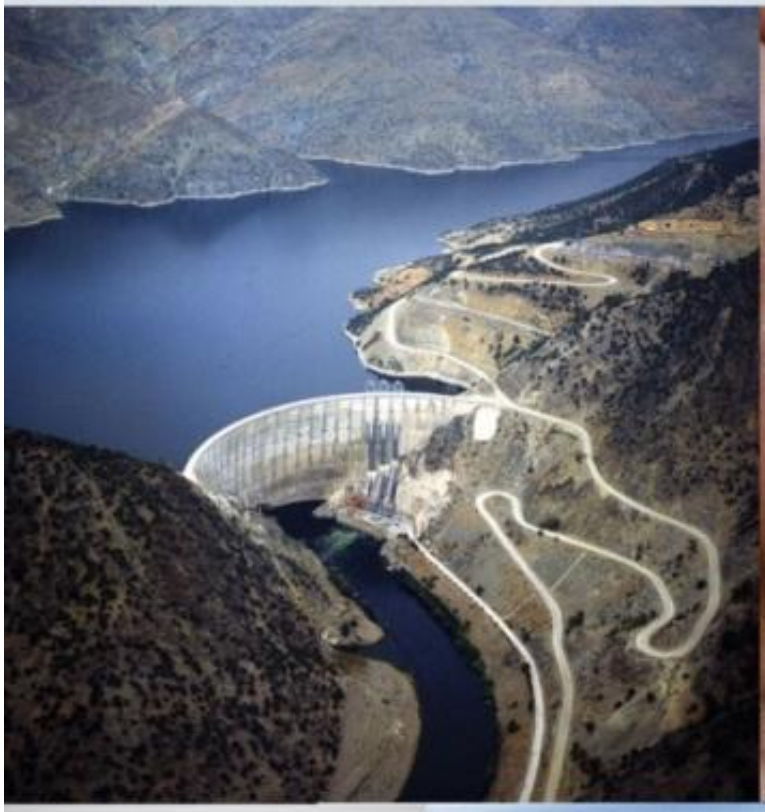


ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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





Rescue Archeology Begins on Water Pipeline Route

Efforts have begun to save objects of historical importance likely lying on the path of a major project to transfer water from the Persian Gulf in southern Iran to Kerman and Yazd provinces.

According to Mahboubeh Nasser Tehrani, who is leading rescue archeology efforts in Kerman, teams will study large areas around the pipeline, ISNA reported.

The project is aimed at meeting the ever-increasing demand of water-intensive industries, such as steel plants, while supporters claim it is meant to address the widespread drought in the two provinces.

According to officials at the Research Institute of the Cultural Heritage and Tourism, which is affiliated with Iran's Cultural Heritage, Handicrafts and Tourism Organization, work on the controversial scheme was started before the approval of ICHHTO.

Economists have openly challenged former and present decision-makers and governments for building huge steel plants far away from the seas and believe the mills will have to close down simply because they are water intensive and economically unsustainable.

"If [the contractors] had included archeological assessment studies in their proposal and acquired the necessary permits, we wouldn't need to be doing this now," Tehrani said. "However, it is now very likely that we'll discover damaged artifacts in regions where the pipeline has already been laid."

The project, which aims to transfer water from the Persian Gulf through Hormozgan Province to Kerman and Yazd, is a 750-km pipeline to be laid in a tunnel 30 meters wide. The project is funded by the Persian Gulf Water Supply Company.

According to law, large-scale construction projects must receive the approval of ICHHTO to protect historical sites and, if necessary, conduct rescue archeology, which is the collection of archeological data and materials from a site in danger of imminent destruction.

"Development is inevitable but we cannot ignore its impact on historical and cultural heritage," Tehrani said.

12/08/2017 online at: https://financialtribune.com/articles/people-travel/70088/rescue-archeology-begins-on-water-pipeline-route

Israel opens 13 km. Pipeline to alleviate West Bank water shortage

Water flowed for the first time through a new 13-km. pipeline in the Samaria region of the West Bank, inaugurated on Monday. It was put into place to alleviate water shortages in the settlements of Peduel, Alei-Zahav and Bruchin and in the surrounding Palestinian villages in Area C.

