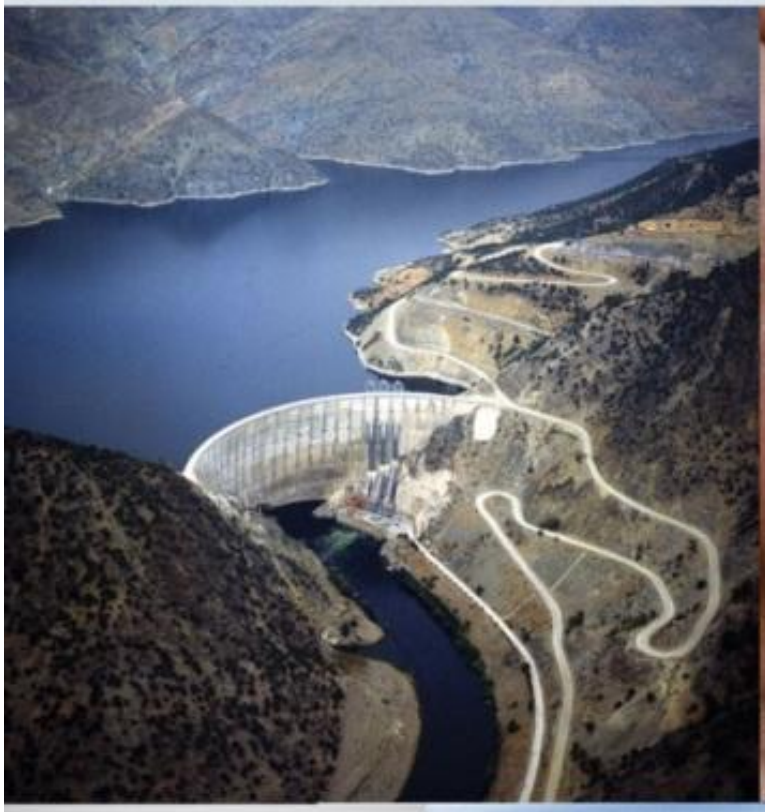


ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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





ORSAM WATER BULLETIN

16 May 2017 – 22 May 2017

Huntsville Center's Braun works to save Mosul Dam

While the Iraqi government fights to take back the city of Mosul, the most crucial battle is likely occurring more than 30 miles upstream from the northern Iraqi city's center along the Tigris River.

It's there Braun labors with fellow U.S. Army Corps of Engineers' teammates, contractors and others to prevent a dam failure of catastrophic consequences well beyond the humanitarian crisis unfolding a few miles to the south.

"I am very proud that I am able to support the project utilizing my skill set that I have developed throughout my USACE career," Braun replied via email. "It is rewarding to know that I am helping make a difference here at Mosul Dam."

Since 2005 Braun has volunteered and deployed to support recovery efforts following Hurricane Katrina, the Alabama tornado outbreak of 2011, flooding in Texas, and most recently flooding in Louisiana, according to Jeffery Davis, Huntsville Center Emergency Management Specialist and Deployment Coordinator.

Braun says it's the support he receives from family and in particular his wife that allows him to lend a hand when others need it.

"My wife has been very supportive of my carrier opportunities, and she does the most important work back home taking care of our family while I am out trying to help others," Braun said.

Braun is one of more than a dozen USACE team members designated the Mosul Dam Task Force as an element of the Army Corps' Transatlantic Division. The Iraqi government asked the U.S. to allow USACE to serve as their engineer on the project on the behalf of its Ministry of Water Resources.

When it comes to disaster recovery efforts, Davis said Braun is often selected by name.

"Chad is one of our go to guys," Davis said. "His willingness to step up and go is far beyond his normal call to duty and second to none. He is a pretty special person who is really making a difference."

The difference is between the continued life-sustaining flow of water or the sudden collapse of an earth-filled structure releasing a devastating torrent of water to all points downstream.

By USACE calculations, dam failure would produce a 39-to 50-foot wave of water that would hit Mosul, Iraq's third largest city, in less than four hours. The wave would continue south along the Tigris impacting people and places for more than two days before crashing through Baghdad at a height between 10 and 20 feet.

The potential for loss of life and property destruction was described as "Biblical" by a hydrologist and humanitarian coordinator in a January United Nations News Service release.

And USACE classifies the largest dam in Iraq and the fourth largest in the Middle East with "very high urgency."

