world-news/syria-threatened-lowest-rainfall-in-50-years-5994096

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❖ A Lesson from the Ancients: Water and Development in Tavush

Babylon, Sumer, Egypt, and Urartu, city-states that became great empires. Fed by the waters of the Tigris and Euphrates, the Nile, Araxes, and Kura, Lake Van and Sevan, these settlements were transformed into powerful states that initiated the era of modern civilization. Writing systems, laws, education, and other innovations were founded upon the banks of these bodies of water – literally and figuratively. Heavily vested in agriculture, these burgeoning cities used a technology never before seen to fuel their awesome growth. That technology was irrigation.

The Armenia Fund Rural Development Program has a simple goal: to help make border villages in Armenia sustainable. These villages are located in some of the most dangerous parts of Armenia, often along highly militarized parts of the border that are subject to attacks by Azerbaijan. The Tavush region, in the northeast of the country, is especially susceptible.

While evaluating how best to approach development in Tavush, it was clear that there were many issues that needed attention: health, education, social services, among others. But, like many rural parts of Armenia, the local economy was dependent on agriculture and without the work and revenue brought by agricultural production, the people were leaving.

Being the regular target of indiscriminate enemy fire aside, the villages gravely felt the sudden economic and political collapse of the early 1990s. Even before many volunteers from the local villages in Tavush signed up to defend their lands and fight in the Artsakh War, Gorbachev's anti-alcohol reforms had wrought havoc on the local wine industry, which eventually fell into disrepair. Armenia Fund's needs assessment found was that there was no shortage of arable land in Tavush. Actually, the problem keeping resilient villagers from getting the crop yields they needed was that the irrigation infrastructure had fallen apart. Irrigation pipes and canals were broken and leaking, water was being lost along the way, and crop fields were unproductive. If agriculture was going to secure the future of Tavush, a modern and efficient system of agricultural waterways would be needed. And that's exactly what the Rural Development Program set out to do.

An irrigation system was reconstructed between Khashtarak (4.6 miles from the border), Lusahovit (4.9 miles from the border), and Ditavan villages, as well as one that existed at Aknaghbyur. A canal between Aygehovit and Vazashen, whose pumping station was stranded in Azerbaijan after the war, was restored and the course of the pipeline was changed to accommodate a pumping station that now

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rests a few hundred feet inside the border in Armenia. Another canal, where the flow of water is propelled by gravity, was restored for the community of Kirants.

In all, Armenia Fund spent over $1.85 million to rebuild an irrigation network in Tavush that has made 107,600,000 square feet (2,471 acres) of land – about the size of Rhode Island – arable. The materials used in the construction as well as the engineering of the irrigation systems are of a quality that's expected of Armenia Fund and will continue to serve the communities for which they were built into the foreseeable future.

The irrigated land allowed Tavush to revive its tattered winemaking industry and it facilitated the growing of cash crops that have brought much needed revenue to the local population. Farmers and their families – over 10,000 people throughout the region – have directly benefited from the newly irrigated land. And, along with the greenhouses that Armenia Fund has been financing in the same region, Tavush has the potential to become a vibrant center of agriculture.

It may be too early to make any predictions but if history is any indicator, proper irrigation and fertile land can make for a powerful combination. Although Armenia will need to continue developing several varied industries as it looks to the future, growing agricultural production in Tavush will be one of its anchors, as it was for great civilizations in the past.

"A Lesson from the Ancients: Water and Development in Tavush", 06/06/2014, online at: http://asbarez.com/123872/a-lesson-from-the-ancients-water-and-development-in-tavush/

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❖ Iran Faces Dangerous Water Crisis as Temperatures Rise, Are the People to Blame?

As summer presses on and temperatures rise, water scarcity in Iran is becoming a national emergency.

Iran is facing a critical shortage of water as arid temperatures rise with the encroaching summer season. According toFuture Directions International (FDI), an independent strategic analysis group based in Australia, the country of Iran began to experience notable water supply drops in 2013, with lower-than-average precipitation levels leaving the great majority of the region's dams and waterways under desired capacity.

Exacerbating this shortage problem, the region is traditionally dry and arid, regularly putting water supplies at risk during the hotter seasons, with an estimated 70 percent of precipitation lost to evaporation.

Just Emptied Out

In 2013, the Iranian government called for greater water conservation efforts, worried that changing airways associated with global climate change would result in even more arid conditions in the coming years.

Now, as of May 2014, several major bodies of water in the region have all but dried up, including the Zayandehrood River and Orumieh Lake, according to Payvand Iran News.

The New York Times reported earlier this year that Lake Urmia, one Iran's largest Great Lakes, currently holds only five percent of the water it held several years ago, with the majority of lakebed now baking in the hot sun.

This was once a massive lake that regularly hosted party boats full of tourists hoping to see the massive flocks of flamingos the spot was once famous for.

"Only some years ago the water here was 30 feet deep," Iranian Hamid Ranaghadr told Times reporters. "We just emptied it out."

On May 4, Iranian Energy Minister Hamid Chitchian told local media that the situation was "worse than critical," warning that water shortages could severely affect more than half of Iran's population.

The People Problem

According to FDI, the water crisis in Iran is a two pronged problem. Global climate change - arguably helped along by the country's heavy greenhouse gas emissions - is intensifying the region's

already arid climate. The other problem, and what many experts say is the most immediate problem, is the people of Iran themselves.

"Despite imminent shortages, water use in Iran remains inefficient, with domestic use 70 percent higher than the global average," the organization reports.

An estimated 75 million people comprise the Iranian population, and it continues to grow each year. These people are accustomed to yearly water shortages and calls for conservation, but may not be taking the government's warnings seriously enough.

According to a report from the Orsam Water Bulletin, environmental expert Esmail Kahrom in Tehran recently told local media that the only way to truly make Iranians understand that this current water shortage crisis is far more severe than previous ones is to start fining households that exceed their capped water consumption.

"Several years ago there was water rationing. Each day, water would be cut for several hours in different parts of Tehran," Karhom said. "Out of fear of running out of water, people would store so much water [before the scheduled cuts] that their consumption ended up being higher than usual."

Tehran, one of Iran's largest cities, is home to an estimated 22 million people - more than a fourth of the country's total population. Unfortunately, local officials reported that as of May 9 water consumption numbers have reached a new high of 2,992,000 cubic meters.

Back in April, the Iranian Energy Ministry dug new wells all around the Tehran Province, as shrinking water supplies in dams alone could not meet the thirst and irrigation needs of the region. Parviz Kardavani, a renowned environmental expert referred to as the "father of eremology" in Iran, told the Islamic Republic News Agency(IRNA) that these wells are simply a temporary fix and will only worsen future water shortages - the region is now consuming far more water than the natural water reservoir can ever hope to replenish in a year's time.

He added that the region of Rafsanjan in the Kerman Province is also over-dug, boasting a whopping 1,300 wells while groundwater levels there can only hope to support 70.

According to FDI, the only hope that Iran has to cull an approaching "perfect storm" of water shortage is to start immediately and aggressively implementing water conservation caps on wasteful residential use while closely monitoring and improving the efficiency of agricultural irrigation systems. Even then, it may be "too little too late."

The Gas Factor

Of course, the other underlying cause to consider is greenhouse gases.

According to a 2013 report released by the PBL Netherlands Environmental Assessment Agency, Iran emitted an estimated total of 410 million tons of carbon dioxide (CO2) into the atmosphere in 2012 from fossil fuel use and cement production. Some cement production was part of a massive effort by past Iranian presidents to build more dams to support water demand exacerbated by a weakening ozone - sparking an endless cycle. The result is that Iran now boasts more than 500 dams - the third most dams in the world in any one nation, with another 400 under construction.

In the 2010 Second National Iranian Report to the United Nations Framework Convention on Climate Change (UNFCCC), Mohammad Javad Mohammadizadeh, the head of the Department of Environment in Iran, told world officials that non-energy sector (cement, automobile, etc.) emissions are expected to grow from 100 million metric tons in 2000 to 225 million metric tons in 2025.

This, the report writes, was Iran's greatest threat, making the country's situation very different from greenhouse gas emission leaders such as the United States and China. Just this week, both China and the United States declared that they would be placing hard caps on their own gas emissions, cutting energy use if these emissions cannot be mitigated in other ways.

As for Iran, the report claims, this would have a far lesser impact, and only negatively effect the country's economy, which is heavily dependent on the sale of exported fossil fuels.

