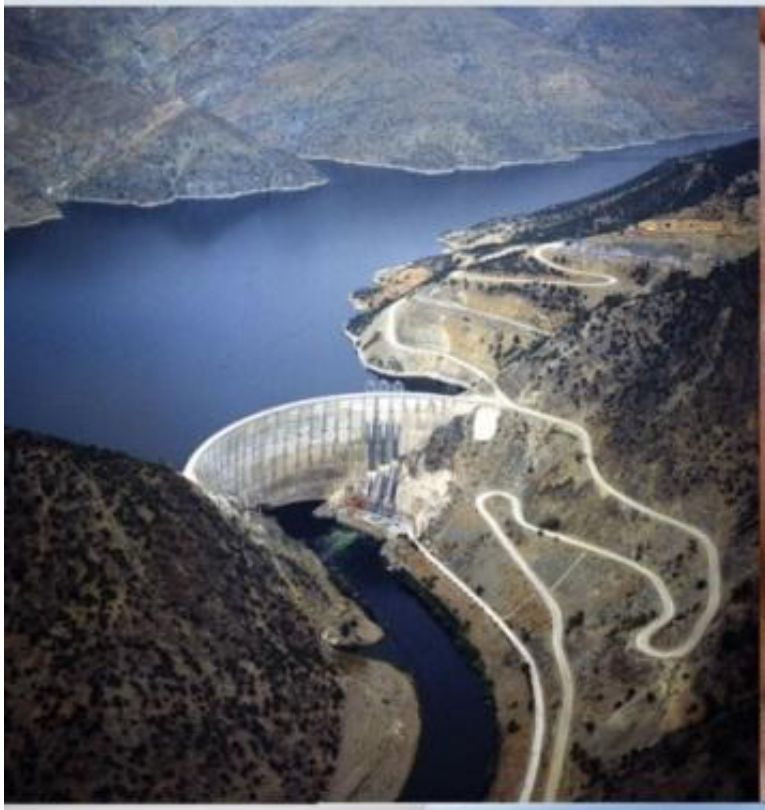


ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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





WB gets in touch with Pakistan over water dispute with India

World Bank President Jim Yong Kim has held a telephonic conversation with Pakistan's Finance Minster Senator Ishaq Dar and discussed with him Indo—Pak water dispute, days after the country asked the global lender to "fulfil its obligations" on the issue.

Dawn newspaper quoted official sources as saying the call was made on Monday.

Mr. Dar on December 23 had written a letter to Mr. Kim over the dispute over two hydroelectric power plants —— Kishanganga and Ratle —— that India is building on the Indus rivers system.

Mr. Dar in his letter said that delaying arbitration would seriously prejudice Pakistan's interests and rights under the Indus Waters Treaty.

The letter explained that Pakistan was not withdrawing its earlier request to the bank to appoint the chairman of the Court of Arbitration and since this process had already been "inordinately delayed", Islamabad wanted the bank to appoint the chairman as soon as possible.

Pakistan believes that further delay would hurt its interests as India is working day and night to complete the two disputed projects. And once they are completed, it will be difficult to undo them.

The Indus Waters Treaty, signed in 1960, distributed the Indus basin rivers between the two countries, giving India control over the three eastern rivers — the Beas, the Ravi and the Sutlej — while Pakistan has the three western rivers — the Indus, the Chenab and the Jhelum. The treaty empowers the World Bank to arbitrate any water dispute between India and Pakistan.

Earlier, last week Mr. Kim sent a letter to the finance ministers of India and Pakistan, informing them that he had decided to 'pause' the bank's arbitration and urged the two neighbours to decide by the end of January how they wanted to settle this dispute.

Tensions over the water dispute intensified in November when Indian Prime Minister Narendra Modi threatened to block the flow of water into Pakistan.

In the formal request sent to the bank, Pakistan argued that the Court of Arbitration could be formed at the request of either party, if the party concludes that the dispute is not likely to be resolved by negotiation or mediation.

The bank would also be obliged to establish the court if the aggrieved party concluded that the other government was unduly delaying the negotiations.

Pakistan informed the World Bank that it has already exhausted the option to engage India for resolving the dispute through bilateral talks and was now exercising the option to take its case to the Court of Arbitration.

27/12/2016 online at: http://www.thehindu.com/news/international/WB-gets-in-touch-with-Pakistan-over-water-dispute-with-India/article16949266.ece

Seminar on Pakistan's national water policy recommendations at LUMS

The Lahore University of Management Sciences (LUMS) today hosted a panel discussion for the launch of Hisaar Foundation's Report 'Recommendations for Pakistan's National Water Policy Framework' for the consideration of the government.