USACE estimates a Mosul Dam failure can result in 400,000 lives lost, an economic loss of $20 billion, and create a regional stability and security crisis well beyond the manmade variety.

The dam was built in 1984 on water soluble rock that has deteriorated over time as water forced its way under the structure. As the rock absorbed water, it began to crack and collapse leaving voids inside the dam that have drastically reduced its ability to hold back an estimated 9 million acre-feet of water.

One acre-foot is approximately a football field covered in 1 foot of water. A continually weakened Mosul Dam strains to hold back the force of these 9 million water soaked football fields every day.

The urgency under which Braun and his cohorts work is not lost on them. But Braun says it's the importance of this project that makes his time and effort all the more worthwhile.

"It is rewarding to know that I play a role in repairing the dam because if the dam failed it would have an enormous negative impact on the local economy and the potential for large number of fatalities," Braun said. "The local citizens are very appreciative of the work we are doing to stabilize the dam. The work we are doing is very important to the country of Iraq."

The immediate repair solution is "grouting" on a massive scale. Workers drill holes more than 500 feet in depth into rock near voids in the dam and fill it with a grout solution of cement, water and sometimes sand to fill the holes and stabilize the dam.

Braun's role is to review and troubleshoot critical items related to the $300 million contract negotiated between the Iraqi Government and the Italian engineering company tasked with making the repairs.

"A majority of my time is spent reviewing pay estimates as this is a cost reimbursement contract and requires great attention to detail to ensure costs are allowable, allocable and reasonable for the project," Braun said.

Cost reimbursable contracts present unique challenges. The contract isn't negotiated for a fixed price but rather to "… establish an estimate of total cost for the purpose of obligating funds and establishing a ceiling that the contractor may not exceed," according to a U.S. government acquisition web site.

As the senior office/project engineer, Braun works directly with the chief of contract administration to make sure all the crucial project requirements are being executed and billed correctly on behalf of the Iraqi Government.

Army Corps efforts to support the shoring up of Mosul Dam are also taking place stateside. Nashville District's Civil Design Branch provided training seminars on innovative

Geographic Information System models to visiting engineers from Iraq's Ministry of Water Resources in March.

But the work Braun and his USACE team are doing is about more than totals on a spreadsheet. They are far from home, working seven days a week to save a structure that can either provide life or extinguish it.

It's the ability to make a difference that motivates Braun to keep raising his hand and saying "I'll go" during times of crisis.

"The reason I volunteer to deploy or assist in these types of situations is knowing that the work I am doing is making a positive impact in people's lives," Braun said. "Whether it be a team executing a recovery mission so that the affected people and communities can start to rebuild and move forward with recovery or helping stabilize a dam to help prevent potential catastrophes, at the end of the day I can look back on know that the effort I put forth helped make a difference."

19/05/2017 online at: https://www.dvidshub.net/news/234471/huntsville-centers-braun-works-save-mosul-dam

Coalition, Partnered Syrian Forces Repair Water Well

Coalition and partnered Syrian opposition forces recently repaired water well capable of producing more than 317,000 gallons of water a day in southern Syria, Combined Joint Task Force Operation Inherent Resolve officials said today.

Members of Maghawir al-Thawra work to repair water well in At Tanf Garrison in southern Syria for partner forces fighting the Islamic State of Iraq and Syria and local residents in the area. The water well is capable of supplying more than 317,000 gallons of water daily. Army photo

Members of Maghawir al-Thawra work to repair water well in At Tanf Garrison in southern Syria for partner forces fighting the Islamic State of Iraq and Syria and local residents in the area. The water well is capable of supplying more than 317,000 gallons of water daily. Army photo

Because the Islamic State of Iraq and Syria controls water wells in the region, water resources for local Bedouins and partner forces are limited. The repair of this well provides a much-needed resource for those forces opposing ISIS.

Sustainability Milestone

"The area was controlled by [ISIS] a little more than a year ago. Now, through the dedicated effort of partner forces, it has been reclaimed and serves as a base of operations to facilitate their defeat," said Army Capt. Aaron Gookins, a civil affairs team leader.

"Now that partner forces have a working well, it's another huge milestone achieved by the [partnered Syrian forces] in an effort to create sustainability for them," he added.

The well has been in disrepair since the 2011 mass exodus of civilians escaping ISIS, officials said.