“The importance of laying this pipeline today can’t be overestimated,” Samaria Regional Council head Yossi Dagan said, who inaugurated its opening with Infrastructure Minister Yuval Steinitz.

It will provide an additional 2,500 to 3,000 cu.m. of water daily, said Dagan. Unfortunately, he added, “it only solves 25% of the problem.”

There are still three water lines that need to be completed and portions of the project have not yet received final approvals, Dagan said.

Benny Elbaz of the Civil Administration said that an additional 7,500 cu.m. would be available next year when another section of the pipeline will be laid near the Ofarim settlement.

Water shortages chronically plague both Israelis and Palestinians in the West Bank, where the infrastructure cannot keep pace with the demands of the growing population and the agricultural needs of the area.

The pipeline project, which began last year, has already increased water supplies by 5,000 cu.m. in the region, and is expected to also increase supply for Palestinians in the West Bank.

Part of the delay in renovating the outdated pipes was the inactivity of the Israeli-Palestinian Joint Water Committee, whose work was frozen for six years and which was only reactivated in January of this year.

The Water Authority and setters have also charged that Palestinian theft of water has depleted supplies.

Steinitz said he has approved a master plan that would solve the water shortages for both Israelis and Palestinians, who have now relied on water tankers to get them through the summer months.

14/08/2017 online at: http://www.jpost.com/Israel-News/New-13-km-water-pipeline-opens-in-Samaria-to-alleviate-water-shortage-502419

Palestine’s water crisis: 50 years of injustice

As temperatures soar in the Palestinian territories, thousands of Palestinian families suffer from severe water shortages -- while Israelis living in nearby Jewish settlements enjoy abundant amounts of water.

According to official Palestinian figures, Israeli settlers in the West Bank consume 10 times more water on average than the territory’s Palestinian residents.

“Currently, West Bank Palestinians consume around 70 liters of water per capita per day,” Abdel-Rahman Tamimi, who runs the Palestinian Hydrology Group, told Anadolu Agency.

“In Israel, meanwhile, daily per capita water consumption stands at some 300 liters, while [Israeli] settlers in the West Bank consume as much as 800 liters per day,” he said.

According to the World Health Organization, people require a minimum daily water allotment of between 100 and 120 liters to maintain the most basic standard of living.

While the Palestinian population has doubled since the signing of the Oslo Accords in 1993, the amount of water available in the West Bank -- roughly 110 million cubic meters of water per year -- still remains at 1995 levels, experts say.

“According to the accords,” Tamimi said, “the Palestinians’ water quota should have reached 200 million cubic meters by the year 2000.”

Israel, he added, “has not only failed to implement the second phase of the agreement, but reduced the amount of water supplied to the Palestinians by some 10 percent”.

The water shortage is most acute in Area C of the West Bank, which, under the terms of the Oslo Accords, covers some 60 percent of the territory.

In Area C, more than 150,000 Palestinians live in over 540 communities, 200 of which continue to suffer from a severe shortage of clean water.

“Some 100,000 Palestinians in Area C live in communities that aren’t connected to the water network,” Tamimi explained.

“These communities have to buy their water from trucks because Israel refuses to allow them to link up to the water grid,” he added.

According to the Palestinian Statistical Bureau, each cubic meter of water delivered by truck costs about $0.25 -- roughly four times the price charged by the Palestinian Water Authority.

“This is a major financial burden on Palestinian families, especially in light of the already-difficult economic situation,” Tamimi said.

'Life stops'

Mohamed Abu Haram, 56, from Arab al-Ramdin, a Bedouin community near the southern West Bank city of Hebron (Al-Khalil), told Anadolu Agency that he needs at least 80 cubic meters of water each week during summer.

“I have a family of eight and more than 150 head of cattle,” he said. “We therefore need lots of water.”

“We are Bedouin communities; we rely on dairy products produced by our livestock,” he said. “Without water, life stops.”

Inhabited by some 6,500 Palestinians, Arab al-Ramdin is located about 30 kilometers from Hebron -- an area that has long been the target of Israeli settlement expansion.