The event was a culmination of two years of consultations, including discussion sessions with various water stakeholders across the spectrum, as well as two international water conferences that focused on water cooperation and water security. The recommendations are part of the first report of Hisaar Foundation's think tank on Rational Use of Water.

The recommendations focus on five main areas for further action. These include improving water access for the poor and landless, financing the urban and rural water value chain, safeguarding the Indus Basin and its infrastructure, improving water institutions and their management and governance, and finally building a base for science, technology, and social aspects of water.

The goals of the recommendations for Pakistan's national water policy framework call for extending irrigation system to arid districts of Pakistan. It also calls for creating new storages and enhancing existing storages at different levels. The policy framework calls for improvement in water efficiency by 10 percent. It also calls for increasing productivity in agriculture.

The policy framework recommends preserving, repairing and maintaining the existing water infrastructure. It also calls for a reversal in abiyana to realise the true value of water. The policy framework calls for control in groundwater withdrawals as well as generation of additional indigenous hydropower. The recommendations also call for increased coordination between water, agriculture, and industry for maximum benefits. Finally, it calls for making investment in water infrastructure and hydropower a core part of the China Pakistan Economic Corridor.

The policy framework was presented by former finance minister and Think Tank on Rational Use of Water memberDr Salman Shah. The panelists included notable personalities from the government, industry, non-government sector and academia such as Lahore Chambers of Commerce and Industry (LCCI)PresidentAbdul Basit, Pakistan Agricultural Coalition CEOand former secretary irrigation ArifNadeem,WITDirectorDrAbubakar Muhammad and Think Tank on Rational Use of Water member Khalid Mohtadullah.

The launch ceremony was moderated by Simi Kamal, an international water and gender specialist and Convener, Think Tank on Rational Use of Water.

Dr Salman Shah highlighted that while there is a water accord between the provinces, there is no sharing mechanism within each province. Khalid Mohtadullahemphasized that Pakistan is really a water economy and that it is possible to save waterin agriculture, yet increase

production and productivity. ArifNadeem stated that Pakistan is in the business of "build-neglect- rebuild" and raised caution that there is very little maintenance of the existing system.

Abdul Basit acknowledged that the industry sector needs to be sensitized and made cognizant of the need for water efficiency and conservation in production processes.

DrAbubakar Mohammad alerted that the future of technology and use of intelligent machines will change the agricultural scenario and revolutionize the way water is used, managed and governed.

29/12/2016 online at: http://dailytimes.com.pk/pakistan/29-Dec-16/seminar-on-pakistans-national-water-policy-recommendations-at-lums

Pakistan's water security made part of CPEC framework

Pakistan and China on Thursday decided to make water security a part of the China-Pakistan Economic Corridor (CPEC) framework amid threats by India to review its position on the 1960 Indus Waters Treaty.

The decision to exploit full hydel potential of Pakistan was taken during the sixth meeting of the Joint Cooperation Committee (JCC) of the CPEC which was held in Beijing. The JCC is the highest policy making forum of the CPEC.

The JCC also decided, in principle, to make the mass transit projects of all four provinces part of the CPEC. These projects will be formally made part of the CPEC after their financial and technical vetting by Working Group on Transport in February next year.

For development of hydroelectric projects on the Indus River, particularly construction of the Diamer-Bhasha dam, the JCC on Thursday constituted a group, said Planning and Development Minister Ahsan Iqbal after the meeting. The planning ministry released the video of his statement.

China says willing to promote CPEC with Pakistan

"Pakistan may face a very severe water crisis and for economic and food security of the country, the immediate construction of Diamer-Bhasha is crucial," he said. If the Diamer-Bhasha dam becomes part of the CPEC, it will be a landmark achievement, he added.

For more than two decades, Pakistan has been trying to construct the Diamer-Bhasha dam that has an estimated cost of $14 billion. Due to opposition by India, both the World Bank and the Asian Development Bank have refused to lend money under one pretext or another.

After the rise in tensions along the Line of Control (LoC) in recent months, India's Prime Minister Narendra Modi had threatened to cut Pakistan's water supply. He has managed to influence the WB that recently paused the process of playing mediator, which it is bound to play under the 1960 Indus Waters Treaty, according to experts on the accord. Chinese help to secure Pakistan's water rights will be seen as a major development, according to them.