"Iran Faces Dangerous Water Crisis as Temperatures Rise, Are the People to Blame?", 03/06/2014, online at: http://www.natureworldnews.com/articles/7383/20140603/iran-faces-dangerous-water-crisis-temperatures-rise-people-blame.htm#disqus_thread

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❖ Water from oil: restoring Iraq's marshes

Dr Jenny Pournelle, who was a visiting fellow at UCL Qatar in 2013, is an archaeologist. She's also an anthropologist, makes films for National Geographic, was a US army intelligence officer and arms control negotiator during the hostilities in Iraq, and directed reconstruction work as a civilian after the war.

In addition to all this, she's taken on a new job, as a fundraiser. Founder of the Sealands Archaeology and Environment Programme, she has made frequent journeys from her base as a research assistant professor at the University of South Carolina (USC) to Iraq to study how ancient cities sustained themselves.

The name is taken from the marshy realm between the Mesopotamian cities of Sumer and Elam. Her theory is that ancient settlements in the region were based, not along rivers as archaeologist have always believed, but on rich and fertile marshland.

For over 5,000 years, she says, Iraq's marshes supplied construction material, fuel, livestock fodder, and protein in the form of fish and waterfowl that supported the world's oldest, longest-lived urban civilisation. This came to an end in 1991, when the Iraqi government under Saddam Hussein diverted the flow of the Tigris and Euphrates Rivers away from the marshes in retribution for a failed Shia uprising.

The flow southwards from the distributary streams of the Tigris was blocked by large embankments and discharged into a canal, resulting in the loss of two-thirds of the central marshes within two years. A further canal was constructed to prevent any overflow into the marsh from the main channel of the Tigris as it ran southwards.

By the late 1990s, the central marshlands had become completely desiccated, suffering the most severe damage of the three main areas of wetland. By 2000, it was estimated that 90% of the marshlands had disappeared. Villages were attacked and burned and there were reports of water being deliberately poisoned.

Irrigation return water from central Iraq, contaminated with herbicides, pesticides, petrochemicals and salts flushed from soils, was piped into the few remaining patches of wetland or directly into the Gulf.

Plant communities were destroyed and the increased salinity of the water caused both fresh and salt water fisheries to collapse. Thousands of the Ma'dan people, commonly known in the West as the Marsh Arabs, were forced to abandon their reed houses, their buffaloes and their rice paddies — a way of life they and their ancestors had followed for millennia — and move into urban slums and Iranian refugee camps.

Numbering about half a million in the 1950s, they have dwindled to a few as 20,000 in Iraq. There are an estimated 80,000 to 120,000 living in refugee camps in Iran.

In just a few decades, what had once been a green and fertile area had become a desert, a wasteland. The draining and destruction of the marshes was one of the worst ecological disasters the world has ever seen, all the more tragic because it was deliberate.

Attempts to restore the marshes have been only marginally successful; there is just not enough fresh water available to re-flood more than a small part of their former extent.

But all is not lost. Armed with extensive knowledge, based on years of experience, of the environment of marshlands, Jenny Pournelle and her colleagues at the University of Carolina, together with their Iraqi colleagues, are raising funds for research.

The Sealands Archaeology and Environment Programme is establishing test beds to see whether brackish water returned from oil drilling and refining can be used to construct new salt marshes. The University of South Carolina has entered a partnership with Experiment.com to help researchers raise pilot funding for the project.

It's a spin-off from their normal more scholarly investigations, but so convinced are they of the importance of wetlands to long-term urban sustainability they felt compelled to act.

"Iraq's marshes were destroyed within a decade," says Jenny Pournelle, "but here in the US coastal wetlands suffer similar degradation, albeit on a slower scale. The Colorado River, for example, no longer reaches its own delta. Its once lush wetlands, rich with wildlife at the time of the Spanish first contact, are long gone. World-wide, dozens of rivers have met the same fate."

Pournelle began working with Iraqi universities in 2003 and over the last four years has built strong links between USC and the Marine Science Centre at the University of Basra, and secured admission for over 100 funded places for Iraqi doctoral students at USC.

"We know that constructed marshes can be used effectively for waste water treatment," she went on, "at far lower cost than conventional treatment plants. Constructed coastal salt marshes have been used effectively to halt erosion and mitigate storm damage. We are embarking on a new endeavour: that of reclaiming waste water from oil drilling and refining, using it to construct a test marsh, and comparing the result, in terms of biomass production and outflow water quality, to results obtained from test marshes built for freshwater sewage treatment and irrigation return water.

Plant strains from communities identified as most successful under each condition will then be micro-propagated, and used to populate chains of marshes constructed to manage Basra's urban and industrial waste water streams.

If successful, the project will revitalise villages left high and dry by the previously engineered destruction, and restore at least some environmental services to the larger cities in Iraq."

Work is scheduled to start this month. The researchers will meet with land donors; survey the proposed sites and collect soil and water samples. These will be analysed to determine the mix of plants and microorganisms suited to the harsh conditions. Then an engineering plan will be prepared and construction will start.

"We've already assembled the team," says Pournelle, "obtained in-country support, set a date and time for the survey, and have hosts who'll cover our ground costs. Our overarching goal is to test whether we can effectively use waste water and waste land to construct salt marshes that will treat the contaminated water. Over the next two years, we'll establish test beds to rapidly assess the best mix of salt-tolerant marsh grasses to remove contaminants that cause illness and death in humans and animals, increase plant biomass production to augment food and animal fodder supplies, provide a nursery habitat for fish, shellfish and waterfowl, and improve ground water quality."

The marshes of Iraq will never return to their former condition, the ancient way of life of the Ma'dan has gone forever. But if the work of the Iraqi and American scientists involved in the Sealands Programme is successful, the marshes may yet be turned to a new use, to improve the quality of the environment and to benefit mankind.

"Water from oil: restoring Iraq's marshes", 06/06/2014, online at: http://www.gulf-times.com/culture/238/details/395112/water-from-oil%3A-restoring-iraq%E2%80%99s-marshes

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❖ Water Scarcity May Drive More Syrians From Their Homes, UN Says

The lowest rainfall in 55 years combined with damage to infrastructure and the threat of drought raise the risk that more Syrians will be displaced from their homes, the United Nations Children's Fund said.

Hundreds of thousands of Syrian refugees in Jordan, Lebanon and Iraq are straining those countries' water resources, and an impending drought in that region will make things worse, UNICEF said in a report released today.

"The scarcity of safe water -- adding to the impact of the ongoing conflict and the intense summer heat -- raises the real risk of more population displacement and the spread of disease among vulnerable children," Maria Calivis, UNICEF Regional Director for the Middle East and North Africa, said in a statement.

Most parts of Syria have received only half the average rainfall for this time of the year, the lowest since 1959, causing significant stress on water aquifers even before the peak summer season, according to the report.

In Jordan, the fourth driest country in the world, dams are 42 percent full, compared with 53 percent at the same time last year, UNICEF said. This year has been the driest since 2008, with rainfall 31 percent of the annual average.

Million Refugees

Lebanon, which is hosting more than a million refugees scattered in host communities and informal tented settlements, is experiencing one of its driest winters in 100 years, with reservoirs running dry, UNICEF said.

"Competing demands between host and refugee communities for safe drinking water and wastewater services are increasing tensions within an already volatile social, economic and political environment," UNICEF said.

The three-year war in Syria has killed at least 162,000 people, according to the Syrian Observatory for Human Rights, a U.K.-based group, and displaced millions more, the United Nations says.

The country's infrastructure has been devastated, with neighborhoods wiped out, hospitals, schools and airports destroyed and a generation of children uneducated.

"Water Scarcity May Drive More Syrians From Their Homes, UN Says", 06/06/2014, online at: http://www.businessweek.com/news/2014-06-06/water-scarcity-may-drive-more-syrians-from-their-homes-un-says

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❖ UK's Largest Water Company Uses Israeli Water Technology

United Utilities, the UK's largest listed water company supplying around 7 million homes in the North West of England, is the latest water utility to discover the merits of floating fine bubble aeration technology, developed and marketed by Israel's Mapal Green Energy.

Announcing the installation of Mapal Green Energy's Floating Fine Bubble Aeration (FFBA) system at its Horwich sludge plant, United Utilities said that it is upgrading its current installation with new equipment which is expected to be significantly more energy efficient.

The current plant comprises two biological reactors with a capacity of 3900 liters/hr. The existing installation of fixed mechanical aerators will be replaced with 16 floating fine bubble units. Surface aeration plats treat sewage using air and a biological floc composed of bacteria and protozoa.

