

ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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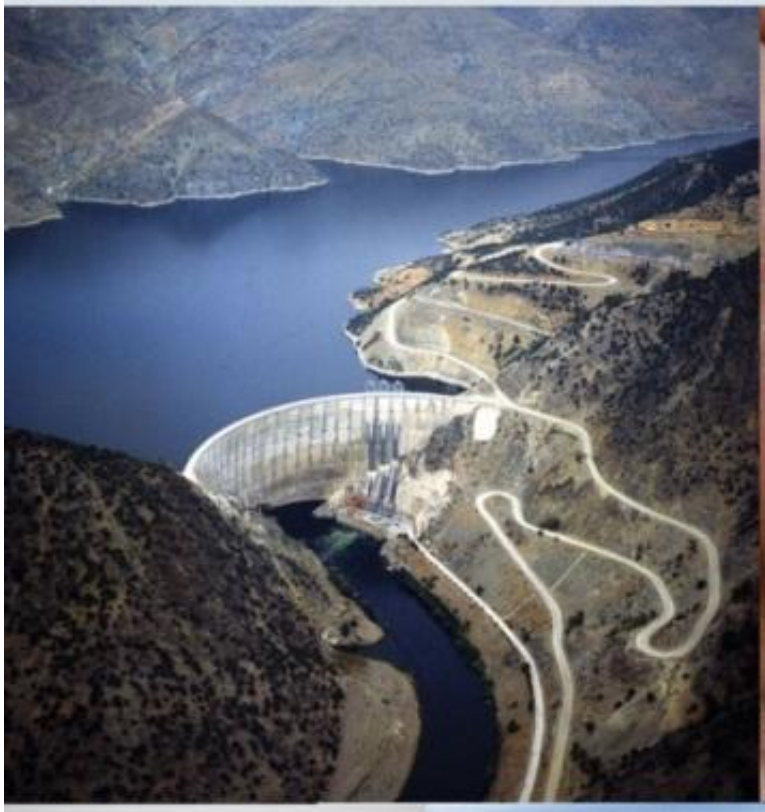



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21 February 2017 – 27 February 2017

Iraqi Red Crescent installs water desalination stations for the camps of displaced in Qayarah and Erbil

The Iraqi Red Crescent Society (IRCS) has installed water desalination stations for the displaced families in Qayarah and Erbil camps.

The IRCS has reported" The IRCS teams in Erbil center have installed water station (m40) with a capacity of 600 thousand liters to provide water for more than 40,000 displaced at Khazer and Hasan Al-Sham camps in collaboration with France Red Cross".

While in Salahuldin center, the IRCS teams have also installed water desalination stations (RO) for the displaced families from Mosul in Jada camps and Madraj camp in Qayarah district, in cooperation with the Danish Refugees Council, in order to provide water for more than 1000 displaced people, a team trained by the IRCS are operating these stations.

It is worthy to be mentioned that the IRCS has installed water purification stations (RO) in six Iraqi governorates, to provide the drinkable water for the families in the outback and the far areas from the center of the governorates.

23/02/2017 online at: http://reliefweb.int/report/iraq/iraqi-red-crescent-installs-water-desalination-stations-camps-displaced-qayarah-and

Sixth Development Plan Last Chance to Curb Water Crisis

Addressing Iran's water crisis in the sixth five-year economic development plan (2017-22) is the country's last chance before reaching the point of no return, the head of the National Center of Strategic Studies of Agriculture and Water at Iran Chamber of Commerce, Industries, Mines and Agriculture said.

"The economic development plan contains our most efficient strategy to curb the crisis … It is our last recourse in dealing with the water issue," Mohammad Hossein Shariatmadar also told Khabaronline.

He pointed out that countries, which failed to address their water problems in a timely manner, are now struggling with extreme decrease in groundwater resources, high salinity and contamination of water as well as poverty, unemployment, displacement and social conflicts.