CPEC: Business forum says private sector must be taken onboard

The Indus River is a source of more than 17 gigawatts of hydropower capacity in India and Pakistan and feeds the Indus Basin Irrigation System, the largest contiguous irrigation network in the world. Pakistan is particularly dependent on the Indus, as more than 90% of its agricultural production comes from this basin.

Ahsan Iqbal said that the sixth JCC has taken the CPEC to the next level, which will ensure Pakistan's industrialisation and inclusion of all the provinces.

The minister said that the JCC approved to make mass transit projects of four provinces part of the CPEC framework. He said that these projects are Orange Line metro project Lahore, Karachi Circular Railway, Peshawar Greater Circular Railway and Quetta Circular Railway.

Their inclusion in the CPEC will ensure huge tax exemptions and availability of finances for execution. The inclusion of these projects into CPEC is a gift for the people of provincial capitals, said the planning minister.

The planning minister said that the JCC approved to construct one industrial park in each province, Islamabad Capital Territory and in special areas of the country. He said that the Chinese experts would visit Pakistan in February to review their feasibility. The JCC also approved to make three more infrastructure projects part of the CPEC. These are Dera Ismail Kha-Zhob road project, Baseema-Khuzdar road project and a missing link of the Karakoram Highway project.

CPEC: from knowledge to connectivity

The minister said the JCC also decided to start construction work on Matiari-Lahore Transmission Line project. He said the new projects that the provinces had proposed for inclusion into the CPEC have been recommended to the respective working groups for their financial and technical evaluations.

He said it has also been agreed that the Gwadar City Master plan will be completed within one year. The minister said that China also agreed to transfer knowledge in five areas, including water resources management, urban development, small and medium sized industries and climate change.

The Peshawar circular rail project has been accepted as part of the CPEC and the working group will approve it in next meeting, said K-P Chief Minister Pervaiz Khattak after the JCC meeting. Khattak went to Beijing to attend the meeting. He said that K-P's projects would be approved in February next year. He added that the JCC approved to make one industrial park part of the CPEC while two more will be approved next year.

30/12/2016 online at: http://tribune.com.pk/story/1279029/pakistans-water-security-made-part-cpec-framework/

Bengaluru scientist converting Oman’s black water into white

A patented technology that can convert sewage and other contaminated water into potable water has seen a Bengaluru scientist bag a $3,00,000-project in Oman, while another $2.2-million project is in the pipeline.

Dr Rajah Vijay Kumar, who has more than 30 inventions to his name, said the Boom Tube Resonator is a pet project given the water crisis across the world. Using the technology, Kumar's campus recovers 10,000 litres of water from sewage every day with no chemicals or microorganisms and uses it even for drinking.

The technology, developed by Kumar and his team at the Scalene Automation and Robotics Centre (SARC) and Scalene Energy Research Institute (SERI), not only recovers water fit for drinking but also gives high-value fertilizer as a byproduct.

"A delegation from Oman first came and inspected the technology. They later returned with specific samples for conversion. They signed the contract last month," he said.

The project, Kumar said, will see a machine built completely in India (Bengaluru) installed in Oman. "Given that it's a completely automated technology, we will just need to install once and train a few of them to just oversee," he said. It will have the capacity to convert 1.70 lakh litres of contaminated water per day. The project will be executed in partnership with Oman-based Global Engineering Solutions (GES).

"It is through GES that we have signed a contract with the government there. While the project for installing the first plant is valued at $3,00,000, there is another project worth $2.25 million is coming up," Kumar added.

His team has got queries from Qatar, Singapore and Australia as well. Malaysia has shown interest to recover 10 lakh litres of water per day. "Last week, we had a delegation from the Queensland Urban Utilities ," he said and added that cost-effectiveness and the fact that it uses no chemicals or microorganisms has garnered a lot of interest. TOI had first reported about this invention.

"Oman team was also looking at converting contaminated water pumped along with crude oil. They signed the project after our technology proved successful in converting that too," Kumar said.

The Boom Tube Resonator is based on a technology patented by Kumar called Fine Particle Shortwave Thrombotic Agglomeration Reaction (FPSTAR). The water recovered using this technology is compliant with the drinking water standard 'ISI 505' if not of better quality.

How it works?

"The water we use is clean and uncontaminated. It becomes sewage, when we mix it with excreta, urine, soaps detergents et al, or some other pollutants if it is industrial waste. Some of what we put into the otherwise clean water get dissolved, while some remain suspended," Kumar said.