Initial forecasts suggests that Mapal's FFBA system is expected to deliver the same or improved process performance at up to 40% less power than is currently consumed, saving a possible 308 MWh of electricity per year.

Dale Walker, Senior Area Engineering Manager, United Utilities commented: "The system will provide a number of benefits in addition to attractive power savings and may provide a financially viable lower cost solution compared to traditional FBDA installations for small to medium sized surface aeration plants. The system can be retrofitted to existing plants and installed without requiring major shutdowns of the existing plant. The equipment is also readily accessible for maintenance purposes."

The UU project team has worked closely with Mapal Green Energy's engineers over the last few months to finalize the design and secure funding. The system is due to go live in August – the water firm will work with Mapal to maximize the benefits from the new plant.

Horwich will be the largest FFBA installation in the UK. Mapal said the FFBA units have been extensively tested. The supplier is confident the technology will deliver important energy savings and easier maintenance – the installation has no moving parts in the waste-water processing tank.

With over 35 installations worldwide, Mapal's floating fine bubble aeration (FFBA) system has proven itself to meet and improve stringent sewage quality parameters including the reduction of organic components and Ammonia, and has achieved major cost savings, as well as delivered proven performance.

"UK's Largest Water Company Uses Israeli Water Technology", 05/06/2014, online at:

http://www.jewishpress.com/news/breaking-news/uks-largest-water-company-uses-israeli-water-technology/2014/06/05/

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❖ Israeli sewage water pollute the water spring and plants in Salfit

The Israeli Settlements and factories sewage water has polluted spring water and plants in the city of Salfit.

Researcher, Kahled Mali, informed PNN that the Israeli settlements and factories pumped sewage water into Palestinian agricultural lands. This water then polluted the plants, and the spring water in the area.

He added that the city of Salfit has at least two dairy product factories, which includes cow and sheep farms that were also affected by the sewage water. There is a risk that the dairy products may be polluted.

"Israeli sewage water pollute the water spring and plants in Salfit", 04/06/2014, online at: http://test.pnn.ps/index.php/human-rights/7638-israeli-sewage-water-pollute-the-water-spring-and-plants-in-salfit

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❖ Three Social Entrepreneurs Fighting For Sustainability In The Middle East

The Arab world is in an already arid climate, and desert land occupies most of the region. The effects of global climate change are exacerbating these existing environmental challenges, particularly because they are coupled with massive population growth in the region. Consequently, resources are strained to a near breaking point. Environmentally sustainable practices need to be introduced to address the serious issue of resource scarcity.

There is an urgent need, therefore, for increased action to combat current environmental degradation such as water scarcity and desertification. While governmental action and regional action are absolutely necessary, we should look to promote citizen action and support those citizens already working to improve their environments. These social entrepreneurs do not wait for governmental responses to challenges; they know well what is not working in their local communities, and so they implement solutions themselves.

Here are 3 examples of social entrepreneurs involved in environmental sustainability in the Middle East.

Sherif El Ghamrawy

Starting in the Sinai, Sherif introduced an effective approach to waste management that fosters cooperation among citizens, businesses, and local governments. The locally-managed garbage disposal system creates jobs for under- and unemployed people and makes the best use of the collected materials, recycling what can be recycled and selling what can be sold.

Having established a citizen organization–*Hemaya* or "protection"–Sherif spread his idea and methodology by attracting motivated university students and graduates to his center, offering them technical expertise and advice that will allow them to start their own waste management-focused citizen groups or small businesses.

Hemaya, a non-profit and non-governmental organization founded in 1997, performs three main functions: collecting and transporting solid and organic waste, sorting the waste at a specially built sorting station, and training young people from all over Egypt on how to manage and sort different kinds of waste.

The recycling process begins at the source (hotels, restaurants, households, etc) where the waste is separated into organic and non-organic piles. It is then collected and brought to the recycling station, where non-organic waste is separated into twelve different grades of plastics, two grades of glass, two grades of metal, aluminum, and paper. Each is processed and prepared, and then sold or directed for further trade. The remaining non-recyclable components are disposed of in a sanitary landfill. The organic waste is carried to suitable sites for the Bedouin's livestock to feed on and converted into organic fertilizer.

Due to the huge success of Hemaya's solid waste management, the Egyptian Ministry for the Environment has urged all hotels to use Hemaya's system or set up their own similar garbage collection and recycling team.

Mohamed Nagi

Mohamed Nagi, through his NGO Habi Centre for Environmental Rights, equips citizens with the tools and resources they need to strengthen their citizenship rights that are guaranteed by law, protecting themselves and their environment. The Centre was founded in July 2001 and is named after Habi, the ancient Egyptian God who controlled the annual flooding of the Nile.

Mohamed, a lawyer by trade, noticed that most Egyptian citizens have no real understanding of the legal protections that exist for their health and safety and for the protection of the environment and natural resources. Therefore, Mohammed encourages a new, proactive understanding of environmental rights; through advocacy and education, the Habi Center brings together citizens, experts, and public officials to create a cleaner, safer environment and a strong, assertive citizenry that will hold key stakeholders accountable.

Mohamed has overseen many successful projects. For example, a Habi Center-led campaign forced the Canadian Agrium Company to relocate from Ras El Bar, a touristic region, to an industrial one. In another case, a lawsuit was brought against the Minister of Environment that stopped the planned expansion of Talkha Fertilizers factory. Habi successfully lobbied a court to use article 103 of the environmental law for the first time, setting a judicial precedent in the proper use of cement.

Zaher Redwan

Zaher Redwan launched a non-partisan movement to strengthen Lebanon's biodiversity. Through income-generating schemes and interactive education initiatives, Zaher is nurturing a cultural and ecological understanding of the environment to underpin new national policy.

Zaher achieves his goals through his CSO "Green Hand," an environmental, social, cultural, non - governmental organization founded in 2001. Through Green Hand, Zaher is encouraging biodiversity to be adopted as a strategic national objective. He is financially incentivizing those whose actions are accelerating the loss of biodiversity to change their behaviors to more environmentally friendly ones. Similarly, financial incentives encourage new actors to be a part of the solution. By using a 1500 person network made up primarily of young people, Zaher is also nurturing a new generation to be more knowledgeable about the environment and thus, its natural stewards.

In addition to the network of dynamic young people, Zaher also has a series of strategic partners to advance his work. The Ministry of Agriculture, for example, provides agricultural experts to further support farmers who have switched to cultivating local plants. A memo of understanding has been signed with the ministries of Tourism and Environment to implement Lebanon's first Botanical Garden, which will serve as a herbarium, seed bank, medicinal and aromatic plants nursery, training facility, scientific research center, and interactive educational center.

These three examples demonstrate the power of social entrepreneurship. The environment in the Arab world is worsening due to a variety of reasons while growing populations exert ever greater stress on diminishing resources. Local communities in Egypt, Lebanon and the rest of the Arab world cannot wait for governmental action, especially as many Arab governments have other major worries to attend to. They must identify what is not working and implement solutions that benefit their communities and well-being. Social entrepreneurship in all fields, not just environmental sustainability, should be encouraged and promoted as an effective means to solve local issues.

"Three Social Entrepreneurs Fighting For Sustainability In The Middle East", 06/06/2014, online at: http://www.forbes.com/sites/ashoka/2014/06/06/three-social-entrepreneurs-fighting-for-sustainability-in-the-middle-east/

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❖ Water shortage? Gardeners can branch out

BEIRUT: Wiping his sweaty face, Rimon Abi Saber sat down in his shop, exhausted from the day's work. "We have been working on the farm since 4 a.m.," he said with a shake of his head. With more than 30 years of experience growing crops, Abi Saber is uniquely positioned to give Lebanese gardeners a piece of advice that will soon become indispensable: Choose your trees carefully.

"Let people grow trees and plants that don't require much watering," he said, almost shouting to be heard over the din of trucks passing his Mount Lebanon shop nestled in the heart of Kfar Amay.

He points to the garden of his neighbor, who has filled his land with water-intensive fruit trees and also has a pond. "If the pond dries up, and he can no longer water his trees, they will die," he said with a sigh.

Lebanon is almost certain to face a water shortage this year following insufficient rainfall during the annual wet months. Although addressing such an issue falls under the government's remit, preserving water also begins in people's backyard, especially for those who have a garden or orchard.

Some fruit trees, for example, need less water than others and can also provide a hefty yield.

"If they [citizens] want to grow trees in their gardens, they can profit from it," said Jamil Obeid, an agriculture engineer who specializes in plant production and protection.

Obeid's shop in Aley is filled with gardening equipment; on one of the walls hangs a sign that warns: "Danger: Pesticides."

