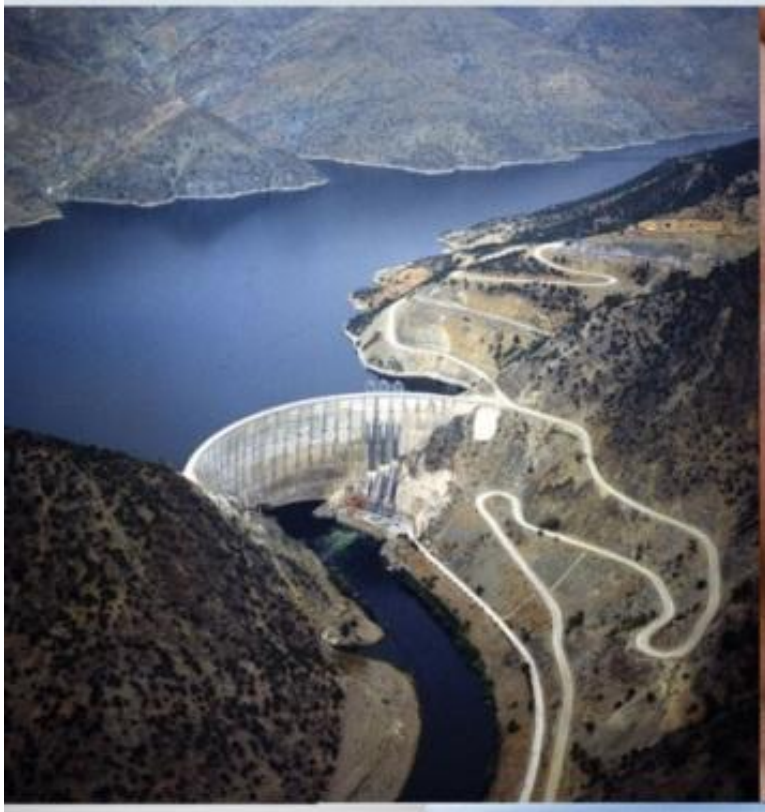


ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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





Issue 52

ORSAM WATER BULLETIN

28 November- 4 December 2011

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

❖ Turkey ready for 'any scenario' in Syria: minister

Turkey will soon unveil a set of sanctions on the Syrian regime and is readying itself for any scenario, Foreign Minister Ahmet Davutoglu says.

Davutoglu says a cabinet meeting held earlier this week had clarified the steps to be taken against Damascus.

"We will announce them after further consultations with the president and the prime minister," he told reporters at a press conference.

Turkey's move comes after Arab foreign ministers on Sunday agreed sweeping sanctions designed to cripple the regime of President Bashar al-Assad, which has defied international pressure to halt a bloody crackdown on protests.

"We are supporting the decisions made by the Arab League. We'll implement them to a great extent," Davutoglu said, adding that there might be some "nuances" because of Turkey's position as a neighbour of Syria.

Turkey has already halted joint oil exploration with Syria and threatened to cut electric power supplies.

Davutoglu insisted that measures contemplated by Turkey would not harm civilians and that Ankara was not considering halting the delivery of water from the Euphrates River to Syria.

TRADE ISSUES FOR TURKEY

Earlier on Tuesday, Transport Minister Binali Yildirim said Turkey was seeking alternative routes to bypass Syria for regional trade if conditions in the neighbouring country deteriorate.

"If conditions aggravate in Syria, we are planning to shift (road) transport to Iraq by opening new gates," he was quoted as saying by the Anatolia news agency.

Syria is a transit country for Turkey's trade with Middle Eastern countries. Turkey and Syria abolished visa requirements in 2009.

Current trade volume between Turkey and Syria stands at around $A2.5 billion favourable to Turkey, experts say. The one-time allies had vowed to raise it to five billion dollars in 2012.

But the sanctions planned by Ankara aimed at punishing the Syrian regime for its ongoing violence, which has claimed more than 3500 lives according to the United Nations, are likely to undermine this objective.

CONCERN OVER REFUGEE INFLUX

Turkey is increasingly concerned about the Syrian regime's crackdown on dissidents and fears an influx of refugees.

Davutoglu, in a televised interview, voiced opposition to any military intervention in Syria but said Turkey was ready "for every scenario".

"If hundreds of thousands of people flee to our border, this would of course create a different situation," he said.

"Some steps could be taken then together with the international community," he said when asked whether Turkey was mulling the creation of a buffer zone.

In separate remarks, Davutoglu however said measures such as creating a buffer zone were not on the government's agenda "for now".

“Turkey ready for ‘any scenario’ in Syria: minister”, 30/11/2011, online at: http://www.sbs.com.au/news/article/1609069/Turkey-ready-for-%E2%80%98any-scenario%E2%80%99-in-Syria:-minister

BACK TO TOP

❖ Turkey Preparing Sanctions On Syria

ISTANBUL—Turkey's foreign minister said Tuesday that Turkey would announce sanctions against Syria after they have been discussed with Prime Minister Recep Tayyip Erdogan, who is recovering from an operation.

Turkey is one of Syria's most important trading partners, creating the potential for significant impact on the Syrian economy if Ankara were to impose sweeping economic sanctions. However, Foreign Minister Ahmet Davutoglu on Tuesday indicated that Turkey was likely to take a much more limited approach, stressing that it would do nothing that would harm ordinary Syrians.

"It will not be very long" before sanctions are announced, Mr. Davutoglu told a news conference. He gave no details other than to say the sanctions would differ in "nuance" from Sunday's list announced by the Arab League. "After consulting with the prime minister, those [sanctions] will be announced."

Mr. Davutoglu also said that creating a military buffer zone inside Syria along the border with Turkey was "not on the agenda."

Earlier in the day, he had told Turkey's private Kanal 24 television station that such a buffer zone would be an option should tens of thousands of refugees begin to pour over the border. In the same interview, Mr. Davutoglu said Turkey was "ready for all possible scenarios" in Syria but hadn't considered a military intervention and didn't want to.

Any wide-ranging economic sanctions imposed by Turkey could be influential in part by persuading Syria's business elite, who until now have largely supported the regime of President Bashar al-Assad, that it is no longer in their interests for him to stay, officials and analysts say.

Total trade between Turkey and Syria last year was $2.4 billion, and until Syria's uprising began had been forecast to rise 30% in 2011. Economy Minister Zafer Caglayan on Tuesday said Turkish businesses currently have $1 billion worth of investment on the ground.

It appears unlikely that any package Ankara rolls out would involve a sweeping trade ban. But at the same time, trade is already falling off sharply after remaining flat through the first eight months of the year, even without sanctions, according to the Turkish-Syrian Business Council. The main causes, the body says, are plummeting demand and the refusal of Turkish banks to issue letters of credit.

Also on Tuesday, Turkey's transport minister, Binali Yildirim, told the state Anadolu Ajansi news agency that if the situation in Syria deteriorates further, Turkey may open new border crossings with Iraq. That would enable it to re-route truck traffic that typically passes through Syria on the way to the Gulf region to go instead through Iraq.

Ankara has promised to announce sanctions against Syria since October, but has repeatedly delayed, citing reasons including the death of Mr. Erdogan's mother and a major earthquake in the country's east.

On Saturday, Mr. Erdogan underwent a bowel operation, according to a statement his office released Monday, which also said the keyhole surgery had been successful and he was recovering well. Mr. Erdogan was discharged early Tuesday evening, Turkish television reported.

Turkish officials have made it clear that Ankara wants to stay in step with, or follow, the Arab League, now that it has taken the initiative in trying to pressure Mr. Assad to end bloodshed in Syria.