"It is high time we tackle the water crisis. The longer it takes us to take action, the more costly restoration projects will become," he said at a press conference on Tuesday to talk about the National Water Day Conference on March 1.

In recent years, 120 billion cubic meters of water in excess of what's necessary has been withdrawn from groundwater resources and the aquifers are almost totally depleted. This is while natural restoration of groundwater reserves is much slower than the rate at which water is pumped out.

Shariatmadar stressed that plans must be made to replenish groundwater reserves through judicious household consumption and efficient irrigation methods.

He noted that great progress has been made with regard to water efficiency in the agriculture sector over the past two years, which show that Iran is at least capable of reducing its water consumption.

“The rate of water efficiency stood at 1.07 kilogram of crops per cubic meter of water in 2013 while the figure reached 1.2 kg/cm in 2014 and 2015, which shows a 12% increase within two years,” he said.

Shariatmadar said by increasing water efficiency in the sector by 6% annually, the agriculture sector will be able to make do with 70 billion cubic meters of water every year.

“This will result in saving 21 bcm of water during the course of the development plan,” he said, claiming that this is sufficient to end the water crisis.

“By saving 15 bcm every year, we can overcome the water crisis by 2021,” he said.

Officials say at least 90% of Iran’s natural water resources have already been used to meet the country’s needs and relying on natural reserves is no longer viable.

Lack of efficiency in the water network and excessive use in the key agriculture sector are major contributors to the country’s high water demand.

More than 90% of Iran’s water is used in agriculture, while more than 14% of water transferred through the network is wasted by old pipelines.

Analysts say Iran’s water reserves are adequate to supply the needs of its 80-million-strong population, but poor management and excessive consumption have made things difficult.

Located in one of the world’s most water-stressed regions, Iran’s average precipitation rate has been lower than the global average over the last 10 years.

23/02/2017 online at: https://financialtribune.com/articles/people-environment/60164/sixth-development-plan-last-chance-to-curb-water-crisis

Iran's Water Company Solicits German Expertise, Technology

German companies can play a central role in Iran's water and wastewater projects, the managing director of National Water and Wastewater Engineering Company said.

"Germany has made significant inroads in the water sector and we are interested in expanding mutual ties," Hamidreza Janbaz said on the sidelines of a joint economic commission between Iran and the German industrial state of North Rhine-Westphalia in Tehran on Sunday, ISNA reported.

"Iran's willingness for collaboration is to the extent that it has been proposed to award German companies’ water and wastewater projects without tender," the official said without

elaboration. Transfer of technology and manufacturing equipment such as water pumps, electric generators, valves and pipes are some of the areas for cooperation with the Germans, according to Janbaz.

"We want advanced and eco-friendly technologies in the wastewater sector to ensure better public services and improve welfare."

The official asserted that Iran has faced extremely low precipitations for well over a decade and desperately needs new technology for efficient recycling and distribution of water resources, particularly in the dry regions.

Data show an average rainfall of 241 millimeters in the previous Iranian water year that ended in September. Though better than two water years before, rainfall in the previous water year declined 2% compared to the long-term average.

In the face of low precipitation and the draught in many regions, officials and experts have appealed for greater focus on collecting, treating and reusing water for drinking and farming.

According to reports, the agriculture sector gobbles up more than 90% of Iran's scarce water resources due to outdated and inefficient farming practices and equipment.

27/02/2017 online at: https://financialtribune.com/articles/energy/60470/irans-water-company-solicits-german-expertise-technology

Israeli settlers control water resources in West Bank village

Palestinian sources warned on Monday of attempts by Israeli settlers to control water resources in the village of Deir Istya on the outskirts of the West Bank city of Salfit, Quds Press has reported.

“The Jewish settlers have been attempting to control water resources in the village and its surroundings,” village Councilor Nazmi Salman explained. “They have already seized Al-Ma’areed Well in the south of the village and destroyed another well used by local farmer Abdul-Jaber Aqel.” He pointed out that the illegal settlers have also installed pipelines to steal water from yet another well.