According to the head of Arab al-Ramdin’s local council, Ahmad Zagharneh, most of the community’s population depends on livestock and agriculture -- both of which have been badly impacted by water scarcity.

“The village isn’t linked to the water network provided by the Palestinian Local Government Ministry, but to the Israeli water network,” Zagharneh told Anadolu Agency.

“The Israeli network has provided the village with water since 1998, but in insufficient quantities that only last a few days,” he lamented.

According to Zagharneh, villagers are therefore frequently forced to buy extra water -- at high prices -- in order to fill their wells.

“For more than 30 years, my people have had to shoulder this extra financial burden due to the unjust policies of Israel’s occupation,” he said.

Speaking to Anadolu Agency, Jamal Juma, a Palestinian expert on Israeli settlements, said: “The settlements are a means of controlling not only what is above ground -- but also what’s beneath it.”

“Israel forbids Palestinians to drill for underground water in Hebron; nor does it allow them to link up to the water network,” he said.

“Israel wants to expel them from their homes to take over their land,” he added. “And the best way to achieve this is to deprive them of water.”

11/08/2017 online at: http://aa.com.tr/en/middle-east/palestine-s-water-crisis-50-years-of-injustice/882105

Jordan starts work to increase Waleh Dam's storage capacity

Raising the walls of Madaba Governorate’s Waleh Dam began on Wednesday, under a project aimed at restoring the original environmental state of the Waleh Valley, officials said on Wednesday.

The construction of the project officially began under an agreement signed on Wednesday between Minister of Water and Irrigation Hazim El Naser and Minister of Environment Yaseen Khayyat, , according to officials.

The project aims at raising the walls of the dam to prevent it from overflowing almost every winter after it reaches its full capacity, Water Ministry’s Spokesperson Omar Salameh said, indicating that the project carries significant environmental and tourist dimensions as well.

“The storage capacity of the dam will increase, allowing it to collect more rainwater, which implies better recharging of aquifers. In addition, the project seeks to increase the flow of the stream in the Waleh Valley and therefore support tourism development in the area,” Salameh told The Jordan Times.

He underscored that the Cabinet approved the project’s studies in January, highlighting that the construction work is scheduled to be completed in two years.

Figures from the Water Ministry indicate that the project will raise the storage capacity of the dam from the current 9.6 million cubic meters (mcm) to 26.3mcm.

The walls of the Waleh Dam will be raised by 15 meters to allow the storage of additional rainwater, according to the ministry, which indicated in a previous statement that millions of cubic meters of water are wasted in uncollected runoff almost every winter when the dam reaches its full capacity and then overflows.

Raising the walls of the dam will cost JD27.5 million, according to El Naser, who said that the project is implemented under the Badia Rehabilitation Programme, which is funded by the environmental compensation granted to Jordan by the United Nations Compensation Committee (UNCC).

In 2005, the UNCC granted Jordan $160.5 million in compensation for damage incurred by the Kingdom's water, environment, wildlife, marine life and agriculture sectors in the aftermath of the first Gulf War, in addition to $1.4 million to tackle the salinity of the country's underground water basins.

The funds are being used to support projects that focus on rehabilitating the badia's ecosystem to its former status, and tackling the negative consequences of random grazing and wildlife deterioration.

The ministry said that the additional water that will be stored at the dam will be used to provide Madaba Governorate, 30km southwest of Amman, with more drinking water.

Construction of the dam, located in Madaba, began in 1999, at a cost of JD24 million, 80 per cent of which was funded by a loan from the Arab Fund for Economic and Social Development, while the remainder was paid for by the Treasury. It became operational in 2002.

El Naser said in a statement e-mailed to The Jordan Times that the ministries of water and irrigation and environment work together to develop the area's tourism and economy, indicating that they will also support "a pioneering agricultural project to grow irrigated fodder in the Waleh Valley".