Turkey isn't a member of the Arab League. But Mr. Davutoglu attended the group's meeting on Sunday, when it announced its list of sanctions.

"When I attended the Arab League meeting, in the statement I made I very openly stressed and said that we support [the Arab League sanctions] and we'll adopt them, apart from a couple of nuances derived from our being neighbors," Mr. Davutoglu said at a joint press conference with Luxembourg's Foreign Minister Jean Asselborn.

As an example, Mr. Davutoglu said that interfering with water supplies to Syria—the Euphrates river flows from Turkey across the border—was out of the question.

The sanctions, unprecedented against an Arab League member state, include cutting off transactions with Syria's central bank, and placing travel bans and asset freezes on Syrian officials. The league will also block the sale of "nonessential" commodities to Syria. It is expected to meet next week to outline which commodities won't be blocked.

But the move has already raised fears inside Syria on whether the sanctions will affect basic livelihood. Overall, the penalties are expected to significantly slow an economy teetering after months of protests and U.S. and European sanctions already in place.

Syria's foreign minister on Monday called the set of Arab sanctions "a declaration of economic war," warning that they would cause ordinary Syrians to suffer but not bring the regime down.

"Let them study the history of Syria very well," Walid Moallem told reporters in Damascus. "Neither warnings nor sanctions will work with us."

The foreign minister said the sanctions wouldn't pose a danger to Syrians' daily lives. About 60% of Syria's economy relies on agricultural production, and the country has wheat reserves to last two years, he said.

Nineteen of the Arab League's 21 members—Syria was suspended over two weeks ago—voted in favor of sanctions, over Damascus's failure to sign on to an Arab plan to stop violence against protesters and allow in an observers mission.

Mr. Moallem said the Arab League failed to agree to basic amendments to the text of an agreement Syria and the body have been wrangling over for two weeks. The agreement is meant to allow a mission of observers into Syria to monitor the government's withdrawal of troops from cities, as Damascus committed to do under a Nov. 2 Arab League plan.

The Syrian foreign minister on Monday said the text was unacceptable to Syria's government, because it blamed the military for violence and failed to acknowledge the presence of armed groups in the country.

He denied that the military had squashed protests. "Since the beginning of the events nine months ago, no tank fire was used, no artillery, no warplanes. The only weapons used were personal fire arms."

"Turkey Preparing Sanctions On Syria", Marc Champion and Nour Malas, 30/11/2011, online at: http://online.wsj.com/article/SB10001424052970204449804577068100208547594.html

BACK TO TOP

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

❖ The Power Politics of Water Struggles

When you're driving through a war zone, your instinct may be to roll up the car windows. Wrong move. A bullet is less likely to hit you than to strike the glass, which will shatter and probably cause injuries. It takes firsthand experience to learn these tricks of the trade, and for years, Mark Zeitoun has sought out such experience.

Yet he did not scout out war zones as a combatant or journalist; he was delivering water.

A leading thinker in the field of water issues, Dr. Zeitoun helped pioneer a way of analyzing international water tensions, departing from the idea that water struggles are characterized either by peaceful cooperation or armed conflict. He suggests that countries' approaches can vary by many gradations in between.

Dr. Zeitoun's philosophy on water politics, known as hydro-hegemony, "significantly influenced the way we look at hydropolitics across the world," said Tony Allan, a water resource analyst at King's College, London.

Today Dr. Zeitoun, 44, grapples with global water issues from his office at the University of East Anglia in Norwich, England. But his voyage to understanding has been a long one, taking him from his native Canada, Congo, Chad, the Palestinian territories and Iraq.

Growing up in Ottawa, he was never far from the water and spent his boyhood canoeing, fishing, and swimming in rivers. He studied civil engineering at McGill University in Montreal and took a job as a water engineer at waste and water treatment plants. Dissatisfied, he returned to McGill for a master's degree in environmental engineering with the goal of focusing on issues like water pollution and shortages.

In 1999, his life took an interesting turn when he met Chris Giannou, a fellow Canadian with decades of experience as a war surgeon. Dr. Giannou told Dr. Zeitoun that water engineers were needed in conflict zones and encouraged him to join the International Committee of the Red Cross.

"I can only operate on one person at a time," Dr. Giannou said in an interview. "But a water engineer can provide clean water for hundreds of thousands of people." Galvanized by the arguments of the man who became his "hero," Dr. Zeitoun embarked on his first mission to Congo-Brazzaville.

In his travels as a humanitarian aid worker, he learned how rapidly situations can shift and "how you can be completely fooled into a sense of security when you're not at all secure." He escaped from his home in the Congo just minutes before insurgents looted it, for example, and got into arguments with gun-toting 22-year-olds, many of whom were "stoned, bored or drunk." And he learned to drive with the windows rolled down.

As time passed, Dr. Zeitoun said, he began to feel that he was applying Band-Aids to messes that "essentially greedy or ideologically driven young men were causing" rather than preventing those situations from developing in the first place. "Intellectually, and also from my heart, I was interested in looking at resolution of conflict rather than just treating the symptoms of conflict," he said.

His philosophy of hydro-hegemony evolved as a way of understanding the power dynamics that govern the use of international rivers.

Working in Gaza and the West Bank in the early 2000s, for example, Dr. Zeitoun had to cope with Israeli rules that impeded aid workers' efforts to build a basic water infrastructure for Palestinians. Academics far removed from the situation wrote that there was no water conflict between Palestine and Israel, he said, but he knew "just how bad it really was."

Under the 1995 Oslo II agreement, he explained, the Palestinians had agreed to an inequitable distribution of the Jordan River's water. Roughly 90 percent of the water supply was allotted to Israel and 10 percent to the Palestinians, he said, and the Israelis had veto power over even the simplest rainwater catchments projects in the territories. All water-related projects required technical, political and military approval by the Israelis.

Dr. Zeitoun writes that the Palestinians' consent to inequitable use of the Jordan and transboundary aquifers shows that hydro-hegemony can be attained by coercion rather than force. The Oslo II agreement continues to restrict development, he says, and he advises Palestinian negotiators working on water sharing agreements with Israel

"Mark develops a very clear framework from which to view power," said Naho Mirumachi, a social scientist specializing in water resource management at King's College in London. She describes Dr. Zeitoun as "one of those rare people who know both the 'hard sciences' and the 'soft sciences.' "

As a result of his work, Dr. Allen said, experts now analyze the balance of power at play in transboundary water issues in seeking an explanation for how a situation evolved.

Dr. Zeitoun said that while his ultimate goal was fair and sustainable water arrangements between countries, he had learned to savor minor progress — victories "so small that you can barely measure them." He says he is inspired by events that chip away at the structures that reinforce inequalities, like the ouster of some long-ruling Middle Eastern leaders in uprisings last spring.

Simply to hear people speaking intelligently or compassionately on water issues is gratifying, he suggests. "You see it happening in bits and pieces every now and then," he said, "and you've got to take comfort in that and get some hope from that."

"The Power Politics of Water Struggles", Rachel Nuwer, 28/11/2011, online at: http://green.blogs.nytimes.com/2011/11/28/the-power-politics-of-water-struggles/

BACK TO TOP

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

❖ Surface water evaporation loss targeted in Israel

TEL AVIV, Israel, Nov. 28, 2011 -- A contract has been agreed with Israel's national water company to help increase reservoir water quality and prevent evaporation loss.

Israel is known worldwide for its efficient use of water, with up to 80% reclaimed for agriculture, yet remaining **surface water** is lost to evaporation.