Furthermore, said Salman, the settlers built a number of facilities near one of the major wells in the village, where they swim inside the large pool and sometimes throw dirt inside it. “The Palestinian villagers have recently removed these facilities,” he told Quds Press.

Salman stressed that Salfit and its neighboring villages have been facing attacks by settlers targeting water resources; there are 24 illegal settlements in the district, but only 18 Palestinian communities.

Israel controls water resources in the occupied West Bank and Jerusalem where 600,000 illegal Jewish settlers are allocated more water than the three million indigenous Palestinians. This is, say local sources, a “flagrant violation” of international conventions and humanitarian

law, the Geneva Conventions and article 55 of the Hague Statutes, all of which stipulate that access to fresh water is a basic right for every human being.

21/02/2017 online at: https://www.middleeastmonitor.com/20170221-israeli-settlers-control-water-resources-in-west-bank-village/

Israel's potential role in fixing the global water crisis

We are undeniably blessed to live in a first-world nation like the United States and it's not because of the copious amounts of Wi-Fi hotspots and unlimited breadsticks at Olive Garden. Nor is it because of our incomparable military and massive economy. We are the most fortunate population of people to ever exist because of our access to the most important entity life has ever known: Water.

It is absolutely intolerable that 660 million people or 1 in 10 live without access to clean water in the 21st century. What's more outrageous is that this number may jump in the coming years with water supplies across the world being in severe jeopardy of vanishing. From Central Africa to Flint, Mich., access to water is a basic human necessity. However, the sole region that can least afford such an overwhelming crisis is next in line to face one. The Middle East is on the verge of an apocalyptic situation and its only hope is the sole nation in the region not facing acute water stress and whose existence is perpetually denied. After years of continuous conflict, Israel and the Arab nations have the potential to build organic relationships. The nations of the Middle East must put their irrational differences aside and come to grips with the outlook of their region.

With willpower being their greatest resource, the Jewish people transformed a desolate desert into a world-power of thriving agriculture and sprawling cities. Green technology and strong environmental policies propelled the desert state to become one of the greenest nations on the planet. Israel is the global leader in water recycling. Israel recycles 86 percent of its water with Spain coming in at a distant second at 19 percent. Furthermore, Israel remarkably has a surplus of water and this is in large part due to Israel's emphasis on reverse-osmosis desalination. Forty percent of Israelis rely on desalination techniques for clean water and this number may jump to 70 percent by 2050. Such an unorthodox method to sustain life did not arise from a situation of convenience. The Middle East endured a horrific drought in 2008 and Israel was out of options. With her freshwater sources reaching the "black line," Israel was forced to turn to the more saltwater ocean for an unconventional water supply. Affordable water quotas were enacted on civilians and farmers alike and municipalities were forced to repair their pipe systems. Today, Israel generates 55 percent of its domestic water supply from desalination-based techniques, and it's leaving the Israeli government scrambling to find an answer for their water surplus; undoubtedly an incredible problem to have.

The state of California has been victim to a historic drought that has brought about water conservation initiatives and legislative amendments; yet California still needs a miracle for any chance of a turnaround. Enter Israel. With the state of California using 80 percent of its water on agriculture, Israel is advising on how to exploit crops that require little water and how to best implement drip-water irrigation. Additionally, the U.S. is being introduced to

Israeli companies in order to promote collaboration on a series of industrial water technology projects. It will take four years for the Sierra Nevada snow pack, one of California's main sources of water, to recover from the past six years of drought according to a UCLA study. By now, it should be abundantly clear that California needs as much help from Israel as it can get.

The Middle East has consistently been host to a series of brutal transitions: From suffocating dictatorships to an Arab Spring, and then to the Islamic Winter we bear witness to today, there is a variety of reasons to explain for the current deprecating status of the Middle East. Although the extent at which remains to be seen, arid environmental conditions in the Middle East undoubtedly influenced a notable population toward acts of violent desperation.