10/08/2017 online at:

https://www.zawya.com/mena/en/story/Jordan_starts_work_to_increase_Waleh_Dams_storage_capacity-ZAWYA20170810045032/

Japan extends $12.6m to support Jordan's water sector

Jordan and Japan Monday signed an agreement under which Tokyo will extend a $12.6 million grant to Jordan to finance the second phase of the Project for Rehabilitation and Expansion of the Water Networks in Balqa Governorate.

The agreement was signed by Minister of Planning and International Cooperation, Imad Fakhoury, Ambassador of Japan to Jordan, Shuichi Sakurai, Chief Representative of the Japan International Cooperation Agency (JICA) Office in Amman Tsutoma Kobayashi in the presence of Minister of Water and Irrigation Hazim El Nasser and officials from both sides.

In a statement following the signing of the agreement, Fakhoury said the aid grant comes as a continuation of the Balqa project of which the first stage was completed by JICA at the end of 2014 at the cost of $ 20 million.

The minister expressed appreciation of the Japanese government for its continued support to Jordan, as well as its understanding of the socio-economic challenges Jordan faces as a result of hosting around 1.4 Syrian refugees.

He said the grant would contribute to enhancing and government services in priority sectors of refugee-hosting communities.

Fakhoury spoke about the well-established Jordanian-Japanese relations and their serious seeking to deepening ties through developing cooperation mechanisms in various fields and at different political and socio-economic levels.

For his part, Japan's envoy in Jordan stressed his country's commitment to providing different financial and technical aid programs to Jordan in different domains of mutual interest.

He added that such programs would contribute to developing bilateral ties, noting that his country contribute to efforts made in different Jordanian spheres.

14/08/2017 online at:

http://petra.gov.jo/Public_News/Nws_NewsDetails.aspx?Site_Id=1&lang=2&NewsID=313918&CatID=13&Type=Home&GType=1

Saudi Campaign Continues Providing Safe Drinking Water for Displaced Syrians

Displaced Syrian children stand in muddy water in the Bab Al-Salama camp for people fleeing the violence in Syria on December 11, 2014, on the border with Turkey, AFP

The Saudi National Campaign for Supporting Brothers in Syria announced on Wednesday continuing its efforts in providing safe drinking water for displaced Syrians on the Syrian-Turkish borders, said the Saudi official news agency (SPA).

Points of distribution of water supplies are found five per-established stations equipped with latest filtration equipment. The campaign has been also been attested to uphold high quality standards.

The key objective of the campaign, launched 45 weeks ago, is that Syrians have accesses clean water.

The Director of the Campaign’s Office in Turkey Khalid Al-Salama said the Campaign aims to produce 20,000 cubic meters of pure water per hour from five water purification stations inside Syria benefiting at least 45,000 displaced Syrians.

Contaminated water is could result in many diseases and death. It is well-known that most water supplies demand some type of treatment before use, even water from deep wells or springs. The extent of treatment depends on the source of the water.

09/08/2017 online at: https://english.aawsat.com/asharq-al-awsat-english/news-middle-east/saudi-campaign-continues-providing-safe-drinking-water-displaced-syrians

Kuwait signs USD half million deal for water project in Yemen

The "Kuwait by Your Side" campaign on Friday signed a USD 500,000 agreement to carry out the first phase of a project for the treatment of a water supply system in the southern Yemeni governorate of Shabwah.

The project focuses on Al-Shubaika water supply plant which provides water and sanitation to the governorate's centre and surrounding areas, read a statement by the Kuwait-Yemeni relief organization, which is funding the deal.

Its first phase will aim to treat four water wells at the plant within a two-week deadline, added the Kuwaiti state-funded relief body which includes several associations aiming to deliver aid to the Yemeni people.

Meanwhile, Yemeni officials at the governorate extolled Kuwait's firm stance in support of Yemen amid various circumstances and periods, according to the statement,

For his part, the Governor of Shabwah expressed his gratitude for Kuwait's continued support across different fields, mainly in development and relief.

This reflects the depth of relations and cooperation between the two countries and their peoples, said the official.

Meanwhile, representative of the Kuwaiti-Yemeni relief organization Tareq Raji Lakman said the project's second phase aims to install equipment and operate water pumping units.

As a whole, the Kuwaiti-funded campaign is pursuing urgent relief work in Yemen across the sectors of food, water, education and healthcare.