Particles as small as a few nanometers remain continuously in motion due to electrostatic charge (often negative) which causes them to repel each other. Once their electrostatic charge is striped (neutralized), the finer particles start to collide and combine together under the influence of Vander Waals forces. The Boom Tube Resonator uses high intensity shortwave, produced at millions of cycles per second and when contaminated water passes through a special resonating column, it resonates these fine particles, making them to lose electrons and become chargeless particles.

Just like how violinist makes a wine glass break with the tone from his violin and free the wine to flow, the resonator makes the water to break away from all that is dissolved or suspended particles in the water and frees the water of impurities.

29/12/2016 online at: http://timesofindia.indiatimes.com/city/bengaluru/Bluru-scientist-converting-Omans-black-water-into-white/articleshow/56226394.cms

98% of Population to Receive Piped Water by 2040: PAEW

The Public Authority for Electricity and Water (PAEW) aims to supply piped water to 98 per cent of Oman's population by 2040.

This was stated by Mohammed bin Abdullah al Mahrouqi, chairman of PAEW at the Annual Media Forum held at the Supervisory Control and Data Acquisition (SCADA) centre in Bausher last week.

Speaking about the authority's achievements, future plans and projects, Mahrouqi said plans are afoot to increase the number of customers to 800,000 by 2040. This will be achieved through integrated systems and a customer-centric approach.

The system will also focus on subscriber services and ensuring high operational efficiency and development of human resources. Dr Mane bin Qassim al Jabri, senior design manager at the Directorate General of Projects, PAEW made a presentation on key projects whether implemented or underway. These projects include the 36km long Ghubra-Muscat pipeline at a cost of RO35mn of which 35 per cent has been completed as of now. This includes the 11km long Wadi Adai-Amerat water pipeline at a cost of RO15mn of which 88 per cent has been completed. Another is the 58km long water pipeline from Amerat water reservoir to Deem reservoir at a cost of RO39mn of which 95 per cent has been completed.

The PAEW relies on two main sources of water supply: Desalination plants and wells. Eng Saud al Nadabi, director of planning at the Directorate General of Assets Management and Planning made a presentation on the strategic water projects, the water demand forecasts and the current water desalination projects. He pointed out that the authority regularly revises water needs, in coordination with the Oman Power and Water Procurement Company to meet the growing demand for underground water taken from water wells.

Eng Abdullah bin Mohammed al Nuaimi, director general of Operations at the PAEW made a presentation on water quality at networks as per the water quality strategy. He pointed out that the authority conducted assessment in 142 areas. He added that 20 teams have been formed to

follow up water leakage. The teams were provided with state-of-the art equipment and tools for detecting leak

01/01/2017 online at: http://www.muscatdaily.com/Archive/Oman/98-of-population-to-receive-piped-water-by-2040-PAEW-4wpm

'No water for 5 days': Damascus struggles after rebels reportedly poison supply

The Syrian capital has been without water for five days. Western media has blamed the government for disrupting the supply, but there is evidence that rebels are behind the water crisis, with renewed video threats. RT's Lizzie Phelan reports.

Damascus continues to be considered the safest place in Syria. But it has an Achilles heel, and that's the water supply – currently under rebel control. Last week, the government accused the rebels of contaminating the reservoir at Ein al Fija spring's water pumping station, which serves about 65 percent of Damascus, with diesel and other poisons.

The government managed to shut off the supply before it could reach the capital, but a leaked UN memo shows the extent of the fear that started to grip the people.

RT's Lizzie Phelan spoke to Damascus locals who transport water to residents in cisterns. They are all concerned, and blame "the terrorists" for cutting off the supply.

Phelan filmed people with jerrycans obtaining water from underground reserves. The people are lucky to at least have them, along with the free distribution of water by the Water Authority. Store prices are exorbitant.

Damascenes say the government's help has been a lifeline.

"We had no water for five days. Now we found this place, and the government is helping us… things have become easier," one man said.

The crisis reportedly hit when the reserve was allegedly shelled by government forces – at least that's what the Western media has said, citing rebel sources.

The rebels, however, have used water before to pressure the government. They have threatened to do it in a recent video – this time by blowing up a tunnel underneath, and physically depriving residents of water.

28/12/2016 online at: https://www.rt.com/news/372030-syria-damascus-water-crisis/

Daesh cuts off water supply to Syria's Aleppo

Takfiri Daesh terrorists in Syria have cut off the water supply from two pumping stations on the Euphrates to the east of the city of Aleppo, which was recently liberated from militants.