Now more than ever, the Middle East cannot afford to fall into a state of irreversible chaos due to the potential depletion of water supplies. The loss of life due to dehydration and brutal conflict for water resources would be catastrophic. Now is the time for water diplomacy and for a push of a normalization of ties with Israel. Water exports and conservation technology can be on the table in negotiations for peace and normalization. In a similar fashion to past land-for-peace deals, Israel is capable of basing peace agreements on a need for water that make or break civilizations. Israel and neighboring Jordan signed a peace treaty in 1994 and both states have been blessed with peace since. Fast forward to today and Israel is set to double the annual supply of water to Jordan as part of a water-sharing agreement the two nations signed in 2015. With the increased influx of displaced refugees entering Jordan from Syria and Iraq, a significant strain on Jordan's perpetually limited water resources has followed. One would be remiss to fail to speculate that such mutually beneficial cooperation can bring nations closer.

Time is of the utmost essence and there is absolutely no excuse for nations continuing to reject Israel's continuously outstretched hand for peace. If the states of the Middle East cannot overcome their differences, we will be forced to wonder how we left such a world for the future generations.

24/02/2017 online at: http://www.heritagefl.com/story/2017/02/24/opinions/viewpoint-israels-potential-role-in-fixing-the-global-water-crisis/7592.html

Israeli forces destroy UNICEF-funded water pipeline in Jordan Valley

Israeli forces demolished a water pipeline in the Jordan Valley region of the occupied West Bank on Monday, after the same pipeline was destroyed earlier this month, according to local sources.

Muataz Bisharat, a local official who monitors Israeli activities in the Jordan Valley, told Ma'an that Israeli bulldozers destroyed the eight-and-a-half kilometers pipeline running between the Bedouin communities of al-Hadidiya and al-Ras al-Ahmar in the northern Jordan Valley, east of the Tubas district.

He said that 47 Palestinian families depended on the pipeline as their water source.

According to Bisharat, the pipeline was funded by international humanitarian organization UNICEF, at a construction cost of 12,500 Euros (approximately $13,270). He said that it was the second time this month that Israeli forces had destroyed the pipeline.

A spokesperson for Israel's Coordination of Government Activities in the Territories (COGAT), which is responsible for implementing the Israeli government's policy in the occupied Palestinian territory, told Ma'an on Monday evening that "an illegal water pipe was disconnected" in the area. The spokesperson went on to claim that the "illegal (water pipeline) connections cause water theft and pollution in the area that harm all residents" in the occupied West Bank.

Following a spate of demolitions targeting Bedouin communities in the occupied West Bank last year, which included the destruction of a new drinking water network supported by UNICEF, the UN's Humanitarian Coordinator in Palestine Robert Piper warned of the risk of forcible transfer of Bedouin communities.

"Repeated rounds of demolitions, restrictions on access to basic services and regular visits by Israeli security personnel promoting 'relocation plans' are all part of a coercive environment that now surrounds these vulnerable Palestinian households," Piper said at the time, highlighting that Palestinian communities in the Jordan Valley already suffered from extreme water scarcity.

UNOCHA documented in 2016 the highest number of demolitions in the occupied territory since the agency first began recording them.

Since the beginning of 2017, Israeli forces carried out demolitions in the Jordan Valley on at least six other occasions, in addition to seizing irrigation hoses in the region.

According to UNICEF, which manages and funds projects in the Jordan Valley to improve water and sanitation infrastructure, lack of clean water in the occupied territory forces Palestinians to make "unhealthy compromises" by trading off between household or personal hygiene.

Amnesty International estimates that up to 200,000 Palestinians in the West Bank do not have access to running water.

Meanwhile, just half of Palestinian proposals for wells and improvement projects to the water network were approved by Israel between 1995 and 2008, compared to a 100 percent approval rate for Israeli projects, according to Palestinian human rights group Al-Haq.