11/08/2017 online at: http://www.kuna.net.kw/ArticleDetails.aspx?id=2629045&language=en

PM directs to fast-track water storage projects

Prime Minister Shahid Khaqan Abbasi on Tuesday directed the Water Resource Division to plan water storage projects on fast-track while reiterating commitment of the government to end load shedding of electricity and strive for a bright future of Pakistan.

Chairing a meeting on energy sector here at the PM Office, he said that there was no room for non-optimal solution in the energy framework. The prime minister also directed the Power and Petroleum Divisions to formulate roadmap to reduce usage of thermal power sources and asked them to focus on natural gas and domestic coal for energy production.

“Our government is striving to achieve a balanced mix for the country’s energy requirements. Maximum utilization of the Thar coal reserves should be ensured to provide affordable energy for consumers,” he said. The meeting was attended by State Minister for Power Abid Sher Ali, State Minister for Petroleum Jam Kamal and senior officials.

The Power Division and the Petroleum Division secretaries briefed the prime minister on energy sector projects and load management plan. Elaborating the rationale of distribution of work among the ministries, Prime Minister Abbasi said that water security was an important concern for the government and people.

WATER RESOURCES MINISTRY: He said that a dedicated ministry for water resources was required to handle these issues and to cater for improved management of water resources, a separate ministry was essential. Regarding the creation of the new Ministry of Energy, the prime minister stated that it was necessary to remove firewall between the Petroleum and Power sectors which were otherwise linked for a common objective of energy security in the country.

KASHMIR ISSUE: Talking to Azad Jammu Kashmir President Masood Khan, who called on him at the PM Office, Prime Minister Abbasi said that the international community should play its due role in asking India to immediately end human rights violations in the Indian-held Kashmir (IHK).

He reiterated Pakistan's resolve to extend moral, political and diplomatic support to the just struggle of Kashmiri people for their right to self-determination. Matters of political significance and ongoing development initiatives in Azad Kashmir were discussed during the meeting.

President Masood apprised Prime Minister Abbasi of his recent foreign visits wherein he highlighted the grave human rights violations by Indian forces in the disputed state. He briefed the prime minister about his interaction with the European lawmakers.

Abbasi appreciated the role of the Kashmiri president and said that India could not resolve the Kashmir issue by the state terrorism being practiced by its forces that were silencing the voices of the innocent and unarmed civilians who were demanding freedom and the right to self-determination.

09/08/2017 online at: https://www.pakistantoday.com.pk/2017/08/09/pm-directs-to-fast-track-water-storage-projects/

Positive attitude raises hopes for resolution of Pakistan-India water dispute

A constructive engagement between Pakistan and India during the recently held water talks in Washington has raised hopes for an amicable resolution of this dispute, according to diplomatic sources.

The World Bank, which hosted the talks at its headquarters two weeks ago, also noticed this positive change and mentioned it in a press release on Aug 1, noting that the "meetings … were held in a spirit of goodwill and cooperation".

Islamabad and New Delhi disagree over construction of the Kishenganga (330MW) and Ratle (850MW) hydroelectric power plants being built by India. (The World Bank is not financing

either project). Islamabad contends that the technical design features of the two plants contravene the Indus Waters Treaty.

The plants are on a tributary of the Jhelum and Chenab rivers, respectively.

An international expert, who closely monitors the Pakistan-India water talks, told Dawn this was the first time in many years that delegates “held a constructive discussion, instead of merely stating their official positions”.

The expert said in previous talks “sometimes the two sides did not even exchange formal greetings”.

They would “just read the statements they brought with them and leave, but this time it was different,” he added.

Both sides have now returned to their capitals to consult their governments on the ideas discussed at Washington. The negotiation concluded at the World Bank headquarters on Aug 1.

The Indus Waters Treaty was signed in 1960 after nine years of negotiations between Pakistan and India with the help of the World Bank, which is a signatory. Seen as one of the most successful international treaties, it has survived frequent tensions, including conflict, and has provided a framework for irrigation and hydropower development for more than half a century.