The arrangement will see Mekorot leasing a 100,000 m^2 reservoir to the Aquate Group, following a one year screening process.

Using a "floating cover", it is hoped the partnership could add a further 4 million cubic meters of water to the Israeli market.

According to the technology supplier, the total socio-economic value to Israel's national economy from this project alone is estimated at USD45 million. This is accounted from the prevention of water evaporation, reduced **biological treatment**of the covered water surface, increase of over 1 square km of irrigated agricultural land, reduced use in chemical fertilizers and clean energy production.

The Aquate Group said it aims for the partnership to be eventually expanded to **Mekorot's** 100 reservoirs.

"Surface water evaporation loss targeted in Israel", 28/11/2011, online at:
http://www.waterworld.com/index/display/article-display/0853004718/articles/waterworld/world-regions/middle-east/2011/11/Surface-water-evaporation-loss-targeted-in-Israel.html

BACK TO TOP

❖ Ministry of Environmental Affairs: Israel Steals 85% of Palestinian Water

Jamil Matawir, deputy chairman of the PA Ministry of Environmental Affairs, said on Sunday that Israel controls up to 85% of Palestinian wells and underground water resources, negatively affecting the Palestinian ecosystem.

The conference in Ramallah where Matawir was speaking was held to "shed light on Israeli occupation polices against Palestinian water [resources], depriving people in Gaza and the West Bank."

Matawir called on the United Nations to send a mission to investigate the effect of Israeli control of Palestinian water resources on the environment.

General director of the National Water Council Ahmed al-Hindi said the average individual Palestinian consumption reaches to 70 liters of water a day, in some rural areas going as low as 20 liters. The recommended level of the World Health Organization is 100 liters per day. The average individual Israeli consumption, according to Israeli human rights organization B'tselem, is 242 liters a day, or three times the Palestinian average.

"The Palestinian need for sufficient quantities of water is a sustained problem created by Israeli polices based on discrimination and deprivation," said al-Hindi. "Israel controls the land and handicaps the work of the joint water committee, delaying implementation of water and sewage projects, destroying water wells and confiscating underground water in Areas B and C."

Al-Hindi charged Israel with violating several international agreements, including the 1994 Oslo Accords, which mandates Israeli recognition of Palestinian rights to water and Article 55 of the Hague Regulations, which prevent Israel from using water resources of an occupied territory for any use besides the military or in excess of previous use levels.

Matawir also said Israel has uprooted more than 1.5 million olive trees since 2000. According to the 2009 UN Human Development report, uprooting trees has greatly affected the atmosphere. Levels of carbon dioxide (CO_2) has increased to 600 tons, while the remaining trees were able to absorb only about 1.5 percent of greenhouse gases.

"Ministry of Environmental Affairs: Israel Steals 85% of Palestinian Water", 29/11/2011, online at: http://english.pnn.ps/index.php?option=com_content&task=view&id=10920&Itemid=30

BACK TO TOP

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

❖ Aquate Group's Floating Cover Could Save Israel's Water

Israel's desert climate makes water a rare treasure, but even as the country takes extreme measures to keep fresh water flowing to its citizens, the simple process of evaporation is making the battle even harder. Some estimate that 20% of Israel's fresh water is lost to evaporation.
But two Israeli companies may be on the road to changing that all around. At Watec Israel, an international conference and exhibition on water technologies, renewable energy and environmental control, hosted from November 15-17 this year in Tel Aviv, Israeli national water company Mekorot agreed to a 20-year lease of a 100,000 square meter reservoir to Israel-based Aquate Group. Aquate specializes in floating reservoir covers that prevent a significant amount of the water from evaporating while providing a platform for renewable energy generation.
According to Aquate, the 20-year project with Mekorot will save 4 million cubic meters of water from evaporating and will create about 6 MW of clean power for the Israeli grid. Aquate will bear the operations and maintenance costs of the project.

"Signed in the national level and alongside national committees for assessing best options for green growth, this agreement may position Israel as a leading national actor that quantifies the economic costs of alternative solutions as well as conventional solutions with the aim of maximizing national long-term economic benefits," said Aquate Group Marketing Communications Director Maya Ben Dror.

The floating platform's ability to act as both a reservoir enhancer and a platform for additional renewable energy projects makes it a particularly revolutionary technology, Aquate Group said in a statement. The company estimates that the project will be worth a net of $45 million (USD) to Israel's national economy because of the platform's dual role.
Mekorot operates over 100 reservoirs in Israel. If the project is successful, it is likely it will be implemented on a larger scale.

"The project is expected to be the first in a series on projects between the parties, with the aim of enhancing all national and privately owned reservoirs," Aquate group said.

"Aquate Group's Floating Cover Could Save Israel's Water", 28/11/2011, online at:
http://www.greenprophet.com/2011/11/aquate-floating-cover-water-israel/

BACK TO TOP

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

❖ Too much to lose

Jerusalem must take an active role to shore up King Abdullah's rule and our ties with his country.

During my visit to Jordan this week, I spoke to several people who said King Abdullah's comments about Syrian President Bashar Assad - "If I were in his shoes, I would step down" - were a reflection of the Jordanian ruler's style of governing.

King Abdullah, according to the Jordanians with whom I conversed, does not belong to the culture of former Libyan leader Muammar Gadhafi, former Egyptian President Hosni Mubarak and Assad: He would never order his soldiers to open fire on his people. If the disquiet in his kingdom turned into violent rioting, he would simply get up and leave.

The king's exit would remove the only element capable of balancing Jordan's opposing forces. The results could be civil war, prolonged chaos and a civil government controlled by Islamists.

The bottom line would be a strategic nightmare for Israel. To our east there would be a continuum of Islamic extremism, from the Allenby Bridge to the mountains of Afghanistan. The Kingdom of Jordan, which has maintained 17 years of peaceful relations with us - which have been disappointing from its point of view - will no longer serve as a barrier between us and the wild east. The long border with Jordan, from the Gulf of Eilat to Hamat Gader, will no longer be secure. This will also have grave budgetary repercussions, like those necessitated by the change in Egypt.

Before it withdraws from Iraq, the United States has not bothered to strengthen Jordan sufficiently vis-a-vis the strategic vacuum created in Iraq.

The increasing Iranian involvement in Iraq and the attendant jihadist terror would have an easier time spilling into Jordan in the absence of a responsible regime in Amman. During the past decade the governments of Israel have looked on with equanimity every time the extremists overcame the moderates around us. One might have thought we didn't care who came out on top.

But possible regime change in Jordan, because of its grave and immediate security implications, demands that Israel do something now. Israel, recognizing its limitations, must do everything it can to help prevent the deterioration of the domestic situation in Jordan. This of course does not mean intervention in the complexities of Jordanian politics. However, Israel can offer practical solutions for two of the country's major shortages: water and energy.

Jordan is among the four "thirstiest" countries in the world. Two projects were supposed to have eased the water shortage there: desalination near Aqaba on the Red Sea and exploitation of saline groundwater near the Saudi border. But these two projects are still far from implementation. The geographical distance between them and Amman is nearly three times the distance between Amman and the Mediterranean Sea, as the crow flies.

A desalination facility on the shore of Israel that was planned to provide water for the Palestinian Authority and subsequently canceled could ensure a supply of water to Jordan more rapidly than the other projects and at a lower cost.

In the area of energy, too, it is the geographical distance that dictates the solution. The gas coming into Jordan from Egypt is becoming more expensive, and even when the supply is not interrupted by attacks on the pipeline in Sinai, the quantity is not sufficient.