As a result, demolitions of Palestinian infrastructure and residences occur frequently in areas fully controlled by the Israeli military, known as Area C.

Some 88 percent of the Jordan Valley is classified as Area C , making the region's Bedouin and herding communities particularly vulnerable to such policies.

21/02/2017 online at: https://www.maannews.com/Content.aspx?id=775564

US-funded Zarqa water sanitation project ends as Washington pledges further funding

After five years and $275 million (JD194.5 million), a US-funded water sanitation project drew to a close on Thursday, leaving behind it 860km of new water pipes, 300km of new sewage pipes and other infrastructure in Zarqa, some 22km northeast of the capital.

The Millennium Challenge Account–Jordan (MCA–Jordan) held a ceremony to mark the completion of the programme, which was funded by the US government's Millennium Challenge Compact (MCC).

Water Minister Hazem Nasser, US Ambassador to Jordan Alice G. Wells, MCC Regional Deputy Vice President for Europe, Asia, Pacific and Latin America Fatema Z. Sumar, as well as representatives of MCC, the government, the donor community, the private sector and the local community all attended the ceremony.

In a speech at the ceremony, Nasser highlighted the challenges Jordan faced to meet the necessary conditions for participation in the grant programme, as well as the US government's efforts to help Jordan fund its water projects.

For her part, Wells said: "From the initial construction of the King Abdullah Canal in the 1960s, to the more recent building of the Zara-Maeen Water Treatment Plant, the goal has been to create sustainable investments with a meaningful impact on the economic development of Jordan.

"Jordan's implementation of the compact, from 2011 to 2016, has transformed the water and sanitation infrastructure in Zarqa, improved the lives of ordinary Jordanians, empowered women, including a new class of Jordanian female plumbers," she said.

The ambassador added that the US Congress has allocated $100 million for the Red Sea-Dead Sea Water Conveyance Project, which is hoped will provide an additional water supply for the Kingdom, while reversing the declining water levels in the Dead Sea.

Wells also said that the US plans to invest an additional $250 million over the next five years to "help meet increasing water and sanitation needs".

Sumar explained that initially, 860km of water pipes were replaced, followed by a new pumping station, a new water administration utility building, and the installation of 40,000 new household water meters.

"These investments have laid the foundation for better operation and management of water utility and bring more clean water to citizens and businesses across Zarqa," she said.

The project then constructed over 300km of new sewer pipes in Zarqa to reduce sewage overflow in the city's streets, Sumar added.

"[These] connected more homes in the city to the wastewater network and increased the collection of wastewater for treatment by As Samra Wastewater Treatment Plant for irrigation use at the Jordan Valley," she noted.

MCC helped expand As Samra plant — in partnership with the Water Ministry and the private sector — which uses modern methods to treat over 133 million cubic metres of water annually that farmers can use to irrigate their fields, according to Sumar.

In addition to installing the water and wastewater pipes, building the Basateen Pump Station and Reservoir, the new Water Authority of Jordan building in Zarqa and the expansion of As Samra treatment plant, MCA-Jordan also implemented the Water Smart Homes Activity.

The activity included an awareness campaign, "By Water We Live – We Preserve it to Survive", which helped Zarqa residents understand the best practices of water management within their homes, the company said.

Water and wastewater infrastructure was also repaired and upgraded in around 4,000 of the governorate's most deprived households.

MCA-Jordan CEO Kamal Zoubi said the five-year programme was completed within the allotted time and saved around $23 million, which was used to purchase wastewater cleaning vehicles to facilitate the proactive maintenance of Zarqa's wastewater network.

Asked about the water loss difference before and after the implementation of the programme, Zoubi told The Jordan Times that the evaluation process is still ongoing, noting that figures are being calculated and will be made available later.

25/02/2017 online at: http://www.jordantimes.com/news/local/us-funded-zarqa-water-sanitation-project-ends-washington-pledges-further-funding

New patent for Oman's SQU in segregating water from oil

Sultan Qaboos University (SQU) has received a new patent from the United States Patent and Trademark Office for inventing a new way in nanometeric zinc oxide membrane applications to segregate oil from water in a very efficient manner in terms of cost and energy saving.