"People should grow crops such as grape vines, olive trees, carob and figs," Obeid said after a moment of thought. "Growing such crops in your garden will not require much water."

Georges Battikha, horticulture professor at AUB, said that although such plants didn't need much water in the summer, they tended to need more during the winter.

"They are the ones that are dependent on levels of precipitation during the year," Battikha said by phone. "The level would range between 250-1,000 mm."

From December 2013 until mid-March, there has only been 390 mm of rain, according to Rafik Hariri International Airport's meteorological department.

Younger trees also tend to need more water. Those that are less than 5 years old must be watered "twice per month in the first year, once per month in the second year," according to Obeid. "In their third year, you can manage to water them once the whole summer."

Experts such as Battikha and Obeid emphasized the importance of growing trees rather than ornamental plants and vegetables, as most tend to require more water.

"Fruit trees have longer roots … allowing them to use the groundwater," Jamil explained. "Vegetables require more watering as their roots are shorter."

Some fruit trees' roots can reach around 10 meters, while tomatoes, for example, can only reach 10 centimeters into the ground.

Experts recommended gardeners choose their plants based on where they lived.

Those living at sea level should grow olive trees, grape vines and carob trees, while those whose land is 400-800 meters above sea level can also have fig and pine trees. Those who live at around 1,100 meters should concentrate on apple and pine trees, while in the fertile Bekaa Valley, residents can grow apple trees, grape vines, wheat and barley.

Some, however, dispute this list.

"Pine trees can live at sea level," Abi Saber explained. "There are a number of pine trees in Beirut's parks, for example."

But it is important to differentiate between the species available.

"Those are decorative pines that don't profit their growers," countered Rizk Rizk, an agricultural engineer visiting Obeid's shop. "Those that grow above 400 meters are the ones that produce good pine nuts."

Experts also agreed that when it came to watering, people tended to overdo it.

Although some think they are helping their crops grow, overwatering is not only a waste of water but can also affect the yield of their trees.

Christian Nasr, a plant protection graduate, explained that there are certain irrigation systems that citizens can use at home to address this issue.

"They are encouraged to use drip irrigation and timers," he said. "This would help them manage water consumption."

"Water shortage? Gardeners can branch out ", Daily Star, 03/06/2014, online at: http://mideastenvironment.apps01.yorku.ca/2014/06/water-shortage-gardeners-can-branch-out-daily-star/

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❖ Over 500 illegal pipes dismantled in May

AMMAN — Authorities sealed 34 illegal wells in May under an ongoing campaign to end all violations on water networks and resources, according to an official at the Ministry of Water and Irrigation.

Also during last month, they dismantled more than 500 illegal pipes installed on water mains to divert water for irrigating private farms or to sell it to the public via tankers, the official said.

"The Water Authority of Jordan (WAJ) and the Jordan Water Company (Miyahuna) are inspecting all water carriers from the Heidan Valley in Madaba Governorate to Amman, to address any violations," noted the official, who preferred to remain unnamed.

The Heidan Valley, located 33 kilometres south of the capital, is home to streams and wells that supply Amman with part of its drinking water. Nine Heidan wells generate 1,450 cubic metres per hour daily, of which 600 cubic metres are channelled to the capital, according to official figures.

Since the launch of a nationwide campaign to remove violations on the water network in August last year, 265 illegal wells have been sealed, over 140 drilling rigs were seized and confiscated and more than 9,913 illegal water pipes were removed, according to the Water Ministry official.

Drilling wells in any part of the country is prohibited and the government no longer tolerates the practice, the source said, highlighting that the "serious crackdown" on water violations will continue across the country, especially with the onset of the dry season.

The government recently announced that it was committed to putting an end to all water violations, describing water theft as a form of corruption. To this end, the government drafted new amendments to the WAJ Law, which went into effect June 1 after being published in the Official Gazette.

The amended law stipulates stiffer penalties against those who abuse any element of the water system. Those who abuse water carriers and mains, wastewater, pumping, purification or desalination stations, or cause the pollution of water resources, pipes or stations used for drinking water, and dig or are involved in the digging of wells without obtaining a licence will be jailed for up to five years and fined up to JD7,000.

In addition, violators of WAJ water and wastewater projects will be jailed for up to three years and fined up to JD5,000, according to the new amendments.

Moreover, all penalties stipulated under the new law will be doubled in the case of repeat offenders.

"Over 500 illegal pipes dismantled in May", Jordan Times, 03/06/2014, online at: http://mideastenvironment.apps01.yorku.ca/2014/06/over-500-illegal-pipes-dismantled-in-may-jordan-times/

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❖ Israelis, Palestinians and Jordanians agree: Gov't protection needed for region's springs

Environmentalist says although a third of the springs are dried up, they are important to showing the area's 3,000-year-old history.

Residents of the Mateh Yehuda Regional Council, Beit Shemesh and Abu Ghosh areas are calling for the establishment of a national body to coordinate the plethora of institutions involved with spring rehabilitation.

"There is a feeling that even though there are a lot of people, no one is taking care of this," said Uri Ramon of the Open Landscape Institute, who is an environmental planner for Mateh Yehuda.

Ramon was addressing a group of Israelis, Palestinians and Jordanians during a recent workshop session at a conference focusing on regional groundwater maintenance.

Although many different local and national government bodies are charged with caring for the country's springs, the lack of coordination among them results in ineffective rehabilitation schemes, Ramon and his colleagues argued. Ultimately, he said, while the government should establish a national network that coordinates cooperation with all of the relevant parties, the actual treatment of the springs should be the job of the body in whose jurisdiction a spring is located.

The conference, which took place on the Jordanian side of the Dead Sea, was organized by regional environmental NGO Friends of the Earth Middle East (FoEME) and the European Union's European Neighborhood and Partnership Instrument Cross-Border Cooperation in the Mediterranean (ENPI-CBCMED).

There are about 70 springs in the Mateh Yehuda region, including in the Beit Shemesh and Abu Ghosh municipalities, Ramon explained. While the springs are not significant in terms of water quantity – a third are actually dried up – they "present the history for 3,000 years of the people who lived in Mateh Yehuda," he said. He added that despite dwindling water levels, these springs had great ecological importance and were beacons for treks and tourism activities.

Among the many bodies responsible for taking care of the springs are the local municipalities, the Israel Nature and Parks Authority (INPA), the Environmental Protection Ministry, the Israel Antiquities Authority, and Keren Kayemeth LeIsrael-Jewish National Fund.

"Each body has its own policies," said Avraham Bracha, director of the Shorek Environmental Unit, which covers the Mateh Yehuda, Beit Shemesh and Abu Ghosh areas.

Of the 70 total springs, 33 are designated as INPA and national forest territories, while the other springs fall in municipal agricultural areas, he explained.

In the past few years, the Shorek Environmental Unit has begun to bring all of the responsible parties together to devise policies that work for the benefit of the springs, Bracha said. In addition, groups of volunteers have been coming to the springs to participate in cleaning.

Yet bureaucracy is constantly slowing down the development of rehabilitation policies and plans, he explained.

The environmental planners have chosen to focus on seven of the region's springs, studying each one and determining what most demands development.

The seven springs are located in three areas: Even Sapir, Mevo Betar and Abu Ghosh-Ein Rafa, Bracha said.

According to Ramon, those evaluating the springs will conclude their surveys shortly and will then begin devising plans with all of the relevant authorities.

"These springs seem really clean, but in reality, the community found near Ein Sapir [Moshav Even Sapir] has no sewage network, and therefore you can see that there are different types of pollution," Ramon said, citing the presence of nitrates as well as carbomeziphine, which is a clear indicator for domestic sewage.

Ultimately some of the springs will require extensive rehabilitation, while others will simply need preservation and protection, Bracha explained.

Meir Balayish, deputy mayor for Mateh Yehuda and Beit Shemesh, described the beauty of the region's landscapes, emphasizing that Beit Shemesh should not be known simply for the ongoing conflicts among its ultra-Orthodox and national-religious populations. The state, he said, must take responsibility for the springs, which are so much a part of the region's tourism.

"There needs to be a national law in which the government makes a decision for all the relevant bodies to work together," Balayish said.

"Israelis, Palestinians and Jordanians agree: Gov't protection needed for region's springs", Jerusalem Post, 06/06/2014, online at: http://mideastenvironment.apps01.yorku.ca/2014/06/israelis-palestinians-and-jordanians-agree-govt-protection-needed-for-regions-springs-jerusalem-post/

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❖ Ethiopian FM arrives in Egypt for Sisi's inauguration

Ethiopian Foreign Minister Tedros Adhanom arrived in Cairo early Saturday, leading a high-level delegation to attend the inauguration of Egypt's president-elect Abdel-Fattah al-Sisi on Sunday.