There is no source of gas that is closer to Jordan than Israel's own deposits in the Mediterranean Sea. The distance between the already existing endpoint of the Israeli gas pipeline and the Jordanian border is less than 30 kilometers, a negligible distance in terms of other gas projects, such as the planned line from the Caspian Sea to southern Europe.

A gas supply from the shores of Israel would enable Jordan to lower the price of electricity, giving its citizens important economic relief.

However, the most urgent and important move Israel should make is on the emotionally charged issue of Jerusalem. Jordan has a role in overseeing the holy places there, which is enshrined in the peace agreement and the Washington declaration by former U.S. President Bill Clinton, the late Israeli Prime Minister Yitzhak Rabin and the late King Hussein. Ignoring Amman's place at the table is causing serious damage to Israeli-Jordanian relations.

Prime Minister Benjamin Netanyahu's decision to postpone the demolition of the Mughrabi Bridge in the Old City is a wise decision. This decision should be extended and reinforced. Having Jordan participate in every action taken in the Temple Mount compound - when it comes to decision-making and actual physical implementation - might well bolster our ties and justify the king's sticking to the peace agreement.

We have too much to lose if we let our relations with Jordan end up in the hands of extremists.

“Too much to lose”, Ephraim Sneh, 02/12/2011, online at: http://www.haaretz.com/weekend/week-s-end/too-much-to-lose-1.399139

,

BACK TO TOP

❖ November Rains Reduce Drop in Lake Kinneret Water Level

The blessing of **early winter rains**appears to have reduced the drop in the water level of Lake Kinneret (Sea of Galilee), but **Israel still needs much, much more** if it is to recoup itslosses over the **past decade of drought**.

Only 2.358 inches were lost in the lake during the entire month of November, according to Israel's Water Authority. However, last year's heavy rain in the final month of the winter still left Israel with a relatively dry season, one that did not break the official 10-year drought that has wracked the region.

The water level of the lake now stands at 701.049 feet below sea level -- still 13.77 feet below the level at which conditions are considered "normal."

Government officials are continuing the policy of banning irrigation of private andpublic gardens from December 1 through the end of March, due to the drought that officially began in 2001.

Any individual or corporation that is caught watering a garden during this period could face a fine of up to NIS 1,000 (approx. $267).

"November Rains Reduce Drop in Lake Kinneret Water Level", 1/12/2011, online at:
http://www.israelnationalnews.com/News/News.aspx/150301#.TtjGE7IUrdw

BACK TO TOP

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

❖ The Effects of Global Warming on Groundwaters

The pressure on population increase, economic growth, the change in land uses, pollution, and on water resources further increases with the circumstances changed by the climate change. The climate change directly affects the natural cycle of water and the hydrological cycle. (1)

The mass losses in glaciers and the shrinking snow covers on mountains lead to a decrease in amount of water, which slowly melts and drain into underground. The change in precipitation and temperature values are other factors affecting the water flow rate. While the water flow rate is predicted to increase in humid tropics, it is anticipated that the water flow rate will decrease in arid regions as a result of decreasing precipitation and increasing evapotranspiration. It is estimated that in regions, where the amount of water will increase, problems such as flood, financial damage and water quality problem could take place; while it is also predicted that the rising temperature in these regions could affect physical, chemical, and biological characteristics of surface waters and lakes. On the other hand, the rise of sea-water level in coastal regions will increase the salt water intrusion, and this situation will cause severe deteriorations in the quality of freshwater.

In addition to this, the global climate change has a negative effect also on the groundwaters constituting the major part of the hydrological cycle, which is preserved underground, and the use of which is followed only by certain technical methods.

Across the globe, more than 2 billion people meet their daily water requirements from groundwaters. Particularly in Asia-Pacific region, 32 per cent of the population provide their drinking water form groundwaters. It is estimated that from 13 to 30 per cent of the total amount of freshwater within the hydrosphere is groundwater. The 15 per cent of the amount of water, used in a year, is composed of groundwaters. Across the globe, 50 per cent of groundwater is used as drinking water, 40 per cent is used for industrial purposes, and 20 per cent for irrigation purposes. (2)

The agricultural irrigation water need, which has the biggest share in water consumption across the world, is generally met by the groundwaters. The 40 per cent of the global food production is provided by the groundwater-based agriculture. The water demand in semi-arid and arid regions are also met by groundwaters at the rate of 60 to 100 per cent. (3)

The overuse of groundwaters not only leads to problem in meeting water needs, but also it causes landslides, salt water intrusion, and ground water table falls. In addition to these negative situations, the climate change creates a secondary pressure on groundwaters. The climate change affects all the components of hydrological cycle such as; the amount of water vapour in the atmosphere, precipitation, evapotranspiration, snow cover, soil temperature and moisture, runoff, river flow rate. These aforesaid changes, which take place on surface, affect unsaturated and saturated zones; recharge and discharge; and thus storage of aquifers. (4) Renewable aquifers are recharged by

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

rainfalls or by the intersections with surface waters. Therefore, changes in surface waters and in their recharge directly affect capacities and productivities of aquifers.

As explained above, global climate change will directly affect the groundwater dynamics. Compared to surface waters, the influences on groundwaters preserved underground cannot be clearly observed; but when faced with the consequences, the gravity of the result is understood. However, in the forthcoming years, the groundwater will not be able to meet the needs of the regions it is found today, because of both climate and human-related overuse. The groundwaters, which occupy an important place across the globe especially for the agricultural sector, should be used in a controlled manner. Updating the groundwater maps would be an important resource for the anticipations related to the water resources of countries. In addition to this, while developing policies related to the process of challenge with climate change; anticipations on accessibleness and sustainability of groundwater should also be included in these studies. In regional terms, especially in regions, which suffer from water shortage and overuse groundwater, such as in Southern Asia and Middle East, studies have started to be carried out on climate change and its relation with groundwater; and also relevant reports have started to be published. (5) Groundwaters occupy an important place in Turkey as well; and in places, where surface waters are not sufficient or they cannot be reached, groundwaters are preferred to be used. The negative effects, which are caused by the overuse of groundwaters especially for agricultural purposes, are intensely observed in the Central Anatolia Region in particular (Konya Plain, Lake Meke, Lake Seyfe etc.). Accordingly, in order to provide the sustainability of groundwater resources; it is necessary to provide data on the quantity of current groundwater, and to develop control and monitoring systems for the uncontrolled use. As long as the uncontrolled and careless use of groundwater continues, our groundwaters will become inconsumable in terms of both quality and quantity with the effect of the climate change.

References

1. International Hydrological Programme UNESCO Cairo Office,"Regional Technical Report on the Impacts of Climate Change on Groundwater in the Arab Region", 2010, s.32
2. Chapter 7;Groundwater and Climate Change: No Longer the Hidden Resource, s.159;a.g.e, s.33
3.http://www.geus.dk/program-areas/water/denmark/rapporter/groundwater_and_%20climate_change_071108.pdf
4. International Hydrological Programme UNESCO, s.34
5.GWP, Climate Change, Food and Water Security in South Asia: Critical Issues and Cooperative Strategies in an Age of Increased Risk and Uncertainty, 2011

"The Effects of Global Warming on Groundwaters", Tuğba Evrim Maden, ORSAM, 30/11/2011, online at: http://www.orsam.org.tr/en/WaterResources/showAnalysisAgenda.aspx?ID=948

BACK TO TOP

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

❖ Can Water Dissolve Geo-Political Boundaries? Part 2

Transboundary Water Conflicts

Transboundary Water Conflicts are different from Water Conflicts. Water Conflicts are commonest of social and territorial disputes between 'users' of water in history. You can imagine the definition of 'users' as extensive as you want. Water is required for consumptive use (drinking, sanitation, washing, agriculture etc.) but it is also required for fishing, drainage, navigation, industry and ecology. The list of beneficiaries can be massive and for rivers at least the context of river basin can extend far from the flowing rivers. It is easy to understand that for such a valuable resource, different groups of people on account of their strategic locations of varying degrees of benefits will have differing interests which may conflict.