The blockage occurred on Friday, prompting Aleppo's Water Organization, Syria's Red Crescent Society, and local residents to look for ways to restore the water supply to the city.

Takfiri terrorist groups in Syria have resorted to cutting off water supplies to different residential areas in an apparent bid to retaliate battlefield losses.

On Thursday, the United Nations warned that four million people in the Syrian capital city of Damascus had been deprived of safe drinking water supplies for over a week after springs outside the city were deliberately contaminated by militants.

Water supplies from the Wadi Barada and Ain al-Fija springs to the northwest of Damascus, which served 70 percent of the population in the city, were cut after water facilities were deliberately targeted and damaged, the UN announced in a statement.

Syrian officials had earlier detected diesel contamination in the water piped to the capital and had cut supplies over safety concerns.

According to the UN, 15 million people across Syria are in need of help to access water and households spend nearly a quarter of their income on water.

31/12/2016 online at: http://www.presstv.ir/Detail/2016/12/31/504197/Syria-Aleppo-water-supply-Daesh/

Daesh, Assad forces battle for control of Damascus water supply

Syrian government forces advanced Monday as they battle to capture a key rebel-held region to take control of the capital's water supply, threatening a fragile nationwide truce.

Geo News, maintaining its tradition of bringing its viewers and readers first-hand knowledge of events occurring around the globe, has reached war-torn Syria.

After having reported events from Iraq, Lebanon, Afghanistan, Gaza and other battlefronts, Geo News team has now been in Damascus, Syria.

From there the team left for Barada, where the war is raging between Daesh and forces allied with Bashar al-Assad's government.

The clashes are aimed at gaining control of water reservoirs in Barada, which make up for 70 per cent supply to Damascus.

Severe clashes are ongoing in Barada, while there is a serious water shortage in Damascus causing difficulties to citizens.

The United Nations says at least four million people in Damascus have been without water since December 22.

Over 400,000 have already lost their lives due to the nearly five-year old war in Syria. Millions have been forced to take refuge in neighbouring countries including Turkey and Jordan.

The Assad government claims that the rebels have contaminated the water with hazardous chemicals and diesel, due to which the supply has been suspended.

The rebels say government forces have carried out intense shelling, resulting in the collapse of the water supply system in the Syrian capital.

02/01/2017 online at: https://www.geo.tv/latest/125910-Daesh-Assad-forces-battle-for-control-of-Damascus-water-supply

Iranian Gov't Wants Diminished Role in Water, Power Projects

The government is enforcing new regulations that restrict new state funding for new power plant and dam projects in the next five years, Alireza Daemi, the deputy energy minister said.

"Using government's financial resources to build power plants and hydroelectric dams is prohibited in next year's national budget bill (2017-18) and in the sixth economic development plan (2016-21)," Daemi was quoted as saying by Mehr News Agency on Monday.

The decision is partly due to the Energy Ministry's limited (proposed) budget for the next fiscal year and the many incomplete projects that have piled over the years, thanks to the previous administrations.

Daemi said that a whopping $50 billion is needed to complete hundreds of underdeveloped projects in the water and electricity sectors, while the Energy Ministry is set to receive a fraction of the astronomical amount -- just about $5 billion -- in the next budget.

"The ministry is striving to increase the contribution of the private sector and foreign investors in water, wastewater and electricity generation," Daemi said, adding that the plan is in line with the upcoming economic and cultural development plan under consideration in the Majlis. Outlines of the national plan were approved by the law-making institution earlier this month.

Analysts suggest that it could take as much as 17 years to complete all the existing water and power projects given the current pace of development and funding.

Energy Minister Hamid Chitchian said in October that Iran needs $25 billion for developing electricity infrastructure and meet its planned 5.5% annual growth in power production capacity by 2021.

Energy officials said last year that nearly 3,000 water and wastewater projects nationwide were incomplete at the time due to funding constraints.

27/12/2016 online at: https://financialtribune.com/articles/energy/56253/iranian-govt-wants-diminished-role-in-water-power-projects

Water Desalination in Southern Iran on Agenda

Plans are in place to provide regions straddling the southern coasts of Iran with potable water by building 50 water desalination units, Energy Minister Hamid Chitchian said.

Speaking on the sidelines of the groundbreaking ceremony of Siraf water desalination unit in Bushehr Province on Thursday, Chitchian noted, “Iran's fledgling water desalination industry can certainly satisfy people's need for safe drinking water in the Persian Gulf littoral provinces," IRNA reported.