Former US president Dwight Eisenhower described it as “one bright spot ... in a very depressing world picture that we see so often”.

But recent tensions also affected the water talks as India expressed its intention to use water as a tool to influence Islamabad’s Kashmir policy. Islamabad rejected New Delhi’s charge of supporting militants, but vowed to continue supporting the Kashmiri movement for self-determination.

That’s why the spirit of cooperation displayed during the last meeting was welcomed in Washington. Careful not to hurt this rare opportunity for a positive engagement between the two neighbors, the World Bank decided not to publicise the talks.

However, it did issue a brief statement on Aug 1, announcing that the talks had ended and the two sides had agreed to meet again next month.

The bank also issued a fact-sheet with the statement, giving a brief description of the dispute and the efforts it had made to resolve it.

One paragraph stated that under the Indus Waters Treaty, “among other uses, India is permitted to construct hydroelectric power facilities on these rivers subject to constraints specified in annexure to the treaty”.

This paragraph was interpreted by the Indian media as an endorsement of New Delhi’s position, causing the World Bank to issue a clarification.

“The 1960 Indus Waters Treaty does not bar India from constructing hydroelectric power projects on tributaries of the Jhelum and Chenab rivers with certain restrictions, the World Bank says in its fact sheet on the treaty,” the Indian media reported.

The bank, however, rejected this conclusion as “erroneous” and reminded all parties that “discussions between India and Pakistan about the Kishenganga and Ratle hydroelectric power plants are ongoing”.

A reference in the Pakistani media to former US secretary of state John Kerry’s call to Finance Minister Ishaq Dar in January also caused some unease as the Indian side apparently believed that Pakistan was trying to create an impression that the United States was playing a mediatory role, which it was not.

The disagreement

The treaty designates the Jhelum and Chenab Rivers as well as the Indus as “western rivers”, to which Pakistan has unrestricted use. Among other uses, the agreement permits India to construct hydroelectric power facilities on these rivers subject to constraints specified in annexure to the treaty.

Pakistan asked the World Bank to facilitate the setting up of a “court of arbitration” to look into its concerns about designs of the Kishenganga and Ratle projects. India asked for the appointment of a neutral expert for the same purpose. These requests came after the Permanent Indus Commission, which is part of the treaty’s resolution mechanism, failed to resolve the dispute.

10/08/2017 online at: https://www.dawn.com/news/1350718/positive-attitude-raises-hopes-for-resolution-of-pakistan-india-water-dispute

The Perils of Denial: Challenges for a Water-Secure Pakistan

Pakistan is South Asia’s fifth most vulnerable country in terms of water availability, and Karachi is the sixth most water-stressed city in the world. Predictions indicate that the country will face absolute water scarcity (insufficient water supply to meet demand) as soon as 2025. While population and demand for water steadily increase, freshwater quantity and quality are decreasing.

One of the biggest water challenges for Pakistan is the fact that none of its freshwater sources originate within its own boundaries. Pakistan relies on three tributaries of the Indus River, which flows from Tibet and through India before reaching Pakistan. The river already supports around 215 million people, and populations in the region are growing. Additional water stress arises from increasing demand as these regional economies develop.

Climate change poses additional risks as temperatures rise, rainfall patterns become increasingly variable, and floods and droughts become more severe. In the Tibetan Plateau and western Himalayas, where the Indus River originates, temperatures are already 4–5 degrees Celsius above average, and the current rainfall average is less than 9.5 inches per

year. In 2010, Pakistan experienced floods more severe than ever before, affecting around 20 million people and causing an estimated US$5 billion in damages to the agriculture sector alone. The year 2012 also saw major flooding, affecting another 4.8 million people and destroying over a million acres in crops. Meanwhile in other regions of Pakistan, prolonged droughts continue to jeopardize smallholder agriculture. The Global Climate Risk Index by Germanwatch found that Pakistan was the country most affected by extreme weather in 2012, both in terms of human losses and financial losses.

Societal Challenges

Water insecurity limits Pakistan's economic growth and contributes to civil unrest and conflict. Decreasing agricultural productivity jeopardizes rural livelihoods and food security; growth of manufacturing and mining sectors is stifled; access to drinking water and sanitation for rapidly urbanizing populations is limited; and waterborne diseases threaten public health.