Further, the whole basin, from the perspective of use is divided into two extremes, which I shall call upstream and downstream. For my essay, upstream will mean the geographical area where people are more benefited than inconvenienced, whereas downstream will mean the exact opposite. No wonder, therefore, that the conflicting interests will keep the social tension alive for centuries. In more occasions than one, such tension is seen manifest in violent conflicts, military interventions or plain riot.

If you are interested about the history of such conflicts, a look into Peter Gleick's Pacific Institute website The World's Waters is worth the effort. In this website a chronological account of water conflicts all over the world is furnished in three formats: list (Showing 203 entries from 3000 BC to 2009),timeline (showing 203 entries from 2999 BC to 2010) and map (showing 203 entries from 2999 BC to 2010). Very interesting and informative.

While, an examination of such data makes it clear that water remained a hotbed of disputes and conflicts throughout history, transboundary water conflicts add a very different dimension to the problem on account of the geo-political concept of sovereign state. The dimension is imposed on practical human interests in the form of an ideology and makes the conflict complex beyond resolution. According to Aaron Wolf, et al (contributing writers to PCCP Project, UNESCO) there were 1831 water conflicts over transboundary basins from 1950–2000.

A little bit of description of such conflicts is necessary to make my argument relevant. According to UNESCO, the current interstate conflicts occur mainly in the Middle East (disputes stemming from the Euphrates and Tigris Rivers among Turkey, Syria, and Iraq; and the Jordan River conflict among Israel, Lebanon, Jordan and the Palestine territories), in Africa (Nile River-related conflicts among Egypt, Ethiopia, and Sudan) as well as in Central Asia (the Aral Sea conflict among Kazakhstan, Uzbekistan, Turkmenistan, Tajikistan and Kyrgyzstan). Some analysts estimate that due to an increase in human consumption of water resources, water conflicts will become increasingly common in the near future. Recent Rwandan Genocide and war in Sudanese Darfur have been linked to water conflicts. [Wikipedia]

Global Response

How does the world respond to the transboundary water conflicts? Ronny Patz, fellow blogger of Th!nk4 does not sound too optimistic for River Danube: *"So, a lot of water will run down the Danube river, all across the EU and its neighbouring countries, before things will happen it seems. But we will have a strategy – and there is some water in it, that's for sure!"*

I have a feeling that Asia, Africa, North and South America will not sound any more optimistic than Ronny.

We have this strange notion that whenever a plan fails, another plan with some more rules, stricter and more detailed will help us solve the problem. Plan B, as this is called popularly. What goes without much notice is the dynamics of the failure, the root of the problem. There appears to be no consensus about how transboundary waters influence riparian nations. We have at one side some experts stressing the increasing conflict potential of these transboundary waters, more so with increasing scarcity of it (Gleick 1993, Homer-Dixon 1994, Remans 1995, Westing 1986, and Samson and Charrier 1997) and on the other side some experts see possibilities showing historic evidences of cooperation between co-riparians (Libiszewski 1995, Wolf 1998, and Salman and de Chazournes 1998).

For the sake of brevity, I cannot possibly discuss at length the lame and feeble global responses to transboundary water issues, be it conflict, crisis or plain management but here is my take on this.

Crux of the issue lies in the idea of Sovereign State

Geo-political boundaries came to exist much later than the creation of whole cultures, languages, societies dependent on river basins directly and indirectly. Moreover, the historical reasons and ideologies behind such boundaries were unrelated to such deep, almost philosophical links, which are only recently emerging with clarity as we continue to stress such shared resources. Experts talk about equitable sharing of benefits and costs of co-riparians, but in reality a regional power that enjoys upstream position tends to enjoy a liberty to implement projects (dams, irrigation canals, hydro-electric power and irrigation) without consultation with weaker downstream co-riparian nations. Turkey and India are such examples for Euphrates and Ganges respectively. On the other hand a powerful downstream nation can hold in check development plans of a weaker upstream nation. Egypt is an example of such hindrance to Ethiopia's plans for Nile.

Anthony R. Turton, Head, African Water Issues Research Unit (AWIRU) University of Pretoria sees the current international political system as one of structured anarchy. It sounds a bit harsh but truths are often so. All nations jealously guard their independent sovereignty – they are endowed with the right of independent action to do as they think fit subject to their foreign policy capabilities as dictated by their perception of reality. If today Paraguay or Uruguay decide to sink giant deep wells into Guarani Aquifer and start extracting massive amount of water effectively depleting Brazil's ground water source, there is no international mechanism, apart from soft pressure by the

international community, to stop such action. Despite real and fundamental demographic differences between the countries of Brazil, Uruguay and Paraguay, in the UN each country has one vote each and independent sovereignty sanctions that no state can claim jurisdiction on another.

Turton also points out that this reality makes it obvious that there is no supra-national body that can moderate over the situation from a preferred position. The international law is weak since it cannot be enforced.

I am no scholar and I see no point in remaining silent about the failure of the current international political system over transboundary waters. It does not appear to me that the environmental degradation, Climate Change or Global Water Crisis are leaving humanity with the luxury of protracted international diplomatic and community persuasion. We are dangerously running short of time in an undecided treaty-loving world and pushing a huge section of population to such a stress where the idea of debate, discussion and remediation are not going to make much sense.
Unless the modern planners and implementers rethink the whole paradigm of global resource distribution, water being one most important such, and soften the rigid boundaries of geo-political divides by conscious choice, it appears to me that human civilization will realign itself on its own and that course may not be necessarily peaceful.

Water can dissolve geo-political boundaries, but it is not known if such dissolution will be gradual and easy or violent and miserable.

"Can Water Dissolve Geo-Political Boundaries? Part 2", 02/12/2011, online at: http://www.nl-aid.org/domain/water/can-water-dissolve-geo-political-boundaries-part-2/

BACK TO TOP

❖ Water Stress in China: Desalination Takes Centre Stage

With China's growth, the migration of people from rural places into urban areas is becoming more significant. The expansion and the development of Mega Cities and of some coastal cities in China has led to a steeply increasing need for human resources as well as natural resources.

Currently, 400 cities out of 668 in China are faced with the challenge of waterscarcity. The Chinese government is taking different steps and actions to solve the problem and desalination certainly is one of the key solutions. But what is the potential of desalination industry in China?

Frost & Sullivan analyst Jennie Peng explains that the Chinese desalinationmarket is still very young with immature regulation and market environment. Several projects have been established in Northern China coastal areas which significantly enhance the confidence for the government and project developers in the wide adoption of desalination in water scarce coastal areas of China. She sees there still is lack of supporting policies in terms of risk proof mechanisms, allocation of funds or subsidies, and measurement for development of desalination projects.

Three important documents: China Ocean Agenda 21, The Outline of the National Planning for Development of Ocean Economy and The Special Plan for Seawater utilisation set the guidelines for the Chinese seawater desalinationindustry. Particularly, The Special Plan for Seawater Utilisation clearly states the potential for seawater desalination development, investment environment, and regional targets for desalination and seawater utilisation. Furthermore, the 12th five year plan on seawater utilisation is expected to issue more up-to-date development plans on city-level next year.