After coalition civil affairs troops assessed the well, the team discovered the motor pump was beyond repair and needed to be replaced.

Confidence Boost for Syrian Partners

"When they needed to have parts made, our partners were very resourceful and resilient, using their own networks and contacts to move the project along," said Army Staff Sgt. Joshua Droppo, a civil affairs specialist. "It was really a boost of confidence for them."

Coalition and partner forces worked diligently to forge this partnership, task force officials said, noting that the well project is one of many joint ventures that are contribution to strengthening the relationship while building confidence within the vetted Syrian opposition forces.

Members of Maghawir al-Thawra work to repair a water well in At Tanf Garrison in southern Syria for partner forces fighting the Islamic State of Iraq and Syria and local residents in the area. The water well is capable of supplying more than 317,000 gallons of water daily. Army photo

Members of Maghawir al-Thawra work to repair a water well in At Tanf Garrison in southern Syria for partner forces fighting the Islamic State of Iraq and Syria and local residents in the area. The water well is capable of supplying more than 317,000 gallons of water daily. Army photo

For now, the well water will be used for hygiene and cooking until testing is complete to make sure the water is potable.

"I'm really excited to see some water come out of it," Droppo said. "I'm happy to see the project get where it is today."

The coalition and its Syrian opposition partners have seen their share of obstacles while completing the project, officials said, such as finding repair parts, locating appropriate contractors and vendors and defeating ISIS fighters during a recent attack on the garrison.

Though the coalition presence in the harsh landscape of the Hamid Desert is temporary, officials added, coalition troops and partner forces continue to build new relationships and that will contribute to the defeat of ISIS in Syria.

18/05/2017 online at: https://www.defense.gov/News/Article/Article/1186143/coalition-partnered-syrian-forces-repair-water-well/

Expert: Iran Facing Man-Made Water Crisis

Iran is facing “the worst water future of any industrialized nation” due to “bad governance and corruption,” a leading expert on water usage wrote in an op-ed published Tuesday in The Washington Post.

Seth Siegel, author of Let There Be Water: Israel's Solution for a Water-Starved World, wrote that the result of Friday's election for president of Iran matters less to the future of the Islamic Republic than its systematic overuse of water that may be leading it to "irreversible path to environmental doom and disruption that owes nothing to sanctions or years of war with its neighbors."

One of the reasons for this crisis, is the power given to Iran's Islamic Revolutionary Guard Corps (IRGC), which, through companies it owns, was given control over major engineering projects all over Iran.

The effect of this was devastating:

Recklessly, these companies began damming major rivers, changing the historical water flows of Iran. This was done to give water preferences to powerful landowners and favored ethnic communities while also transferring billions from the public treasury to IRGC leaders' accounts. In all, since the 1979 revolution, more than 600 dam projects have been completed, contrasted with 13 dams built in Iran prior to the shah's fall.

As the IRGC grew richer and more powerful, this same military force that today exerts influence in Syria, Yemen and elsewhere silenced farmers and environmentalists who protested river diversions by labeling them counter-revolutionaries, a crime punishable by harsh imprisonment. With its hands on the levers of power and its leaders' pockets being filled from government accounts for these projects, no one has been able to stop these ventures.

The results of the IRGC's foray into dam building were aggravated by farmers, who were encouraged to use water, but had no restrictions placed on them to maintain sustainability.

The water crisis in Iran is illustrated by the fate of Lake Urmia in the western part of the country. Lake Urmia, which once covered 2,000 square miles, has shrunken by 90% from 1985 to 2015. The shrinkage of Lake Urmia has contributed to other environmental problems in the region.

This has led to the loss of farmland, prompting farmers and other agricultural workers to leave the countryside for Iran's overcrowded cities.

Former Iranian agriculture minister Issa Kalantari wrote a report in 2015 predicting that in less than 25 years, 50 million Iranians would be displaced from their current homes as a result of ecological devastation. Iran's population currently is about 83 million. "Turning 60 percent of the country's citizens into internal refugees," Siegel wrote, "would be the cruelest" injustice visited upon the Iranian people by their government.

Instead of addressing the problem, the government continues to authorize "more of the same corruption-based engineering projects," that will further exacerbate Iran's growing water crisis.

The winner of Iran's presidential contest on Friday will be powerless to address this crisis, rather the "supreme leader will have to take on a system created under his less-than-supreme leadership."