The top Ethiopian diplomat and his accompanying delegation arrived aboard an Ethiopian Airlines plane on the first visit to Egypt in a year, Cairo Airport sources said.

Al-Sisi, a former army chief, was declared the winner of Egypt's recent presidential election, in which he clinched almost 97 percent of the vote, according to Egypt's election commission.

Egypt's army-installed interim presidency has invited 22 countries – 16 of whom have already confirmed their attendance – to the inauguration ceremony in Cairo, according to a well-placed source.

A reliable Ethiopian source told Anadolu Agency on Thursday that he expects the Foreign Minister's visit to improve strained ties between the two countries.

Relations between Cairo and Addis Ababa soured last year over Ethiopia's construction of a $6.4-billion hydroelectric dam on the upper reaches of the Nile River.

The project has raised alarm bells in Egypt, which relies on the river for almost all of its water needs.

Water distribution among Nile Basin states has long been regulated by a colonial-era treaty that gives Egypt and Sudan the lion's share of river water. Ethiopia, for its part, says it has never recognized the treaty.

"Ethiopian FM arrives in Egypt for Sisi's inauguration", 07/06/2014, onlineat:
http://www.worldbulletin.net/world/138415/ethiopian-fm-arrives-in-egypt-for-sisis-inauguration

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❖ Nigeria: Israel to Support Nigeria in Water Projects Completion, River Basin Mds Warned Against Breach of Protocols

The Minister of Water Resources, Sarah Reng Ochekpe has recently received in her office, Israeli investors led by the former Nigerian Minister of Information, Jerry Gana.

This was contained in a monthly report on the review of activities for May 2014 published by the Public Relations Department of the Ministry. The report said that at the occasion, the Minister observed that though the Federal Government has done much in the provision of funds for the completion of water projects, the Ministry intends to partner with private investors towards completing those projects that have not been completed.

She assured the investors of Government's willingness to partner with countries that are ready to improve on the socio-economic development of Nigeria.

The report further revealed that the Water Resources Minister warned Managing Directors and Executive Directors of River Basin Development Authorities against breach of protocols. Included in the activities of the Ministry for the month of May 2014 was a retreat organised for Boards and Management of the River Basin Development Authorities in Abuja.

The Ministry as stated in the report for the month advocated for States' commitment to the Urban Water Sector Reform Programme as well as organised a workshop on 'Strengthening the Implementation of the National Urban Water Sector Reform Project' in partnership with the World Bank and the French Development Agency (AFD). The workshop was targeted at eight benefiting States of the World Bank and the AFD Project, comprising: Kaduna, Ogun, Enugu, Lagos, Cross River, Bauchi, Ekiti and River States.

According to the monthly activities review report for May, 2014, the United Nations Deputy Secretary-General, Jan Eliasson applauded the efforts of the Nigerian water sector towards making water available for multipurpose uses, pledging more support. The report informed that the Minister of Water Resources had an audience with GIBB Nigeria Consulting Company led by the former Head of Civil Service of the Federation, Stephen Oronsaye where she expressed the readiness of

Government to collaborate with investors interested in the water sector on the completion of water projects, especially the construction of the Datsin-hausa Dam in Adamawa State.

"The Minister said that the construction of the dam would prevent the re-occurrence of the 2012 flooding as a result of the release of water from the Lagdo Dam in Cameroon. She also explained that with the Dam constructed, the water which may be released from the Lagdo Dam in the future would be contained," the report said.

Other activities itemised in the month of May 2014 review include: condemnation of the Jos bomb blast; visit to the Deputy Governor of Plateau State and the victims of the Jos bomb blast in the Specialist Hospital and the Jos University Teaching Hospital (JUTH); staging of a workshop on the Inception / Sensitization for Development of a National Irrigation Policy and Strategy towards self-sufficiency in food production and assurance of food security in partnership with the Food and Agriculture Organisation of Nigeria (FAO).

During the period under review, Sarah Reng Ochekpe participated at the 5th African Water Week organized by the African Ministers Council on Water (AMCOW) in conjunction with the African Union and other stakeholders in Dakar, Senegal. As part of the discussions in the meeting, she advocated for the autonomy of water and sanitation in the post-MDG Agenda, emphasising that the exhibition of water facilities at the event was an opportunity for the participating counties to share knowledge, information and ideas about the best practices in the management of water facilities.

Also at the 9th General Assembly Meeting of AMCOW held in Dakar, Senegal in the same month, Nigeria handed the headship of the African Ministers Council on Water (AMCOW) to the Republic of Senegal following the successful completion of her tenure on May 31, 2014. In her valedictory statement during the event, the Minister of Water Resources called on the Government of Senegal to support the new AMCOW President to take AMCOW to greater heights in the next two years.

"Nigeria: Israel to Support Nigeria in Water Projects Completion, River Basin Mds Warned Against Breach of Protocols", 05/06/2014, online at: http://allafrica.com/stories/201406060229.html

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❖ Rwanda says it backs Ethiopia's dam construction

Rwanda's ambassador in Addis Ababa on Thursday said that his country backed Ethiopia's construction of a multibillion hydroelectric dam on the Nile River, a project that Egypt fears will affect its main source of water.

Ambassador Joseph Nsengimana said Egypt's position toward Ethiopia's Renaissance Dam harms the interests of East African countries, which seeks to buy electricity to be generated by the dam in the future.

He was quoted by the official Ethiopian news agency as saying that Egypt wants to benefit alone from the Nile water, which, according to him, cannot be done in the 21st century.

Nsengimana added that his country and other East African states eagerly wait for the Renaissance Dam to be completed, pinning hopes on the project to contribute to their development.

He also pointed out to a previously-signed memorandum of understanding between Rwanda and Ethiopia for the purchase of 400 megawatts of electricity after the completion of the Renaissance Dam.

He said Rwanda understands Ethiopia's motivations for constructing the dam, saying it also pins hopes on the project to get its people out of the cycle of poverty.

Relations between Egypt and Ethiopia soured over the latter's construction of the $6.4-billion hydroelectric dam on the upper reaches of the Nile River.

The project has raised alarm bells in Egypt, which relies on the river for almost all of its water needs.

Water distribution among Nile Basin states has long been regulated by a 1959 treaty that gives Egypt and Sudan the lion's share of river water. Ethiopia, for its part, says it has never recognized the treaty.

"Rwanda says it backs Ethiopia's dam construction", 06/06/2014, online at:
http://www.worldbulletin.net/world/138345/rwanda-says-it-backs-ethiopias-dam-construction

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❖ Sudan Plans to Export Nile water to Arab Gulf States: Official

KHARTOUM – Director of the Water Commission in the state of Khartoum, Gawdatalla Osman, announced plans on Monday to export fresh water to Arab Gulf states to achieve a value-added situation.

The future scheme depends on the availability of water from the River Nile.

A Saudi Arabian study last December proposed the creation of a pilot project to import water from Sudan to replenish groundwater reserves which have been depleted in the Najran region. The plan will be implemented in collaboration with the Saudi Ministries of Agriculture, Water and Electricity.

The study stressed the importance for Saudi Arabia to address the issue of water as a global and regional problem, and to initiate regional and international cooperation to resolve it by importing water in accordance with international agreements.

The Imam of Al-Shohada'a mosque in Khartoum, Abdul-Jalil Al-Karuri, suggested in the past that Sudan export Nile water to Saudi Arabia through a pipeline in return for oil.

In a related issue, Osman disclosed that the commission currently pays one million Sudanese pounds (SDG) a month to buy fuel for water supply stations.

He explained that they generate seventeen million SDG in revenue, of which four million pounds goes to electricity.

The official acknowledged their inability to carry out development projects at the moment which is the responsibility of the state.

Osman pointed out that the number of subscribers in 2013 reached 715,000, noting that collecting payments of water bills through counters designed for electric bills allowed them to reach those who previously were not paying their water bill.

He also revealed that they owe fifty million SDG in electric bills and that it has been agreed that the electricity company would deduct five percent of the value of water bills that are collected through their outlets and apply it towards the outstanding debt.