The central government is encouraging the development of renewable energyprojects (wind-powered/nuclear-powered plants, etc.), in which desalinationcan be adopted as auxiliary water supply and treatment system. This is to utilise either the abundant power or heat to generate desalinated water and integrate the energy and water recycling system. Desalination can then benefit from the special fund allocated to renewable energy industry by the Chinese government.

The Chinese government is pushing domestic companies to pursue innovativedesalination technologies and increase the product quality, lifespan and services. This is seen as important to catch up with the international established suppliers and further reduce the overall desalination cost. At present, the gap in cost between domestic and imported desalinationequipment is still significant. Imported equipment is still preferred by large scale project developers, mainly on account of the assurance related to stable quality and treatment efficiency. But along with the growth in the industry, localisation is the trend. The localisation rate of desalination products/systems (the ratio of production/supply from local manufacturers or technology suppliers vs. overall supplies in China) is about 60% now, and this rate is targeted to reach 90% by 2020.

"Water Stress in China: Desalination Takes Centre Stage", 24/11/2011, online at: http://www.waterlink-international.com/news/id2182-Water_Stress_in_China_Desalination_Takes_Centre_Stage.html?utm_source=Newsletter&utm_medium=email&utm_campaign=20111130+-+WL

BACK TO TOP

❖ Flood Early Warning System Pilot

AGT International has entered into a partnership with the Yellow River Conservancy Commission (YRCC) of the People's Republic of China, to implement the first milestone in a long-term programme surrounding the AGT International Flood Early Warning System (FEWS) in the Yellow River's local environment.

Within AGT International the project is led by AGT Netherlands in collaboration with TNO (the Netherlands Organisation for Applied Scientific Research). AGT International and YRCC will jointly utilise FEWS to collect local real-time hydrometric and dike stability data, analyse the rules of floodformation and movement, improve dike stability forecasting, predict futureflood situations caused by possible dike failure, and send out flood warnings.

Pieter-Christiaan van Oranje-Nassau, CEO of AGT Netherlands explains that the solution collects real-time information from new and existing systems to generate a real-time assessment of the river conditions. The prediction and simulation software will generate alerts and recommendations to affected areas.

To address China's topographical and population challenges, FEWS features a custom dike monitoring and stability solution with integrated intelligent emergency response system that enables authorities to apply preventative measures, and prepare and react to ensuing crises quickly and effectively. The solution is modular and encompasses unique sensors, software and services that provide tangible benefits to water authorities as well as municipalities and emergency response agencies, providing them with a unified awareness picture.

In addition to piloting flood management technology, the FEWS initiative was established to effectively protect the safety of Chinese citizens and their property while creating new eco-friendly standards.

"Flood Early Warning System Pilot", 29/11/2011, online at: http://www.waterlink-international.com/news/id2188-Flood_Early_Warning_System_Pilot.html?utm_source=Newsletter&utm_medium=email&utm_campaign=20111130+-+WL

BACK TO TOP

❖ HKV Consultants Wins EU Flood Directive

HKV Consultants will assist the Arges Vedea Water Branch in the introduction of the EU Flood Directive and will play a major role in the development of hydrological models and the development of flood risk maps.

The overall project involves the development of a Digital Elevation Model with Lidar, the surveying of cross sections, creating hydrologic, hydraulic and inundation models, as well as the assessment of mitigation measures. The study area is almost 18.000 km2 (and includes the capital Bucharest), and for 3.500 km of rivers a hydraulic model is to be developed. Work began in November 2011 and continues until the spring of 2013.

"HKV Consultants Wins EU Flood Directive", 22/11/2011, online at: http://www.waterlink-international.com/news/id2181-HKV_Consultants_Wins_EU_Flood_Directive_Implementation.html?utm_source=Newsletter&utm_medium=email&utm_campaign=20111130+-+WL

BACK TO TOP

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

❖ Aqutech Showcases Total Water Management Solutions at Saudi Water & Power Forum

EINPresswire.com/ JEDDAH, SAUDI ARABIA, Nov. 30, 2011 - Aquatech, a global leader in water purification technology for industrial and infrastructure markets, will showcase its comprehensive portfolio of Total Water Management Solutions at the Saudi Water & Power Forum (SWPF), booth P01. This portfolio includes solutions for industrial process water, desalination, water recycle and reuse, biological wastewater treatment, zero liquid discharge (ZLD), and advanced water chemicals and services. Aquatech is also working on solutions for Solar Desalination.

Technologies highlighted at SWPF include:

• Water recycle/reuse. The company will show its solutions that can be used to treat feed sources ranging from industrial wastewater to produced water from oil fields. Recycle/reuse applications include waste water from power generation, petroleum refining, electronics, semiconductor, cooling tower blowdown, and from gray water and municipal waste water.

Aquatech's wastewater reuse solutions are used to recycle and reuse effluent from the world's largest industries, including refineries. An example is the Middle East's first plant-based water recycle water project, awarded to Aquatech by EQUATE Petrochemical Company in Kuwait. The project is part of a comprehensive environmental project by EQUATE and is part of EQUATE Green Initiative, aimed at reducing water consumption and decreasing carbon emissions.

"Aquatech is known for its ability to take on the most difficult wastewater treatment challenges and responding with an inspired technical solution. For example, the EQUATE project will set pioneering standards for environmental preservation and industrial practices throughout the Middle East," said Sushil Bajaj, General Manager - Middle East. "With our experience and suite of technologies, Aquatech is ideally positioned to be at the forefront of helping industries in the region with their approach towards environment, especially in conserving water by increasing efficiency in their utilization and maximizing recycling."

• Desalination solutions. Aquatech offers both thermal and membrane processes - a unique qualification that enables the company to evaluate both technologies for each specific project and offer their customers the most cost-effective option for their needs. Aquatech offers Multi Stage Flash (MSF) and Spray Film™ Multiple Effect Distillation (MED) that can be supplied with different energy alternatives, as well as Vapor Compression (VC) and Sea Water Reverse Osmosis (SWRO). The company has designed hybrid systems incorporating MED technology and reverse osmosis.

Desalination projects in the Middle East include the installation of a SWRO plant for King Abdulaziz

International Airport in Jeddah as well as thermal desalination systems at Rabigh Refinery and Ras Tanura Refinery. Additionally, Aquatech was recently awarded a contract by the United Arab Emirates' Federal Electricity and Water Authority (FEWA) to provide a 15 MIGD SWRO-based desalination facility that will provide drinking water for the Emirate of Ras Al Khaimah.

• Zero liquid discharge (ZLD). Known for its pioneering work in ZLD, Aquatech supplies systems based on membrane processes, evaporative processes or a hybrid combining both these processes to achieve zero liquid discharge from the plants in a cost-effective manner. Its innovative hybrid ZLD solution is an integrated automated system that incorporates a membrane pre-concentrator or High Efficiency Reverse Osmosis (HERO™) technology, followed by thermal/evaporative processes. The hybrid approach results in systems having lower capital costs and lower life cycle costs compared to other available technologies.

"Aqutech Showcases Total Water Management Solutions at Saudi Water & Power Forum", 30/11/2011, online at: http://world.einnews.com/pr_news/69252915/aquatech-showcases-total-water-management-solutions-at-saudi-water-power-forum

BACK TO TOP

❖ Salazar: Plan growth around water supplies

LOVELAND — The state should be planning growth around water supplies rather than trying to move water to growth, Colorado Secretary of Agriculture John Salazar said Thursday.

"Water should not be a limiting factor of growth," Salazar told the Colorado Ag Water Summit Thursday. "If we build up instead of out, and invest in technology, water can be used and reused to infinity. We need to plan for the future around how our population uses water."