The innovation and Entrepreneurships Department at the Scientific Research Deanery sought to deposit and register the patent application in collaboration with the relevant organizations.

The innovation is funded by the Nanotechnology Chair in the field of water desalination at the Water Researches (SQU). It was awarded to Myo Tay Zar Myint Laboratory Applications Specialist and Professor Joydeep Dutta, Chair Professor in Nanotechnology for Water Desalination and other applications in Sultan Qaboos University. It should be noted that this is the 8th patent by SQU and the third in 2017.

21/02/2017 online at: http://timesofoman.com/article/103429/Oman/Education/New-patent-for-Oman's-SQU-in-segregating-water-from-oil

German company to help Punjab gov't provide potable water

The Punjab government held a meeting here on Friday with Fichtner Water and Transportation Chief Executive Ulf Meyer Scharenberg and his team of experts.

Addressing the meeting, the chief minister said that drinkable water was the basic right of every citizen. He said that this public welfare project had been delayed but that the process was being speeded up with the technical cooperation of the German company for the provision of potable water to the rural population.

Fichtner Water and Transportation Chief Executive Ulf Meyer Scharenberg assured that the company would provide every possible support to the Punjab government for the provision of drinkable water.

Chairman Saaf Pani Company South Ch Arif Saeed, planning and development chairman, the housing secretary, Saaf Pani Company North and South CEOs, and other concerned officials were also present during the meeting.

24/02/2017 online at: http://www.pakistantoday.com.pk/2017/02/24/german-company-to-help-punjab-govt-provide-drinkable-water/

Pakistan: Water Crisis and the Indus Water Treaty – Analysis

It is well known that Pakistan is one of the most "water stressed" countries of the world. Currently its per capita annual water capability is 1017 cubic meters- that is perilously close to a threshold of 1000 cubic meters. Back in 2009, it was 1500 cubic meters.

Water is one source that cannot be generated but can only be preserved. With its near total dependence on the glacial waters supplemented by not so bountiful precipitation, Pakistan faces a grim future in water management. This has been brought out by the UNDP in the Development Advocate- Pakistan of Vol. 3- December 2016. The contributors to this issue are mainly Pakistan water Management experts and not outsiders.

It was therefore no wonder that many in Pakistan both at the official, technical and media level reacted with alarm with a flurry of articles in the media with furious accusations against India, when the Indian Prime Minister soon after the "Uri Attack" declared that the Indus Water treaty of 1960 will be reviewed. There was no mention of annulment of the treaty as such- a treaty that had stood the test of many conflicts but the mere mention of a review of the treaty and the Indian Prime Minister's remarks that blood and water cannot go together has rattled Pakistan.

Put simply, if only India observes the treaty in letter and spirit in fully utilizing the waters allotted to it, Pakistan will be in serious trouble. This would need some explanation.

The Indus Water Treaty is unique in that the division of waters between India and Pakistan is not of waters as such but the division of the rivers. Of these the western rivers- the Indus, Jhelum and the Chenab are for the exclusive use of Pakistan and the eastern rivers- Ravi, Beas and Sutlej are meant for use by India.

The treaty in its annexure acknowledged certain rights of Pakistan farmers to use the eastern rivers and similarly the Indian side can use a certain quantity of the western waters.

Though the Indian side is allowed to use 20 percent of the western rivers, it has hardly used more than 4 percent of the waters of the western rivers and more importantly Indian farmers have not fully utilized even the waters of eastern rivers either, thus letting the waters flow freely into Pakistan. Ironic that Indian Punjab would let go waters to Pakistan than share some with their own brethren in Haryana.