"Sudan Plans to Export Nile water to Arab Gulf States: Official", 03/06/2014, online at:
http://news.sudanvisiondaily.com/details.html?rsnpid=236551

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❖ Uganda, S. Sudan oppose Nile deal review

Uganda and South Sudan have both expressed their opposition to a Tanzanian proposal to review a 2010 Comprehensive Framework Agreement (CFA) signed by upstream Nile Basin countries, known as the Entebbe agreement, in order to consider Egypt's water needs.

"Tanzania was the one pushing for the agreement; it would be a surprise to see them backtracking now," Callist Tindimugaya, Uganda's representative to the Nile Basin Initiative (NBI)'s technical advisory committee, told Anadolu Agency.

"International water law recognizes that once you have signed an agreement you cannot backtrack," Tindimugaya said. "What you can do is keep quiet; you may not say 'I signed because I was under threat'."

Tanzanian Foreign Minister Bernard Kamillius Membe has called for a review of the CFA to consider Egypt's water needs.

"Tanzania feels that the chapter providing equal and fair share of the natural resources of the Nile to all states ought to be reviewed in favor of Egypt, considering that it is a desert country whose lifeline is the Nile," Membe told parliament last week.

In 2010, upstream states Ethiopia, Kenya, Uganda, Rwanda and Tanzania signed the Entebbe Agreement in an effort to increase their traditional allotments of Nile water.

The following year, Burundi signed on to the agreement.

The deal aims to replace a colonial-era treaty that gives Egypt and Sudan the lion's share of river water.

Both Egypt and Sudan, for their part, rejected the treaty, fearing it would affect their historical share of water.

Tindimugaya criticized plans by Tanzania to call for a meeting of all Nile Basin states to discuss the agreement.

"Tanzania cannot invite us; they are not the current chair of the NBI," he said. "Tanzania is a sovereign state and they can do as they please, but they do not have the capacity to do that."

The NBI was launched in 1999 by the ten riparian states of the Nile as a temporary institution until CFA negotiations were concluded and a permanent institution created.

According to its website, the NBI provides "the only all-inclusive regional platform for multi stakeholder dialogue, information sharing, as well as joint planning and management of water and related resources in the Nile Basin."

Intact

South Sudan's Foreign Ministry said the Entebbe agreement had to be maintained, since it took into consideration the right of all riparian states to Nile water.

"The agreement speaks of freedom to use the Nile water. Any country along the Nile has the freedom to use the water for their good," ministry spokesperson Mawien Makol Arik told AA.

He went on to criticize calls to review the water treaty.

"South Sudan cannot accept this because – as a developing country – we rely a lot on the Nile," said Arik. "We know it is a critical issue to Egypt, since they feel the initiative will reduce the water volume reaching them – but we also need to use the water."

"The Entebbe initiative came as a result of the domination of Egypt on the Nile water based on an old colonial agreement. It [the new agreement] is to help the countries use the water and share it based on each country's economic development," he added.

"We have to sit down as countries along the Nile and support each other on using the Nile. That is why we supported the Ethiopian [hydroelectric] dam initiative," the ministry spokesperson said.

Relations between Ethiopia and Egypt have been strained due to a multibillion hydroelectric dam now being built by Addis Ababa on the Nile's upper reaches.

Egypt is worried that the Ethiopian dam project will reduce its historical share of Nile water.

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

Ambassador Arik, meanwhile, urged Egypt to forget the colonial-era agreement and work with other Nile basin countries to everyone's benefit.

"The agreement by the colonial powers cannot hold now and Egypt cannot hold on to it. They have to let go and sit down to discuss how the Nile can benefit everybody," he said.

"Uganda, S. Sudan oppose Nile deal review", 04/06/2014,online at: http://www.worldbulletin.net/news/138172/uganda-s-sudan-oppose-nile-deal-review

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❖ Water wars in the Middle East - $1 trillion is at stake

Water is to the 21st century what oil was to the 20th ... the commodity that determines the wealth and stability of nations, writes Garikai Chengdu. Welcome to a new age of hydro-imperialism that is upon us right now in Syria, Israel, Iraq, Libya ...

People who think that the West's interventions in Iraq, Libya and Syria are only about oil are mistaken. Broadly speaking, Western interest in the Middle East is becoming increasingly about a commodity more precious than oil, namely water.

According to the US-based Center for Public Integrity, Western nations stand to make up to a US$1 trillion from privatizing, purifying and distributing water in a region where water often sells for far more than oil.

Although over two thirds of our planet is water, we face an acute shortage. This scarcity flies in the face of our natural assumptions. The problem is that 97% is salt water. Great for fish, not so good for humans.

Demand outstripping supply ...

Of the world's fresh water, only 1% is available for drinking, with the remaining 2% trapped in glaciers and ice. Put differently: if all the water on earth was represented by an 11-litre jug, the freshwater would fill a single cup, and we can only access the last drop.

Nature has decreed that the supply of water is fixed. All the while, demand is rising as the world's population increases and enriches itself. By 2030, climate change, population growth, pollution and urbanization will compound, such that the demand for water globally is estimated to outstrip supply by 40%.

Increasingly, for water to be useful, it needs to be mined, processed, packaged, and transported, just like gold, coal, gas or oil. Unlike oil, there are no substitutes, alternatives or stopgaps for water.

First gold. Then oil. And now, it's water ...

There have been three waves of resource-driven imperialism in the modern era.

A quest for gold fueled the first wave. Old-fashioned colonialists, regal and unembarrassed, rode in on horseback, brutally took control of American territories, sent in ostrich-plumed governors, minted

coins with the Queen's head on them, and gazed proudly over natives toiling away in perilous mine-shafts.

An unprecedented kidnapping of millions of Africans ensued, so as to replace the indigenous Americans that had initially been exterminated by their European conquerors. This coincided with white pioneers brutally conquering Southern Africa, also in search of gold.

The second wave of imperialism has been driven by an unquenchable, post-industrial thirst for oil.

Modern petro-imperialism, the key aspect of which is the US military's transformation into a global oil-protection armed force, puts up a democratic facade, emphasizes freedom of the seas (or pipeline routes), and seeks to secure, protect, drill, and ship oil, not to administer everyday affairs.

Nevertheless, the means by which the US is centering its foreign policy around oil is hardly new in spirit, albeit unprecedented in scope.

A third stage of imperialism

The third wave of imperialist wars is currently being fought over nature's most valuable commodity: water. Prior to the invasion of Iraq in 2003, CIA analysts reported on a prediction of a new theater of war: hydrological warfare, *"in which rivers, lakes and aquifers become national security assets to be fought over, or controlled"*.

These predictions became realized in quick succession, beginning with the recent wars in Iraq, Libya and Syria. It is now clear that the age of hydro-imperialism is upon us.

Iraq, Bechtel, and the $100 billion water contract

On April 17, 2003, in Iraq, the American company Bechtel received a no-bid reconstruction contract from US Agency for International Development (USAID) for US$100 billion; thus, making it the largest Iraq reconstruction contract.

Therefore, the most lucrative Iraq reconstruction contract was not used to repair oil facilities, build schools and hospitals, or to repair bombarded infrastructure: it was used to source, process, and distribute *water*.

The secretive, opaque and no-bid nature of the water contract award process is made even worse by one incredible fact. Bechtel has botched many of its previous projects.

In California, Bechtel installed one of the nuclear power plant reactors backwards. In Boston, what promised to be a US$2.5 billion job for an infamous 'Big Dig' project became the most expensive in US history, costing US$14.6 billion. The tunnel project was plagued by charges of poor execution, corruption, criminal arrests, and even four deaths.

In Bolivia, Bechtel's record is one of privatizing water by inflating prices by 35%. The inflation caused public riots, in which several people died. Bechtel was ousted from the country and tried to sue the Bolivian government for canceling their contract.

Libya and the Nubian Aquifer

Since the turn of the century, Iraq was the first casualty of hydro-imperialism, and Colonel Gaddafi's assassination marked the second. Libya sits atop a natural resource more valuable than oil: the Nubian Sandstone Aquifer, which is a vast underground reserve of fresh water, estimated to be the largest in the world.

Col. Gaddafi had invested $25 billion into the aquifer, which had the potential to turn a country that is 95% desert into an arable oasis. As it now stands, France's global mega-water companies: Suez, Ondeo, and Saur, control almost half of the world's $400 billion water market.

They are poised to rake in billions of dollars from Libya's eighth wonder of the world.

Mr. Gaddafi had intended the scheme to be designed by Libyans, constructed by Libyans, for the benefit of the Libyan population.

Now it is being redesigned by Frenchmen and women at inflated costs, constructed by French contractors, largely for the benefit of French shareholders. Libyan taxpayers will undoubtably be stuck with the bill and higher water bills.