Salazar reached the conclusion during his first year as ag commissioner because of the growth in the agriculture economy.

Colorado agriculture exports are growing and topped $2.1 billion this year. Even more value is expected next year, Salazar said.

"China is moving more than 1 million people into the middle class every month, and they have more disposable income to buy food products from the United States," Salazar said. "When you look at this country's economy, agriculture remains the shining star."

Salazar said the state's water for agriculture needs to be preserved.

"Agriculture is the cornerstone to this country," he said. "It would be a sad day in America if we lose the ability to produce our own food."

Instead of talking about moving any water into cities from farms, the state needs to encourage land-use policies that make better use of water. He said higher density development and more on-site recycling could stretch urban water supplies and eliminate the need to dry up more farms.

Salazar talked about how Israel uses water more efficiently because of scarcity. Every drop is recycled in the space station.

"You don't see 10,000-gallon tankers taking water to the space station," Salazar said

"Salazar: Plan growth around water supplies", 02/12/2011, online at: http://www.chieftain.com/news/local/salazar-plan-growth-around-water-supplies/article_54440854-1ca7-11e1-930a-0019bb2963f4.html

BACK TO TOP

❖ Workshop Promotes Partnerships for Water Reuse

The USAID Water Reuse and Environmental Conservation Project and the Jordan Desalination and Reuse Association (JoDRA) joined forces to host a workshop called Partnerships in Water Reuse: The Way Forward.

The purpose of the day-long meeting was to facilitate communication and collaboration among government agencies, the private sector, academia, and the general public. This collaboration will promote safe and efficient use of reclaimed water as part of Jordan's integrated water management strategy.

Workshop participants included practitioners from industry and agriculture who manage water reuse daily. At the workshop, they developed recommendations concerning: technical expertise needed to enhance water reuse performance; public perceptions of water reuse; collaboration among projects; research and innovation; and multi-purpose reuse planning.

At the meeting, H.H. Sharifa Zein Alsharaf bint Nasser, Chairperson of the Board of the Hashemite Fund for Development of Jordan Badia, emphasized the importance of expanding knowledge and experience on water reuse which is important for the Badia and overall water management in Jordan.

The Minister of Water and Irrigation, H.E. Eng. Mousa Aljam'ani, and the Minister of Environment, H.E. Dr. Yaseen Khayyat, both called for increased collaboration in water reuse in order to generate economic benefits while controlling environmental and public health impacts.

Wayne Frank, Deputy Water Director for the US Agency for International Development (USAID), also emphasized the importance of promoting community development through water reuse.

JoDRA is a non-profit organization dedicated to the development and promotion of desalination technology and water reuse. JoDRA includes individual and corporate members, including universities, companies, research institutes, and government agencies.

The USAID Water Reuse and Environmental Conservation Project is a five-year effort funded by USAID and implemented by AECOM. The project addresses the full cycle of environmental conservation and water reuse issues by assisting capacity building for Ministry of Environment, pollution prevention for industries, and water reuse for community livelihood enhancement.
The United States Agency for International Development and the Government of Jordan have been partners in Jordan's development for 50 years. The United States is committed to helping Jordan reach its goal of economic prosperity for all citizens.

"Workshop Promotes Partnerships for Water Reuse", 01/12/2011, online at:
http://en.ammonnews.net/article.aspx?articleNO=14751

BACK TO TOP

❖ Drought Warning Issued as Crisis to Last for More Than Year, Say Experts

THE driest 12 months on record has left Britain facing a drought we may not recover from until 2013, a report warns today.

Householders and businesses are urged by the Environment Agency to save water after parts of the country have had the lowest level of rainfall for 80 years.

Water suppliers have been told to do more to tackle leaks and advise families and firms how to cut back on usage.

It comes as a separate report brands Britons some of the biggest water wasters in Europe.

Desperately-needed rain is unlikely in the next few weeks and the Environment Agency report warns the drought could last until next summer.

The Agency claims central, eastern and south-east England are unlikely to see a full recovery from the drought until after 2012.

This time last year much of Britain was covered in snow, which would melt to fill reservoirs. But this month Anglian Water was granted a drought permit to extract an extra 17 million litres a day from the River Nene until next April.

In Sussex, South East Water says it will consider applying for a drought permit with its reservoirs at Ardingly and Arlington both just over a third full.

A spokesman said yesterday: "We want to see those reservoirs filling up sooner rather than later this winter in order to secure customers' supplies for next year." Parts of the Rivers Colne, Nene, Trent and Kennet are nearing the lowest levels ever recorded for November. Boats on 10 miles of the Kennet and Avon Canal, linking Reading and Bristol, were grounded due to low water.

Environment Secretary Caroline Spelman said: "If we have another dry winter, there is a high risk that parts of the country will almost certainly be in drought next summer, so it's vital we plan ahead to meet this challenge.

"Drought Warning Issued as Crisis to Last for More Than Year, Say Experts", 01/12/2011, online at:

http://www.express.co.uk/posts/view/287042/Drought-warning-issued-as-crisis-to-last-for-more-than-year-say-experts

BACK TO TOP

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

❖ Why Mullaperiyar dam needs to be decommissioned URGENTLY!

Kerala should have decommissioned the Mullaperiyar dam long back. Question of any mechanism to replace the benefits that the dam may be providing are important no doubt, but only be secondary, notes Himanshu Thakkar.

The facts are simple, but not pretty: A dam that is now 116 year old developed leaks and cracks during the earthquake in 1979. Recently, at least four earthquake tremors since July 2011 (as accepted by Tamil Nadu in an application before the Supreme Court filed on December 1) are only the latest of the seismic activity in the dam area in this context.

Several expert bodies including the Indian Institute of Technology, Centre for Earth Science Studies, etc. have concluded that the dam structure and foundation is too weak to take the shock of earthquake of magnitude 6.5 on Richter scale, which is very much likely at the dam site.

The dam is not able to take the load it is supposed to take. Its unique construction material, geological and seismic location does not render it fit for any further technical solution.

The dam in existence since October 1895 lies on the soil of Kerala, and it is the people of Kerala who are at risk if the dam collapses.

"Why Mullaperiyar dam needs to be decommissioned URGENTLY!",02/12/2011, online at: http://www.rediff.com/news/slide-show/slide-show-1-why-mullaperiyar-needs-to-be-decommissioned-urgently/20111202.htm

BACK TO TOP

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

❖ Listen to Bhagirathi: "Our policy on dams is unduly influenced by the West"

Growing concerns about the safety of the 115-year-old Mullaperiyar dam in Kerala's Idukki district, close to the Tamil Nadu border, focuses renewed attention on the long-term viability of such projects, built at huge cost to generate hydro-electricity and for water supply. The in-built paradox of such development work is that while its advocates highlight the supposed benefits for people and industries, it not only severely disturbs the ecological balance, displaces a large number of people and destroys heritage but eventually poses a real danger to human lives. The Kalivarjya ban on technological works such as dams was certainly not irrational, deriving first from the custom of doing <i>tarpan</I> for the peace of the souls of diseased forbears only in flowing water, which through its flow, retained its vital force; and additionally from the realisation of the devastation that would be caused by the forcible hemming in of a vast swathe of water, in contravention of natural laws.

Located in a seismically active zone, the Kerala dam, believed by experts to have outlived its life span, is about 155-feet high and 1,200-feet in length. Tamil Nadu has been availing of the dam waters on the basis of a 999-year lease agreement between the British Government (Madras Presidency) and the erstwhile Travancore kingdom. But the possibility of its collapse has triggered demands to dismantle it and, predictably, to build a new dam. Politics over the fate of this dam has strained relations between Kerala and Tamil Nadu. Environmentalists view the crisis as a timely warning against setting up white elephants that drain the exchequer, devastate surroundings and wildlife, and dispossess people of ancestral homes.