Commenting on the socio-economic impact of the initiative, the official said plans call for building 50 desalination plants in different areas adjacent to the Persian Gulf and Sea of Oman.

One project is to be carried out in collaboration with Russia. Tehran has signed a $10 billion deal with Moscow to build two new nuclear power plants in Bushehr.

As part of the deal, a water desalination plant with a capacity to produce 200,000 cubic meters of water per day is planned to be built near the site of the nuclear reactors.

However, environmentalists do not advocate the use of desalinated water, arguing that the environmental and financial cost of treating saltwater outweigh its benefits in the long run.

According to Chitchian, more than 90% of Bushehr Province’s water is supplied from neighboring provinces, but dwindling water resources in those regions mean they cannot sustain a steady supply of water to Bushehr.

To tackle the water crisis across continents, desalination is becoming an attractive method to produce water from saline water sources. Around coastal regions, where salty water resources are plentiful, large and semi-large desalination plants are desirable. However, reports say that water desalination technologies are still costly and in most cases prohibitive.

31/12/2016 online at: https://financialtribune.com/articles/energy/56502/water-desalination-in-southern-iran-on-agenda

Scientific research work for treatment of water from oil field production

The Tunisian Company of Petroleum Activities and the Borj Cedria Technology Management Corporation Park (TBC) initiated Tuesday research work to identify water treatment processes from the production of an oil field and their desalination for irrigation use.

According to a statement issued Tuesday in Tunis by the Ministry of Energy, Mines and Renewable Energies, work will also focus on the recovery of residues obtained from these operations and the production of biodiesel from desalinated waters.

The work is carried out following the agreement reached between the two parties on December 20, 2016, after nearly 30 months of negotiations, Yassine Mestiri, Deputy Director General of Etap told TAP, specifying that by virtue of this 15-month agreement, ETAP is tasked financing this work by 257,000 dinars,

The project allows the company to reduce the expenses allocated to the management of the water pollution generated by its petroleum activities, whose value exceeds 15 million dinars per year, he said.

The launching ceremony was attended by the Ministers of Energy, Mines and Renewable Energies, Industry and Trade and the Secretary of State for Scientific Research.

28/12/2016 online at: https://www.zawya.com/mena/en/story/Scientific_research_work_for_treatment_of_water_from_oil_field_production-ZAWYA20161228063114/

Tunisia: German loan of € 30.2 million for water management

A financial agreement between Tunisia and Germany was signed Wednesday, December 28, 2016, at the headquarters of the Ministry of Foreign Affairs, reports Jawhara Fm.

Under the agreement, Tunisia will benefit from credits worth a total of €30.2 million, the same source said.

These funds will be used to develop the management and exploitation of water resources, particularly in inland areas.

30/12/2016 online at: http://africanmanager.com/site_eng/tunisia-german-loan-of-e-30-2-million-for-water-management/?v=947d7d61cd9a

Water level at Morocco dams falls to 51%

Morocco's dam reserves have recorded a significant decline reaching water level of only 51%, compared with 65% a year earlier, a report of the Ministry in charge of water issues shows.

Among the biggest dams, Al Wahda registered a slight increase to 1,716 million cubic metres on December 20, 2016 , compared with 1,657.3 million cubic metres a year back, but water level still remained under 50% at 48.7%.

The situation is worse at the Bin El Ouidane and Al Massira dams. Water levels at the first one are currently at 43% while the second is at 42.5%.

In the northern part of the country, the situation is a bit better with dams replenishing their levels to 54.7% (Oued El Makhazine).

27/12/2016 online at: http://renewables.seenews.com/news/to-the-point-water-level-at-morocco-dams-falls-to-51-552258

Belarus to start drilling deep water extraction wells in Egypt in 2017

In 2017 Belarus intends to start the project to drill deep water extraction wells in Egypt, BelTA learned from Belarusian Natural Resources and Environmental Protection Minister Andrei Kovkhuto on 27 December.

The Belarusian Natural Resources and Environmental Protection Ministry and the Housing and Utilities Ministry intend to implement a water supply engineering project in Egypt. Speaking about the project, the official noted that preparations are already underway. “Money needs to be found for the sake of implementing the project. Apart from that, the project will

require good equipment and machines. The geology R&D center will buy them. The project will involve a lot of work but we will do our best to start implementing the project as early as 2017," said the Belarusian Natural Resources and Environmental Protection Minister.