Syria's 'existential threat' to Israel

The most recent case of hydro-imperialism is the war in Syria. Israel has been leading a Western campaign to support Syrian rebels - in part, because its leaders assert that the Syrian President, Bashar Al-Assad, poses an existential threat to Israel on the issue of water.

Mr. Assad has vowed to reclaim the Golan Heights - a strip of land that Israel captured from Syria in the Six Day War of 1967. The Golan Heights provides a staggering 40% of Israel's fresh water.

*"Syrian control of half of our water poses more of a threat than Iran with one bomb",*once remarked ex-Israeli intelligence head, Meir Dagan.

Mr. Assad has also been reticent to privatize the water industry and expose the population to predatory pricing, thereby preventing the West from tapping into a multi-billion dollar revenue stream.

Mr. Assad's refusal to play ball on water privatization and his choice to play hardball over the Golan Heights meant that the Syrian President, like Mr. Hussein and Colonel Gaddafi before him, is an obstacle to the West's hydro-imperialist agenda.

Control of nature's most precious and increasingly valuable commodity will, for any nation, spell the difference between greatness and decline. Mr. Hussein, Colonel Gaddafi and a defiant Mr. Assad know that all too well.

"Water wars in the Middle East - $1 trillion is at stake", 04/06/2014, online at: http://www.theecologist.org/News/news_analysis/2416273/water_wars_in_the_middle_east_1_trillion_is_at_stake.html

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❖ The politics of transboundary rivers

It was Mark Twain who said: "Whisky is for drinking and water is for fighting over." The adage behind this view is not difficult to understand.

One cannot do very much with whisky, except to drink it. In contrast, water is an essential requirement for human and ecosystem survival. Thus, water shortages, at least in arid regions where its ready availability is a serious issue, may result in major conflicts among people whose survival and economic development depend on this resource.

Conflicts over water could play out in transboundary rivers that flow through two or more countries. Currently, nearly 47 per cent of the world (excluding Antarctica) falls within transboundary basins.

It ranges from a high of 60 per cent in the African and European continents to a low of 40 per cent in North and Central America. In Asia, it is about 47 per cent. There are 44 countries where at least 80 per cent of their total areas are within transboundary basins. Of these, seven are in Asia, which has 53 transboundary basins.

To prevent conflicts, many nations have negotiated mutually acceptable agreements with co-basin countries on how the water of the rivers can be divided. A good example in Asia is the Indus Water Treaty between India and Pakistan.

However, the focus of such agreements has seldom been on how to improve the efficiency of water use but, rather, on how to get a higher allocation of river flow. This invariably becomes a zero-sum game and a potentially contentious issue.

THE MEKONG EXAMPLE

The Mekong is an example of poor management of a transboundary river. The 12th-longest river in the world and the seventh in Asia, it is a main navigation and trade route for the six countries through which it flows: China, Myanmar, Laos, Thailand, Cambodia and Vietnam.

However, poor collaboration among these nations on how to manage the river has resulted in its sharp deterioration. As the Mekong River Commission has acknowledged, the fast pace of development in the hydropower and agricultural sectors is putting additional pressure on the ecological health, water quantity and quality, as well as livelihoods of millions of people. The present economic and social needs of all six countries of the basin have led to massive infrastructural developments along the river and its main tributaries. If well planned, the developments would be positive for the nations, but the contrary would have great economic, social and environmental impact.

Despite institutional arrangements, such as the Mekong River Commission that aims to achieve sustainable development and management of the Mekong, collaboration between the four member countries (Cambodia, Laos, Thailand and Vietnam) and dialogue partners (China and Myanmar) has been poor and points towards a missed opportunity.

The commission has a very restricted role — it has the authority to carry out specific studies and collect data, but not to implement projects. Project formulation and implementation decisions remain with the countries concerned within the basin.

It may be time to revisit the institutional model adopted by the Mekong countries for one that is more appropriate. This would result in much better management and development of water and related resources, and contribute further to progress of the nations and a better quality of life for the millions of people in the basin countries.

If the Mekong region prospers economically, Singapore would benefit due to increased trade.

NOT ZERO SUM

Another missed opportunity for development due to lack of cooperation can be seen in the transboundary rivers shared between Nepal and India. Opportunities have existed for decades for collaborative efforts in hydropower generation, agricultural development, flood control and drought management.

Sadly, nothing significant has happened due to historically poor relations between the two nations, continuing mistrust and, to a certain extent, a “big brother-small brother” mentality.

Water is one of the few resources that can help the poor in Nepal and the adjacent Indian states lift themselves out of poverty. Hydropower, for instance, has the potential to be Nepal’s most important export.

If Nepal can develop the hydropower potential of its transboundary rivers, its social, economic and political conditions can improve dramatically within a decade. It can sell its excess electricity to its energy-hungry neighbour India and can even export electricity to Bangladesh and Pakistan by negotiating electric-transmission corridors through India.

If countries sharing transboundary rivers in the region can collaborate, they can reap huge benefits from the water, energy, food and environmental security viewpoints, as well as in trade and transport. Hundreds of millions of people living in the 53 transboundary basins in Asia would improve their standard of living and quality of life.

This message has, sadly, not reached the policymakers or general public. Admittedly, formulation and implementation of a development agenda that is sociopolitically acceptable to the concerned co-basin nations may take time due to existing bilateral political tensions and historical misunderstandings. However, the benefits of inter-country cooperation are undoubtedly immense. In the longer term, countries will have no choice but to work together.

The root for the English word rival comes from the Latin word rivals, which meant using the same river, rivus. As neighbouring countries get increasingly interconnected in an increasingly globalised world, nations sharing the same rivers can no longer consider one another rivals.

Proper management should result in a substantial win-win for all. Contrary to popular belief, management of transboundary rivers is not a zero-sum game.

"The politics of transboundary rivers ", 02/06/2014, online at: http://www.todayonline.com/world/asia/politics-transboundary-rivers?singlepage=true

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❖ Mekong Council Set to Discuss Laos's Don Sahong Dam

Ministers from four countries that share the Mekong River are set to discuss this month whether Laos should be required to consult its neighbors before moving ahead with a second controversial dam on the regional waterway, officials said Friday.

Laos's planned Don Sahong dam will be on the agenda when the top council of the Mekong River Commission (MRC)—the intergovernmental body responsible for coordinating use of water resources by Laos, Cambodia, Thailand, and Vietnam—meets in Thailand on June 26-27, MRC officials said.

Laos's neighbors have raised concerns about the transboundary impact of the 260-megawatt project, which is to be built just north of the Cambodian border.

They insist it should be put through a formal consultation and technical assessment, while Laos has maintained it should go through MRC procedures that require Vientiane only to provide neighbors information about the project.

Following disagreement over the procedures at a lower-level MRC meeting in January, the water and environment ministers of Laos, Cambodia, Thailand and Vietnam who make up the MRC Council will take up the issue at this month's meeting, an MRC communications officer told RFA.

"At the end of the MRC Joint Committee meeting in January, the four [countries] could not come to any agreement on whether this project should be part of the MRC's Prior Consultation Process," the officer said.

"The MRC Council will take a look at this."

Controversial project

The dam is to be built on the Mekong's Hou Sahong channel about one mile (2 kilometers) north of the Cambodian border in the Siphandone area where the Mekong splits into multiple braided channels.

If it goes forward it will be the second major dam on the Lower Mekong, following the Xayaburi dam that Laos has begun building over objections neighboring countries raised last year.

This month's MRC Council meeting will not touch on the Xayburi project, according to an official from Thailand's Ministry of Natural Resources and Environment.

The topic of what MRC procedures Laos should follow for the Don Sahong was added to the agenda on the proposal of Vietnam, he said.

"We won't talk about the Xayaburi dam anymore; we will talk about the Don Sahong. We will select this issue for the chairman to include in the agenda," he told RFA.

Proper procedures

Vietnam, Cambodia, and Thailand have raised concerns that damming the Hou Sahong will have a greater impact than Laos has acknowledged, particularly on fish migration routes.

Laos says the project is not mainstream dam and will use only 15 percent of Mekong flows.

Hans Guttman, chief executive officer of the Mekong River Commission Secretariat, told Bloomberg News that compromises were possible during the MRC Council meeting.

"They could come to some understanding that they should do a limited investigation and joint work on how the impacts can be mitigated and how they would work with impacts on fisheries," he said.

"There's still an opportunity for coming to an agreement."

Global green group International Rivers has called the Don Sahong a "ticking time bomb" for Mekong fish.