In The Slow Destruction of Iran's Water Supply, which was published in the March 2017 issue of The Tower Magazine, Nik Kowsar, detailed how Iran's rulers ruined the country's water supply and described how he was ostracized and forced to flee for criticizing those policies.

17/05/2017 online at: http://www.thetower.org/4980-expert-iran-facing-man-made-water-crisis/

Israel seizes water pumps belonging to Palestinians in Jordan Valley

Israeli forces Tuesday stormed a Palestinian locale in the northern Jordan Valley and seized two water pumps, according to a local official.

Motaz Bsharat, who monitors developments in the Jordan Valley, said staff from the Israeli planning and building committee, backed by an army force, stormed Khirbet al-Dir and seized two water pumps used to draw water for drinking and irrigation.

Forces further dismantled a fence surrounding a land that belongs to a local resident to the east of nearby Tayaser even though the landowner had appealed the case at the Israeli Supreme Court, which has not yet ruled on the case.

Earlier Tuesday, Israeli forces destroyed a water hole in Bardala village, in the northern Jordan Valley, under the pretext that it was constructed without a permit.

16/05/2017 online at: http://english.wafa.ps/page.aspx?id=8gMrNva89897829615a8gMrNv

India looks to Israel for water solutions

India and Israel are negotiating an agreement that will result in closer ties between the two countries on desalination and agriculture, reports Hindustan Times.

India's foreign secretary Subrahmanyam Jaishankar is to visit Israel on 18 and 19 May 2017 to discuss the terms of an agreement that is expected to be signed by Israeli prime minister Benjamin Netanyahu, and India's prime minister Narendra Modi, in July.

Modi's upcoming visit to Israel is to mark 25 years of diplomatic ties between the two countries. Talks are expected to focus on high-end technologies that have been developed by Israelis for water and agriculture, as well as defense.

Jaishankar's discussions this week will build on a trip by Indian officials to Israel earlier in May, during which water resources secretary Amarjeet Singh, and drinking water and sanitation secretary Parameswaran Iyer, toured Israel's Sorek desalination plant.

“India is looking to set up desalination plants on the coasts of Gujarat, Maharashtra, and Tamil Nadu,” Hindustan Times quotes a senior official as saying.

17/05/2017 online at: https://www.desalination.biz/news/0/India-looks-to-Israel-for-water-solutions/8745/

Israel-PA Joint Water Committee meets after years of stagnation

Energy and Water Minister Yuval Steinitz heads meeting of panel originally set up as part of the 1993 Oslo Accords • Meeting includes review of Israeli water sector's structure, discussions on water supply, wastewater treatment and preventing pollution.

The Israeli-Palestinian Joint Water Committee met on Tuesday after several years in which its operations were suspended, Israel Hayom learned Thursday.

Energy and Water Resources Minister Yuval Steinitz and Coordinator of Government Activities in the Territories Maj. Gen. Yoav Mordechai participated in the meeting.

The Joint Water Committee was formed in 1995 as part of the implementation of the 1993 Oslo Accords, with the aim of managing water and sewage-related infrastructure in the Palestinian cities in Judea and Samaria. The committee has an equal number of Israeli and Palestinian representatives, and its framework requires all decisions be reached by consensus, meaning that each side has veto power.

Sources familiar with the issue said that the committee's work was renewed after the parties were able to reach an agreement on a new framework for its operations.

Tuesday's meeting reportedly included a review of the physical, regulatory and economic structure of the Israeli water sector, as well as a discussion on a series of issues both parties deem important, such as water supply, wastewater treatment and preventing environmental pollution.

19/05/2017 online at: http://www.israelhayom.com/site/newsletter_article.php?id=42515

US Congress members lobby Trump on Israeli-Palestinian water issues

“In your effort to build peace between Israelis and Palestinians... we urge you to prioritize the issue of water,” the lawmakers wrote Trump in an official letter.

A head of Donald Trump’s trip to Israel this week, a bipartisan group of congressmen and women called upon the president to address the critical situation of cross-border water scarcity and contamination.

In a letter written following consultations this March with regional environmental group EcoPeace Middle East, the legislators stressed the idea that “water is an issue of mutual interest” between Israelis and Palestinians and a subject that has “seen great progress in recent months.” Nonetheless, providing safe drinking water to residents of both the West Bank and the Gaza Strip and curbing sewage discharge from the latter onto the shores of Israel require immediate international intervention, the parties argued.