Andrei Kovkhuto said that the cost of the project is estimated at dozens of millions of U.S. dollars. "I cannot say the exact sum for now since only preparations are now in progress, in particular, equipment acquisition. Besides, we need our own representative office in Egypt and arrangements with banks," he stated. The official said that using the representative offices that some Belarusian companies had already established in Egypt is being considered.

The Natural Resources and Environmental Protection Minister reminded that he met with Egyptian Water Resources and Irrigation Minister Mohammed Abdel Atty in mid-December. During the meeting the sides discussed prospects of advancing bilateral cooperation in the protection and rational use of water resources. The development of an interagency memorandum of understanding and cooperation was discussed. The document is supposed to be signed in 2017. The Egyptian side expressed interest in cooperation in a number of areas, including control over the pollution of water resources, technologies for purifying and recycling water, drainage systems, new and promising water extraction technologies, including water production from alternative sources. The Egyptian side also expressed interest in water demineralization, ways to increase production and reduce losses in the course of using water resources, purification of artesian water from iron and magnesium.

According to Sergei Mamchik, Head of the Geology Office of the Belarusian Natural Resources and Environmental Protection Ministry, there are hopes for increasing the export of geological services in 2017 by drilling and testing deep water extraction wells in Egypt. In September AMSC Company and the geology R&D center signed an agreement on cooperation in the course of drilling and testing deep water extraction wells. The customers for the projects are the Egyptian Oil Ministry (in Western Minya, $16 million) and the Egyptian Defense Ministry (Sinai Peninsula, $41 million).

Sergei Mamchik also said that active work is in progress to step up geological surveying cooperation with Pakistan, Angola, Sudan, and Laos. In particular, the possibility of setting up a Belarusian-Laotian lab to study the quality of mineral resources of Laos is under consideration.

27/12/2016 online at: http://eng.belta.by/economics/view/belarus-to-start-drilling-deep-water-extraction-wells-in-egypt-in-2017-97541-2016/

Iraq: Leaky Plans to Fix Mosul Dam Cause Tsunami Fears

Experts have warned of renewed fears that the Mosul Dam, once named "the most dangerous dam in the world", may break open in Spring 2017, causing untold damage on 'biblical proportions'.

Engineers and scientists have been warning of the potential for a massive catastrophe for years, as decades of neglect have caused structural damage that requires daily repair.

“If there is a high flood in the spring, then no-one knows what is going to happen,” said Nadhir Al-Ansari, professor in geotechnical engineering at Lulea University in Sweden.

The discharge from a flood on the Tigris is so huge and if there is a snow-melt I don’t think the dam will hold this Spring.

It’s not possible to predict the exact effects of 11 km3 of water suddenly emptying out on to the local population.

A European Commission report from April 2016 estimated that a 26 percent rupture in the dam would cause a 10 meter high wave which would sweep through Mosul, hitting 270,000 people. A total of six million people would be affected by flood waters exceeding two metres.

By way of comparison, the 2004 Tsunami in the Indian Ocean killed around 250,000 people in 14 countries, causing one of the most widespread humanitarian disasters of all time.

The US embassy in Baghdad warned in a 2006 report that a rupture could raise water levels in Mosul, Iraq’s second city, by 13.7 meters in four hours – quite literally submerging large parts of the city by one storey.

“Mosul Dam faces a serious and unprecedented risk of catastrophic failure with little warning,” said the US Embassy in Baghdad in a report.

A catastrophic breach of Iraq’s Mosul Dam would result in severe loss of life, mass population displacement, and destruction of the majority of the infrastructure within the path of the projected flood wave.

The Mosul dam is currently being maintained by the Italian contractor, Trevi, which is engaged in the process of grouting, the process of injecting cement into areas of weakness.

But this process of grouting was criticized by the US army engineers corps in 2007 as insufficient, after it found that reinforcing one area allegedly caused increased pressure on other areas of weakness.

“Grouting at one location causes the flow path (seepage) of subsurface water to move to another location, but does not stop the seepage,” the report read.

Without continuous maintenance, this gypsum foundation disintegrates and the dam is allowed to sink in its middle, causing cracks in the wall and eventual disaster.

And, excluding the previous three months of emergency repair, there has not been any continuous maintenance on the dam in almost two years. The dam’s structural problems lie in its initial foundations. The dam was built on gypsum, a soft mineral which dissolves in water. As such, the dam’s foundations are facing constant erosion from the matter it is trying to contain, no matter how much grouting is done.

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Islamic State [IS] fighters took the dam from Kurdish control in August 2014, thereby halting the grouting operations until Trevi resumed them in around October 2016.