The project poses a regional security threat for the some 60 million people in Southeast Asia who rely on fish and other products from the river for their nutrition and their livelihoods, the group says.

Under MRC rules, member countries are required to engage in "notification" procedures for year-round intrabasin water-use projects and interbasin diversion projects on the Mekong's tributaries, and for wet-season water use on the mainstream.

"Prior consultation" procedures—the ones Laos's neighbors are calling for—apply to proposed water use projects on the mainstream in the dry season, diversion of water from the mainstream to other basins during the wet season, and diversion of surplus water to other basins in the dry season. A third set of rules known as "specific agreement" procedures are required for projects diverting water from the mainstream to other basins in the dry season.

"Mekong Council Set to Discuss Laos's Don Sahong Dam", 06/06/2014, online at:
http://www.rfa.org/english/news/laos/don-sahong-06062014164952.html

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❖ Toilet Shortage in India Fuels Rape as Women Are Prey Walking to Wheat Fields

The young girls always traveled in pairs when walking to the wheat fields near their northern Indian village at night to relieve themselves before bed. That precaution wasn't enough to prevent them from being raped and killed last week.

Women in Katra village, where the murders took place, describe the act of open defecation as one of fear and indecency, where the threat of attack and harassment is unavoidable. Three men are accused by police of abducting the girls, 12 and 14, before gang raping them, and then hanging them from a mango tree by their head scarves.

"We're scared when we go into the fields because we have exposed ourselves and there's no protection," said Sridevi, the mother of one of the victims, sitting in a shady corner of her home under police protection. Her last name is being withheld under a law that grants victims anonymity. "The world doesn't offer us the decency to let us defecate in private."

Typically considered a private moment, relieving oneself may now become one of **India**'s most public issues in the aftermath of the killings. Prime Minister **Narendra Modi**, who won the largest electoral mandate in 30 years last month, vowed to build a toilet in every home in a nation where half of India's 1.2 billion people currently defecate in the open, the highest number in the world.

'Easy Prey'

Nine of out of ten women and girls say they have faced harassment when going to the bathroom in Bhopal, the capital of the central Indian state of **Madhya Pradesh**, according a report by **WaterAid** in 2012. About a third said they have been assaulted, the survey said, without saying how many women it interviewed.

"When women go to the fields they are easy prey for men," said **Shaibal Gupta**, an economist at the Asian Development Research Institute in Patna in the eastern state of Bihar. "I struggle to describe it. It's one of the most dastardly acts imaginable."

The cousins set off into the fields just after dusk on May 27. Like the majority of people in their village, they didn't have a toilet at home so they were forced to defecate in the open. For women this poses particular risks, as traditions on modesty mean they usually have to go in the **dark** and travel with someone else for safety.

No Privacy

The victims walked a quarter-mile along a narrow dirt path that opened up into fields of wheat and cereals where cows and water buffaloes graze in the day under the shade of mango and eucalyptus trees, according to an uncle called Baburam who was in the field at the time of the attack. The girls stopped on a small patch of land full of sharp, thorny bushes growing about a foot off the ground. They were then kidnapped.

"This vicious, horrifying attack illustrates too vividly the risks that girls and women take when they don't have a safe, private place to relieve themselves," said **Barbara Frost**, the London-based chief executive of WaterAid, a charity that helps poor communities get access to sanitation. "Ending open defecation is an urgent priority that needs to be addressed."

While India has been one of the world's fastest-growing major economies for much of the past decade, sending rockets into space and giving rise to a class of billionaires, it has lagged on social indicators. About 626 million Indians defecate in the open, compared with 14 million in **China**, the**World Health Organization** said in a 2012 report.

Space Missions

"The possibility of space missions seems to capture the imagination of the privileged far more than flush toilets," Nobel-prize winner Amartya Sen and development economist Jean Dreze wrote in their 2013 book "An Uncertain Glory: India and its Contradictions."

The **United Nations** held a campaign earlier this year to encourage Indians to build more toilets called "**Take Poo to the Loo**." A video featured a young man being chased by human excrement until he builds a toilet and flushes it away.

India's shortage of toilets costs the country more than $50 billion a year, mostly through premature deaths and hygiene-related diseases, according a 2010 study by the **World Bank**. India suffers a greater cost than other Asian countries from the inadequate collection of human excreta, the study found.

'Toilets First'

Modi's ruling **Bharatiya Janata Party** promised in its manifesto to help people build **toilets** in homes, at schools and in public places to end open defecation. In October, Modi said if elected he'd plan to build "toilets first, temples later."

"We will certainly be coordinating with the health ministry to see that toilets are a priority of this government," Maneka Gandhi, Women and Child Development minister in Modi's week-old government, told reporters yesterday when asked what his administration will do to reduce rapes.

The Congress party, which was in power for a decade until it was ousted last month, also promised it would build a toilet in every home in its 2014 campaign **manifesto**. Jairam Ramesh, the rural development minister under Congress, told women in 2012 not to get married into families that don't have toilets.

Sulabh International, a New Delhi-based organization that has built public toilets and campaigned on human emancipation issues since 1970, will build toilets in every household in the village where the attack took place, Suresh Prasad, vice president of the organization, said in a phone interview. Work will begin in the next two weeks, he said.

"Building a toilet in my home won't bring my daughter back," Sridevi, the victim's mother, said from her home. "It's too late. The police and government never cared to give us security and decency so we could use the bathroom, and now my daughter is dead."

"Toilet Shortage in India Fuels Rape as Women Are Prey Walking to Wheat Fields", 03/06/2014, online at: http://www.bloomberg.com/news/2014-06-02/toilet-shortage-fueling-india-rape-scourge-as-women-easy-prey.html?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=d20ca57051-RSS_EMAIL_CAMPAIGN&utm_medium=email&utm_term=0_c1265b6ed7-d20ca57051-250657169

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❖ 2nd Arab Water Conference highlights creative solutions to mounting challenges

Senior decision-makers and water experts from across the Arab world met May 27th-29th in Doha to discuss methods of sustainable management of water resources in the region, as well as solutions to issues such as water scarcity.

The conference, titled "Towards the Rational Management of Water Resources in Arab Countries: Sustainable and Creative Solutions to Meet Current Challenges", included discussions on topics such as water security, wastewater treatment and use in agricultural irrigation, construction of dams to optimise the utilisation of rainwater, and the development of more efficient drinking water systems to prevent water loss.

Organised by Qatar General Electricity and Water Corporation (Kahramaa) in co-operation with the Arab Ministerial Water Council (AMWC), the conference included discussions on 48 working papers as well as a number of workshops.

"The Arab world is one of the world's most water-poor regions," said AMWC president Mahmoud Abu-Zeid.

"A huge gap exists in its countries between water supply and demand, be it for household or agricultural purposes," he said.

Arab countries combined constitute 5% percent of the total global population, while their share of water resources does not exceed 1%, Abu-Zeid said.

Meanwhile, 18 out of 22 Arab countries suffer from a scarcity of clean drinking water and water for agriculture, and some fall below the water poverty level, namely Yemen, Jordan and some Gulf states, which rely on sea water desalination technology, he said.

WATER SCARCITY

The Arab region is currently facing great water scarcity challenges, conference participants said.

"These challenges have become acute and are ever growing as a direct result of the effects of climate change and rise in Earth's temperature, as well as the increasing pressure on fresh water resources and threat of depletion of groundwater aquifers in many Arab countries due to the tremendous growth in population," Abu-Zeid said.

Solving these challenges would require every possible effort on the part of Arab governments towards co-operation, said Kahramaa president and conference chairman Issa bin Hilal al-Kuwari.

Arab officials must develop "integrated management projects" for water resources, he said, in addition to plans and programmes related to water supply.

"This requires the replenishment of groundwater aquifers, improving [groundwater] quality, upgrading the technologies used in its extraction and wastewater management, and alleviating the effects of drought in arid regions," al-Kuwari said.

"The Arab region has no choice but to address the water issue, which has become a key priority on international and regional agendas because water resources are a primary determinant of the development of all economic sectors due to the growing demand for water," said Jamaleddine Jaballah, who heads the Arab League's Department of Environment, Housing and Water Resources and Sustainable Development.

The rising cost of developing and upgrading water services on one hand, and the inefficient use and poor management of water resources in Arab countries on the other, has resulted in challenges facing water policy in the Arab region as a whole, he said.

"2nd Arab Water Conference highlights creative solutions to mounting challenges", 03/06/2014, online at: http://al-shorfa.com/en_GB/articles/meii/features/2014/06/03/feature-03

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