“In your effort to build peace between Israelis and Palestinians, and to further peace negotiations between their leadership, we urge you to prioritize the issue of water,” the letter said.

The letter, which was sent to the president last week, was drafted by Reps. Earl Blumenauer (D-Oregon), Ted Poe (R-Texas), William Keating (D-Massachusetts), Jackie Walorski (R-Indiana), Gerald Connolly (D-Virginia), Tom Marino (R-Pennsylvania), Grace Meng (D-New York), Blake Farenthold (R-Texas), John Conyers Jr. (D-Michigan) and Dave Reichert (R-Washington).

“Any US strategy for Middle East peace must deal with water insecurity in Gaza and the West Bank,” Blumenauer said. “We can all agree that addressing the current water crisis is a key component of regional stability.”

Highlighting some of the recent advances made in the sector, the legislators wrote about how Israel recently agreed to double water sales to Gaza, while Israeli and Palestinian water authorities have consented to a framework for developing West Bank water infrastructure and services.

“Further, Israel’s global leadership in sea water desalination has the potential to bridge gaps with its many water-insecure neighbors and build diplomatic bonds with strategic allies in the Gulf region and beyond,” they wrote. “Additionally, progress on water is critical to the health and security of Israel.”

Currently, however, poor infrastructure and political stability are hindering the Gaza Strip in particular from developing a functional water and sanitation industry, they explained. Only 10% of the population in that territory has access to safe drinking water and all of Gaza’s groundwater is expected to be undrinkable within about a year, they wrote. In the West Bank, meanwhile, water access remains as low as 25-30 liters per person per day, as opposed to the US average of 375 liters per person per day, they said.

“Given that the sewage discharged from Gaza to the Mediterranean often ends up on Israeli shores, poor availability of water and sewage treatment services poses health and environmental risks to Israelis,” the lawmakers added.

Crediting National Infrastructure, Energy and Water Minister Yuval Steinitz for recognizing these pressing threats, the congressmen and women described how the minister has requested urgent action from the international community, as has Coordinator of Government Activities in the Territories unit head Maj.-Gen. Yoav Mordechai.

Most recently, Mordechai wrote to international organizations and United Nations Middle East envoy Nickolay Mladenov, calling their attention to “the impending humanitarian crisis in the Gaza Strip,” they said.

“The security and health of the people of Israel and the safe access to water and sanitation services for all people are both major priorities for the United States and the American people,” the legislators added.

“As you work on issues related to Middle East peace, we urge you to make water a focal point of your conversations.”

Welcoming their efforts, Gidon Bromberg, Israeli director of Eco- Peace Middle East, said that their letter “shows clear bipartisan support and understanding that solving the water crisis represents the low-hanging fruit of the peace process.”

This appeal, Bromberg added, “calls on the president to seize the opportunity to improve people’s lives through more water in every household and less sewage in every stream.”

21/05/2017 online at: http://www.jpost.com/Israel-News/Politics-And-Diplomacy/US-Congress-members-lobby-Trump-on-Israeli-Palestinian-water-issues-492362

Red-Dead project 'everlasting solution' to water shortages in Jordan

Unconventional water sources are the Kingdom’s long-term solution to its water dilemma, government officials said on Wednesday, indicating that increasing demand on water has exhausted surface and underground water sources.

Now that the Ministry of Water and Irrigation has utilized all available methods to meet the increasing demand for water, estimated at 21 per cent annually, it is now exploring seawater desalination and digging out water from deep aquifers, the officials indicated.

In addition to exploring “unconventional water resources”, the ministry is pressing ahead with its campaign to end violations on water networks and resources, ministry spokesperson Omar Salameh said, noting that retrieving lost water is equal to finding a new source of water, given the volume of water lost in violations on the network and resources.

Considering the project as the “cornerstone of all efforts to solve Jordan’s water scarcity”, the ministry sees the Red Sea-Dead Sea Water Conveyance Project (Red-Dead) as its everlasting solution to a shortage of water in Jordan.

Under the first phase, a total of 300 million cubic meters (mcm) of water will be pumped each year. In its following phases, the Red-Dead project will see up to 2 billion cubic meters of seawater transferred from the Red Sea to the Dead Sea annually, according to the ministry.