The Indus Treaty does not permit India to build storage dams on the rivers meant for Pakistan but allowed to make limited use for power generation. This would mean "run of the river schemes" which would still need some limited storage. The Baglihar project as well as two other projects, the Kishenganga and the Satle which have been objected to by Pakistan and seeking the World Bank Help for arbitration are all "run of the river schemes", fully justified in the treaty.

The Baglihar project that was objected to by Pakistan was examined in detail earlier by a neutral expert. He had suggested a reduction of the dam's height by 1.5 meters but did not object to the right of India to construct dams- a point that has been lost sight of by Pakistan and its media. The neutral expert did not even call the issue as one of a "dispute" but one of "differences."

The Kishenganga project is a run of the river scheme located at Bandipur in J & K with a projected capacity of 330 MW. This case was once taken earlier by Pakistan to the Permanent Court of Arbitration (PCA) at The Hague. The PCA ruled that India can divert a minimum quantity of water for power generation and upheld India's right to divert the Western Waters meant for Pakistan in a "non consumptive" manner. It also added that a minimum amount of water should be retained in the river to maintain the domestic environment downstream in Pakistan where another project- the same river being called Neelum is being built.

The Indus Treaty clearly lays down the procedure for settling disputes between the parties- firstly the issue has to be discussed bilaterally at the commission level- then go for a neutral expert to examine the case to be appointed and later by the World Bank if both approach the Bank jointly. Then comes arbitration if both parties approach the World Bank or if the issue is not heading towards any resolution.

India's contention was that the objections raised by Pakistan are technical in nature and can be resolved bilaterally. Pakistan has now gone for arbitration of the two projects- the Kishenganga and the Satle Projects.

The World Bank in its wisdom tried to please both the parties- by going for arbitration and in appointing a neutral expert- a contradictory move that pleased neither. India has strongly objected to World Banks's initiative for "arbitration" where the differences are only technical.

Pakistan had also approached the Obama administration and now is getting China involved as part of "water security" in the CPEC project of China. It is to be noted that neither the US nor China has any locus standi in the disputes arising out of the Indus Water Treaty. Even the World Bank comes in not as a guarantor but as a "facilitator."

We now go back to the UNDP publication that gives a clear and succinct situational analysis of the water sector of Pakistan. A few points that need to be highlighted.

The Indus Water Treaty has failed to address two issues namely- the division of shortages in the dry years between India and Pakistan and the cumulative impact of storages on the flows of Chenab River into Pakistan.

While water availability is restricted with the current population at 190 million (2016), an increase of 14.2 percent of water will be required by 2025 when the population would increase to 217 million. The demand would also increase with higher demand for multiple water uses.

The storage capacity of waters for Pakistan is only for 30 days compared to say the Colorado river which is 900 days.

Glaciers constitute a huge reservoir of fresh water to the area. The river flows are highly variable and give rise to water crisis frequently.

Ninety two percent of the country is semi-arid to arid.

Pakistan has been negligent in conducting a sound analysis and delays in presenting cases to the Indus Water Commission or World Bank have caused the issue to hang loose and remain unaddressed.

Water has been highly politicized in Pakistan and there is an extreme deficit of trust among the provinces. (Sadly it is true in India too)

Most of the points are internal except the suggestion that India should share the deficit of the western rivers with Pakistan during lean season. This goes against the very concept of the Indus Water Treaty that foresaw such controversial problems that would arise when waters are to be shared and not the rivers. The present arrangement is the best and it is for Pakistan to find alternate means to manage its resources rather than asking India to share its "poverty." And why should India- as the Prime Minister of India has pointed out- when Blood and Water do not go together.

25/02/2017 online at http://www.eurasiareview.com/25022017-pakistan-water-crisis-and-the-indus-water-treaty-analysis/

Water Scarcity Will Exacerbate Humanitarian Crises in the Middle East

On December 23, the Syrian government launched an assault to retake the rebel-held town Wadi Barada, a small enclave near the Lebanese border northwest of Damascus. Clashes erupted between regime forces and Syrian rebels, which led to the regime's targeting of the Ain Al-Fija Spring, the region's most important source of water. The spring supplies more than 5.5 million residents of the greater Damascus region. Both sides were accused of deliberately targeting the spring in the fighting, which led to three days of severe water shortages that affected millions of the city's residents.