Agricultural productivity accounts for 22% of Pakistan's GDP and employs around 43% of the workforce, but the agriculture sector and rural livelihoods are directly threatened by water scarcity and unpredictable weather patterns. Adverse weather also decreases the productivity of staple crops, which threatens Pakistan's food security. As of 2016, Pakistan scored 47.8 (out of 100) on the Global Food Security Index, and 22% of the population was undernourished.

All economic sectors rely on access to freshwater, but demand is increasing as supply decreases. Particularly in Pakistan's larger cities, the industrial and service sectors are growing and there is increasing competition between domestic consumers and businesses, which both rely on the same groundwater resources. Groundwater supplies are further strained by internal migration from rural to urban areas. In the city of Lahore, for example, the groundwater level is decreasing at a rate of 0.55 meters each year. As domestic competition increases, it is often the less-privileged populations who must bear the greatest consequences of water scarcity.

Water sanitation in Pakistan is so inadequate that up to 4% of annual GDP is spent on treatment of water-related diseases (US$800 million), and nearly 300,000 infants die annually from waterborne illness. In the capital of Islamabad, only 15% of tested water samples were considered fit to drink; the rest were contaminated with harmful bacteria. Similar studies were carried out in other cities, and in all cases the vast majority of samples (85%–100%) were considered unsafe due to contamination—either by harmful bacteria or by arsenic from industrial pollution.

Pakistani citizens blame many of these issues on the government for its failure to provide adequate water infrastructure. In Karachi, protests to demand solutions to the water crisis are becoming almost commonplace.

Implications for the U.S.

Pakistan's water crisis increases risks to U.S. interests. These range from threats to supply chains, to the rise of insurgent groups that pose direct threats to U.S. security. Because all

sectors rely on water, scarcity is a major contributor to socioeconomic instability. This volatility combines with weak food security, public health crises, the collapse of rural livelihoods, and rapid urbanization to reinforce conditions of social unrest and weak governance. All of this creates fertile ground for insurgency by militant and terrorist groups. Ineffective governance also prevents the implementation of infrastructure improvements that could mitigate existing water-related problems. The presence of terrorist groups in Pakistan leads to decreased foreign direct investment (FDI), further weakening the government's ability to improve the conditions that contribute to insurgency in the first place. The more Pakistan's government is hobbled by insurgency and falling FDI, the more U.S. intervention is needed to provide financial, military, and humanitarian support.

Conflict between Pakistan and India over water rights is another concern that touches U.S. interests. While the Indus Basin Water Treaty has helped maintain relative peace since 1960, tensions are flaring as demand for water increases and efforts to renegotiate the terms of the treaty flounder. Public sentiment in Pakistan maintains that unchecked abstraction in India is in violation of the treaty, and in 2016 hostile actions on both sides of the border led to threats of military action and of restricting flow of the river. This tension complicates U.S. relations with Pakistan's government, which increasingly views U.S. ties with India as a threat.

Recommendations

In order to address Pakistan's current challenges, U.S. involvement should prioritize long-term solutions that account for basin-level management for the Indus. Suggested interventions include the following:

Provide important technical support to help monitor and manage existing groundwater resources. To some extent, the U.S. is already deploying its technology to monitor groundwater near Pakistan's border with India, but data collection should be expanded to other areas of concern within Pakistan. This should include providing technical support to facilitate a water agreement between Pakistan and Afghanistan.

Help facilitate the establishment of a system of monitoring and pricing water for various sectors. This will allow markets to play a role in ensuring sustainable use of limited water resources, and could improve infrastructure by covering operation and maintenance costs for service providers.

Support the use of soft engineering solutions, such as wetlands and environmental reserves, to complement the use of dams for water storage and flood buffers.

Encourage actors from NGOs, academia, and the private sector to inform and support the government in broadening and improving water management.

14/08/2017 online at: https://www.newsecuritybeat.org/2017/08/perils-denial-challenges-water-secure-pakistan/