The Red-Dead project’s main components are a seawater intake structure; an intake pump station; a seawater pipeline; a desalination plant with a capacity of 65-85mcm per year; a desalination brine conveyance pipeline; two lifting pump stations; hydropower plants; and discharge facilities at the Dead Sea.

The seawater will be pumped out from an intake located in the north of the Gulf of Aqaba.

Authorities have already shortlisted five consortiums out of 17 that have shown interest in implementing the first stage, on a build, operate and transfer basis.

Saad Abu Hammour, Jordan Valley Authority secretary general and head of the project’s national steering committee, indicated that the project’s request for proposal (RFP) has been prepared and finalized.

The RFP will be distributed to the five shortlisted consortiums before the end of this month, Abu Hammour noted.

“Construction on the project’s first phase will commence before the end of the first half of next year,” he told The Jordan Times.

In addition to providing much needed water to Jordan, Palestine and Israel, the project has an ecological dimension as it seeks to stop the continuous diminishing of the Dead Sea, whose water level drops one meter each year, according to the ministry.

Another major scheme the ministry is now working on is Amman-Shidiyeh-Hassa Water Conveyance Project, according to Salameh, who noted that the project entails extracting water from very deep wells, located in the south between the Shidiyeh, Hassa and Qatraneh areas.

“The ministry has recently finalized the digging of exploration wells for the Amman-Shidiyeh-Hassa Water Conveyance Project,” Salameh told The Jordan Times.

Shidiyeh and Hassa are located in Tafileh Governorate, some 180km southwest of Amman, while Qatraneh is located in Karak Governorate, 140km south of the capital.

The project’s 10 exploration wells cost $500,000 each, according to the ministry, which announced recently that the project’s first phase’s tender will be floated this year, while the second phase’s tender will be floated in 2018.

The first phase will generate 20mcm of water, while the second phase will generate 50mcm, according to the ministry.

It seeks to supply the central region with water, the ministry said, indicating that the project’s two phases will cost $350 million.

In light of Jordan’s hosting of over 1.4 million Syrian refugees, demand for water has increased, especially in the north, where water per capita share has dropped by half since Syrian refugees began arriving in the country, according to the ministry.

As the water per capita share in the northern governorates of Jerash, Ajloun, Irbid and Mafraq has always been below the national average and has only exacerbated with the north hosting most of the Syrian refugees, the ministry announced last year a strategy to improve water supply in the north.

The 2016-2025 National Water Strategy indicates that the per capita share dropped from 147 cubic meters per year to 123 cubic meters per year since the start of the Syrian crisis.

“By the end of June, a total of 500 cubic meters of water per hour will start to reach the northern governorates via the National Water Carrier Project, designed to transfer 10mcm of water to the north annually to address the water shortage as part of the Disi Water Conveyance Project,” Salameh noted.

The Disi project conveys 100mcm annually from the ancient Disi aquifer in southern Jordan to the capital via a 325-kilometre pipeline. The project started pumping water to Amman in 2013.

“The national water carrier project is a mid-term solution to the country’s water crisis, but the desalination of Red Sea water under the Red-Dead project is the country’s long-term solution to water scarcity,” he underscored.

The revamping of wells across the country, particularly in the badia, is also ongoing, according to Salameh, who underscored that widening the coverage of wastewater services to link new areas to the sewage network also tops the ministry’s agenda.

“The ministry will have spent 1.3 billion dollars on water and wastewater projects between the year 2015 and the end of this year,” Salameh underscored.

He noted that the ministry this week launched implementation of the Wadi Al Arab Water Conveyance Project and a project to connect Hofa Reservoir to Beit Ras in Irbid, at a joint cost of around $133 million.

Wadi Al Arab Water Conveyance Project will secure the needs of the northern governorates’ residents, with a capacity of 30mcm. The $110-million-project will pump water from the King Abdullah Canal via a socket at a capacity of 45mcm, a water treatment station, in addition to four pumping stations and a main conveyor to move treated water to Irbid.

With the water sector consuming over 15 per cent of the country’s total power production, the ministry seeks to reduce the sector’s reliance on conventional energy sources. It announced last month that five of its main water pumping stations will operate on solar power by next year to reduce the water sector’s energy consumption.

Solar power plants will be built at the site of five major pumping stations, officials said, indicating that installation of the solar plants will be funded by a grant worth 30 million Euros from the European Union.