Even after the dam was recaptured by Kurdish Peshmerga forces, IS were still able to extract energy from the hydroelectric dam to power Mosul. American engineers informed the Kurdish officials that closing the turbines would create excess pressure on the dam, making it more likely to break.

Those fears became more pronounced in January 2016, when Iraqi Prime Minister Haider al-Abadi forced officials to investigate reports that new and perilous cracks had formed in the dam. Weeks later, the government warned citizens to relocate at least 5 km away from the river - in case of breach.

Those cracks have not gone away and concerns are being raised that not enough is being done to stabilize the dam come spring-time, with the increased pressure that a snow-melt would bring.

“Grouting operations will not end the problem,” said Ansari, “it urgently needs proper repair.”

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Colorado Water Expert Leads Mission to Israel

Located in one of the driest parts of the world, Israel is leaps and bounds ahead of other countries when it comes to water conservation and innovation efforts. According to statistics and figures compiled for worldwide domestic water consumption, from 1996-2014, Israel reduced its demand for water by 17%, some 27% below that of America’s. Today Israel is first in reusing 86% of its water for agriculture. Spain comes in at a distant second at 17%.

Robert Lembke, of Greenwood Village, CO, and president of United Water and Sanitation District, a governmental entity that provides water to other municipalities in Northern Colorado, recently chaired Jewish National Fund’s (JNF) mission to Israel for water experts from the United States, Thailand, and the United Nations. The mission, IsraelH2O: A Tour on the Trail of Israel’s Water Solutions took the group to Israel to learn how JNF and Israel work to bolster water infrastructure through projects that also develop alternative water sources.

“The idea for this mission germinated from discussions I had with JNF CEO Russell F. Robinson four-years-ago,” Lembke said on the last day of the weeklong trip in early December. “Over the last few years, JNF has taken me on several one-on-one explorations of Israel’s water infrastructure, and it became clear that this incredible story would make for a great tour for water professionals.”

In collaboration with Seth M. Siegel, the best-selling author of Let There Be Water: Israel’s Solution for a Water-Starved World, JNF mounted a year-long series of Water Summits in major cities across the United States to share JNF’s and Israel’s work with the American public and to raise discussion and find solutions for common local water challenges. “That’s

when Russell and I realized there was enough interest to do the Israel water tour we had talked about, and so we began planning it," Lembke said.

Participants from 12 states and Washington, D.C., signed up—with the largest contingent of six , hailing from Colorado. Additionally, a delegation of three Thai government officials and a UN official also joined the mission. In light of the water crisis facing some parts of the U.S. and the world, the group was keen to understand Israel's success in becoming water-independent and learned that it was a result of its multifaceted approach, including wastewater treatment, desalination plants, drip irrigation, reverse osmosis, and start-up technologies that conserve and treat water. "If America doesn't do what Israel's doing, we're going to be in trouble," observed Jim Morrow of Wyoming.

The mission visited the Shamir drillings in the Upper Galilee which provides critical support to farmers in Israel's north. One project there, in partnership between the Israeli government, the Upper Galilee and Golan Heights Water Associations, and JNF, utilizes old oil-drilling facilities to access ground water more than a mile beneath the surface. "It's just one example of creating new available water supply where none had existed before by using preexisting infrastructure that was developed for other purposes," said Lembke, who disclosed that a large water source was recently discovered at another drilling site, this one in the Negev, in Israel's vast desert region.

The group also visited some of the 250 water reservoirs JNF built throughout the country—and in the Negev Desert in particular— to hold Israel's recycled water. "The reservoirs collect treated wastewater during non-growing months to use throughout hotter growing months. They also capture run-off water to add to the supply and further aid agricultural production," Lembke explained.

An important element in Israel's success is educating the planet of coming global water problems and how to mitigate drought and water scarcity. Here the group learned too that the country excels. "The key to long-term change in any society is educating its children, and JNF has pioneered one of the most effective ways to teach them about the value of water and its importance," said Lembke. Through JNF's Rainwater Harvesting Program, a program in place with partner organization Green Horizons, students in schools across Israel help capture rainwater that falls onto school buildings and into barrels, storing it and using later for irrigation of on-site flowers and gardens. "Through this they can see an immediate connection between their behavior and the marshalling of this precious resource. This type of activity will serve as a foundation stone for educating the next generation about the vital role water will play in the Middle East and especially in Israel," Lembke said.

29/12/2016 online at: http://boulderjewishnews.org/2016/colorado-water-expert-leads-mission-to-israel/