The targeting of the Ain Al-Fija Spring demonstrates an issue of growing concern in the Middle East: the combination of scarce water resources and conflict. The Syrian crisis itself has led to the displacement of millions of people throughout the country and the region, with many Syrians unable to meet the most basic of their needs. To mitigate further conflict and reduce human suffering in the Middle East, the international community, including the United States, must ensure that vital water resources are protected in conflict zones in the region.

Water has always been a dimension of global conflicts. However, water resources in the Middle East, given the region's dry climate and multiple, ongoing crises, are more vulnerable to becoming an element of conflict. Even without the presence of conflict, countries in the region, which contain five percent of the world's population, but only one percent of its renewable water resources, are severely threatened by scarce water resources. Climate change, misuse of water resources, and disagreements between countries laying claim to the same water resources exacerbate this phenomenon.

The US Intelligence Community has highlighted the danger that limited water resources pose to global security. A 2012 report from the Office of the Director of National Intelligence (DNI) identified the Jordan, Tigris-Euphrates, and Nile river basins – all in the Middle East – as some of the area's most threatened by water scarcity. The report indicated that water scarcity could lead to greater conflict, especially without implementation of clear agreements between communities and nations. Yemen provides a clear example where this has happened.

Yemen has some of the most threatened water resources on earth. The country has increasingly faced challenges with water management and decreasing water supply. The limited freshwater that does exist in Yemen primarily comes from non-renewable groundwater sources, much of which is poorly managed or used to grow Qat, a tobacco-like stimulant to which a large portion of Yemen's male population is addicted. Some estimates indicate that the capital city of Sanaa' could run out of water by the end of 2017.

The ongoing conflict between Houthi rebels and the Saudi-allied Yemeni government makes the situation in the country, which is already deprived of sufficient water resources, even worse. Bombardment and indiscriminate shelling threaten Yemen's critical water infrastructure, including pipelines, treatment facilities, and groundwater wells. If the Yemeni government and Arab coalition led by Saudi Arabia are unable to protect water assets, the severe humanitarian crisis in the country will only worsen.

The international community, while seeking a peaceful political resolution to the conflict, should also provide technical and financial support to strengthen the resiliency and security of the minimal water resources that remain in Yemen. Additionally, Saudi Arabia and the Arab Coalition, made up of other Gulf Cooperation Council countries, should ensure that vital water infrastructure, including dams, pipelines, and treatment centers, are protected from aerial bombardment and on-the-ground clashes. Precautions like this could reduce the number of refugees and internally displaced persons produced by the conflict.

The conflicts in Syria and Yemen demonstrate the need for the international community and western powers, which possess both technical know-how in water resource management and

abundant aid funding, to help countries in the region provide water to their populations. The United Nations and countries like the United States must address the issue of water scarcity in order to lessen the impact of humanitarian crises caused by conflicts in Syria, Iraq, Yemen, and Libya.

Fortunately, government agencies like the United States Agency for International Development (USAID) and the United Nations' Development Programme (UNDP) are working to secure these resources by helping to increase water supplies, bolster efficiency, and educate local populations on water scarcity and sustainability. USAID currently assists a number of countries in the Middle East and North Africa, including Jordan, Morocco, Tunisia, and Lebanon with water and sanitation projects.

While these organizations should continue to provide this support, they must also expand their programs to more countries in the region whose water resources are directly affected by armed conflict. Without such attention, humanitarian crises in the region will only increase in severity as the region's populations struggle to obtain critical freshwater resources.

21/02/2017 online at: http://www.huffingtonpost.com/entry/water-scarcity-will-exacerbate-humanitarian-crises_us_58ab78c0e4b03250fc905e40