The ministry is also tapping the potential of hydropower generation, according to its officials, who noted that hydropower is already being generated at a number of its projects.

17/05/2017 online at:

https://www.zawya.com/mena/en/story/RedDead_project_everlasting_solution_to_water_shortages_in_Jordan-ZAWYA20170518041647/

Saudi Arabia Builds Largest Strategic Water Reservoir in Mecca

Abdulrahman Al-Fadhli, Saudi minister of environment, Water and Agriculture and chairman of the Saline Water Conversion Corp (SWCC) board of directors, signed a deal to construct strategic dams in al-Sharaee in Mecca and al-Hada in al-Taif.

The project aims to build 17 dams, each with a 170,000-cubic meter capacity. The total reserve of those dams will reach 2.9 million cubic meters of desalinated water. The agreement

was signed on Thursday in the attendance of Engineer Ali Al Hazmy, SWCC's governor, and many officials.

Fadhli thanked the Custodian of the Two Holy Mosques King Salman bin Abdulaziz for his efforts in enhancing the role of SWCC by signing this contract, which will contribute in raising the reserve of desalinated water in Mecca and the holy sites that host millions of pilgrims all year long.

The minister said this project will serve the holy regions by increasing the strategic reserve in Mecca, the holy sites and Taif, due to their importance in the Islamic world. The government dedicated all of its efforts and was keen to secure the pilgrims' comfort in line with the Saudi Vision 2030 regarding the sustainability of water services in this region.

Hazmy highlighted that this project is considered the biggest strategic reservoir in Mecca and that it will serve the city and the holy sites.

He added that the project also includes nine strategic dams in al-Hada in Taif, each with a 170,000-cubic meter capacity and a total reserve of 1.53 million cubic meters of desalinated water. This reserve is considered the largest in the Taif region and will meet the needs of its surrounding areas.

19/05/2017 online at: http://english.aawsat.com/theaawsat/business/saudi-arabia-builds-largest-strategic-water-reservoir-mecca

India plans to block 1m acre-feet water supply to Pakistan: Indian media

Indian politicians decided that about 1.5 million acre-feet water of River Ravi, flowing into Pakistan, will be blocked and used by India instead, according to Indian media.

The meeting, which was chaired by Union Home Minister Rajnath Singh, also decided that the water flowing into Pakistan will be equally shared by Jammu and Kashmir and Indian Punjab.

For this purpose, dams will be built on the border of Jammu and Punjab. Then, through barrages and canals the water will be diverted to India, which will use it for agriculture instead.

Politicians decided to share burden of Jammu and Kashmir by constructing barrage and remaining part of Ranjit Sagar dam project.

Moreover, India also plans to generate about 180 Megawatts power, it was reported.

18/05/2017 online at: https://www.geo.tv/latest/142260-India-plans-to-block-1m-acre-feet-water-supply-to-Pakistan-Indian-media

Heavy metal contamination in water bodies in Pakistan

Pakistan over the past few years, particularly to assess the heavy metal contamination in water (ground water, surface water, and waste water). Trace heavy metals, such as arsenic,

cadmium, lead, chromium, nickel, and mercury, are important environmental pollutants, particularly in areas with high anthropogenic pressure.

The presence of trace heavy metals in the water can cause serious problems to all organisms, Renal failure is related to contaminant drinking water with lead and cadmium, liver cirrhosis to copper and molybdenum, hair loss to nickel and chromium, and chronic anemia to copper and cadmium. The ultimate source of the body trace elements is generally rocks.

The concentration of trace elements in rocks is varying by rock type. Sometimes, they become concentrated in soil, water, or in air taken up by plants and ingested by humans or animals. Pure water does not exist in nature. The contamination of water is directly related to the degree of contamination of our environment.

Rainwater collects impurities while passing through the air. Streams and rivers collect impurities from surface run off and through the discharge of sewage and industrial effluents; these are carried to the rivers, lakes or reservoirs that supply our drinking water. All of the chemicals generated by man will eventually end up in our water supplies. These dangerous products from industry, agriculture and other human activities enter the rivers, lakes, and underground water, and can contaminate our drinking water.

Studies of these diseases suggest that abnormal incidence in specific areas is related to industrial wastes and agriculture activities that have released hazardous and toxic materials in the groundwater and thereby led to the contamination of drinking water in these areas and the ubiquitous bio-availability of these heavy metal can result in bioaccumulation in the food chain which especially can be highly dangerous to human health.

Heavy metals have become of particular interest in recent decades within the framework of environmental investigation. This has without doubt been due to the fact that highly sensitive analytical procedures are available for determining and detecting metal content with high precision. Environmental challenges of Pakistan are primarily associated with an imbalanced economic and social development in recent decades.

All major cities of Pakistan face haphazard, unplanned expansion due to a shift of population from rural to urban areas which worsen the situation to cope up with this challenge. Since the municipal authorities or other utility service providers have limited resources, haphazard urban congestion is the prime reason for deterioration of natural resources (air, water, and soil quality). Access to clean drinking water is limited in developing countries and people may, therefore, consume contaminated water.

In Azad Jammu and Kashmir (AJ&K), more than 80% of all illnesses have been attributed to the consumption of poor quality water. It is estimated that water related diseases cause an annual national income loss of Rs. 25–58 billion and over 250,000 children in Pakistan die every year due to diarrheal diseases alone and 20–40% of the hospital beds in Pakistan are occupied by patients suffering from water-related diseases, which are responsible for one-third of all deaths. Only 25.61% (rural 23.5% and 30% urban) of the population in Pakistan have access to safe and drinkable water.

In Pakistan, main contributors to the surface and ground water pollution are the byproducts of various industries such as textile, metal, dying chemicals, fertilizers, pesticides, cement, petrochemical, energy and power, leather, sugar processing, construction, steel, engineering, food processing, mining, and others.

The discharge of industrial effluents, municipal sewage, farm, and urban wastes carried by drains and canals to rivers worsens and broadens water pollution. Lead enters the human body in many ways. It can be inhaled in dust from lead paints, or waste gases from leaded gasoline. It is found in trace amounts in various foods, notably fish, which are heavily subject to industrial pollution. Some old homes may have lead water pipes, which can then contaminate drinking water. Most of the lead we take in is removed from our bodies in urine; however, there is still risk of buildup, particularly in children.

Exposure to lead is cumulative over time. High concentrations of lead in the body can cause death or permanent damage to the central nervous system, the brain, and kidneys. This damage commonly results in behavior and learning problems (such as hyperactivity), memory and concentration problems, high blood pressure, hearing problems, headaches, slowed growth, reproductive problems in men and women, digestive problems, muscle and joint pain. Studies on lead are numerous because of its hazardous effects.

19/05/2017 online at: http://pakobserver.net/heavy-metal-contamination-water-bodies-pakistan/

Centre assures Sindh of funds for Karachi water scheme

The federal government has assured the Sindh government that it will allocate required funds for the K-IV project in budget 2017/18, and two or three projects of the province will be added to the development programme.

“In the meeting of the National Economic Council, I have showed my reservations regarding the next year budgetary allocation of the province, but I was assured that the grievances of the province will be removed,” said Sindh Chief Minister Murad Ali Shah, while talking to media persons after holding meeting with Federal Minister for Water and Power Khwaja Muhammad Asif here on Friday.

Shah said that the federal government has assured us that provincial projects will be included in the PSDP and it also gave surety that funds already allocated for the Sindh projects will be released.

The Sindh government wants to complete this project by end of February next year as to solve the issue of water availability to Karachi. This Rs25 billion project is the biggest water supply project jointly financed by the province and federal government. It intends to provide 650 million gallons of water to Karachi. The main source of water for this project will be Keenjhar Lake in Thatta, Sindh.

For this Karachi Bulk Water Supply Scheme, the federal government has allocated one billion rupees in fiscal year 2016/17, but less than half of this amount has been released. If the

government allocates Rs6.5 billion in upcoming budget, it will be completion of the center's share in this project. He said that Manchar Lake is the largest freshwater lake of Pakistan is fast polluting, and we are going to construct a new canal to keep it clean. Murad Ali Shah said that the province was also given surety that the pace of work on electricity projects in the province will be fast tracked.

He said that the Sindh has retired its electricity arrears to the center, and has also received the certificate from the federal government. But, unfortunately, in interior Sindh there is pathetic situation of power outages. As holy month of Ramazan is round the corner, so the government should bring control over this issue.

20/05/2017 online at: https://www.thenews.com.pk/print/205520-Centre-assures-Sindh-of-funds-for-Karachi-water-scheme