The examples of Bhakra Nangal, Hirakud and lately Tehri dams are commonly cited in this regard. The first, located in Himachal Pradesh, contiguous to Punjab, and commenced by the British, was completed by the Congress Government. It was one of the earliest such projects in post-independence India. At 225.55 metres, it is the second highest in Asia after Tehri dam, which is 260.5 metres high. The reservoir's length is estimated to be 90 km, and it occupies a 168.35 km area. Then Prime Minister Jawaharlal Nehru was so overwhelmed by the magnitude of the project that he described it as the "New temple of resurgent India".

He also apparently stated: "May you call it a temple or a gurudwara or a mosque, it inspires our admiration and reverence." Power generation, flood control and irrigation water supply to Punjab, Himachal, Haryana and Rajasthan were seen to compensate for the enormous human and environmental loss.

Similarly, when thousands of people, who were to be displaced by the ambitious Hirakud dam on the Mahanadi in Odisha, protested in 1948, Nehru reportedly told them, "If you are to suffer, you should suffer in the interest of the country". The principal aim was to check the massive floods that devastated a large swathe of coastal Orissa. The gains were touted to be power generation and irrigation water supply. The affected people, numbering almost 1,50,000, were meagrely compensated while later oustees were alleged to have been removed without the benefit of even such succour.

The Tehri dam on the confluence of the Bhilangana and Bhagirathi, with a 43 sq km-reservoir, is another Congress-mentored project that has disrupted the flow of the Ganga, shown by satellite images to have disappeared along long stretches; immersed old Tehri town and numerous villages; displaced thousands of families; and, in the event of a high magnitude earthquake or flooding of

Himalayan rivers on account of heavy rains/glacial melts, can unleash havoc on towns and villages on the lower reaches.

But then, as water expert Ramaswamy R Iyer observes in his insightful paper, <I>Wrong and Right Thinking about Rivers</i>, that, instead of embracing the Bhagirath legend of the Ganga flowing freely from its origins to its merger in the sea, our policy-makers opted for the Western Promethean view. This was an approach, driven by the desire to control and conquer nature. One quotes an excerpt:

"With that world view, the engineer became or tried to become the master of rivers. Prometheus is said to have brought fire to earth in defiance of the gods, whereas Bhagiratha brought the Ganga through prayer. However, the Promethean attitude to nature came into India with western engineering, and was ardently embraced by our own engineers and administrators, and by our intelligentsia as a whole".

Water experts cite the example of the United States, where the concerted movement against dams has led to 241 dams being reportedly demolished between 2006 and 2010. This marks a more than 40 per cent increase over the previous five years. In the last century, these dams provided power to numerous mills and factories in the US. The restoration of rivers and aqueous life drives the campaign. The Washington Post, dated September 17, reports in 'The tide turns on a nation's dams': "Dams once played an outsize role in the nation's energy supply, providing 40 percent of US electricity in 1940. Now they account for seven to 10 per cent, with only three per cent of the nation's dams boasting generating capacity."

Dazzled by everything Western — equated with modernity — and in a hurry to set India on the course of development, post-independence India's leaders never paused to review the systems initiated by colonial rulers, choosing simply to follow the same trajectory. Now, the looming crisis in Kerala provides a great opportunity to rethink our policy on dams as much as sources of energy, water supply and ecology. Let's seize the occasion.

Listen to Bhagirathi: "Our policy on dams is unduly influenced by the West", 01/12/2011, online at: http://www.dailypioneer.com/columnists/item/50592-listen-to-bhagirathi.html

BACK TO TOP

❖ Taking Responsibility for Water

Water is our most vital resource and global water security is a really important agenda. Alongside food and energy security, water security is central to economic growth, health and social well-being in all countries.

On Monday a new report was published that looks at these issues. It's very timely as the United Nations also published a report on the same day looking at the potential threats arising to food production from land degradation and water shortages.
In the UK, we take for granted that water supply meets demand, with households and businesses expecting access to this precious commodity at all times. In other parts of the world, many poor people are less fortunate, without such easy access to water and services like sanitation.

This is a real priority issue. It is important to realise that in our interconnected world individual countries like the UK cannot think about water in isolation. Every country draws on the water resources of those countries they trade with, in the form of water contained in food and used to manufacture products. Each country has its water footprint that can extend well beyond its borders.

Collaboration within the UK and internationally is vital to safeguarding future global water security. The UK is a world leader in water research, particularly in the global water cycle and its interaction with climate change. Over the past year, my office, along with the Living With Environmental Change programme and the UK Collaborative on Development Sciences have been looking at how we can use and develop the UK's skills and knowledge of water to help meet the ever increasing demands on the global water sector.
This work has been steered by the UK Water Research and Innovation Partnership (UKWRIP)established earlier this year, and which I chair. Membership is composed of private, public and third sector organisations. The Partnership has been working with many representatives from government, academia, business, and charities engaged in the water sector to develop the UK Water Research and Innovation Framework (UKWRIF). It has been a truly collaborative effort to set out a strategic approach to the highly diverse and interrelated challenges, by highlighting key priorities, and mechanisms to ensure better coherence and co-ordination of different public funding schemes for water research and innovation.
The Framework was launched on Monday at a very timely and relevant Parliamentary Reception and Exhibition event, highlighting the work of UK companies in developing new technologies for the water sector both domestically and internationally. It was being hosted by the All Party Parliamentary Water Group, a cross-party group of MPs and peers. It was with real regret that I wasn't able to be there, as I was chairing a meeting of the UK-Japan Joint Commission on Co-operation in Science and Technology. This will explore areas for potential collaboration, including environmental issues.
I am really pleased that we have been able to develop this Framework and hope that the collaboration across the many organisations established through the Partnership will continue to ensure that it is taken into action. This will contribute to the vision that by 2030 the UK will be a key contributor in providing integrated solutions in water security and sustainability.

This will allow individuals, communities and businesses to benefit from productive, equitable water systems and ecosystem services. As a result, health improves, communities develop, the green economy grows, and the environment is protected and enhanced.

"Taking Responsibility for Water", 30/11/2011, online at: **http://blogs.bis.gov.uk/blog/2011/11/30/taking-responsibility-for-water/**

BACK TO TOP

❖ Strategies for Water Security in Developing Country Cities: Building Resilience in the Urban Water Sector

"For the past 15 years, since I have got married in this household, I have been getting up at 4:00 am, transporting 10-15 liters of water from the valve to my house, which is on the second floor. The valve is about a kilometer from my house. This practice has not only generated health problems but also sapped us of the energy to make more than two rounds. Children too are involved in the transportation of water." - Woman resident of Nayapura, Indore, India, August 2009

Thousands of cities in the developing world face rising pressures on water provision due to population growth and urbanization, and climate change worsens these impacts. Coordinating the formal and informal water sectors, improving water storage and management, and bringing community voices into water planning are critical to sustainably providing water, especially for the urban poor who are most vulnerable to water scarcity. A new report, ***Climate Change and Urbanisation: Building Resilience in the Urban Water Sector - a Case Study of Indore, India***, from the Pacific Institute, the Institute for Environmental Transition (ISET), and TARU Leading Edge provides detailed analysis of the water situation in Indore, India and shows a way forward to a more secure water future for developing country cities.

While in developed country cities, the government or formal sector often exclusively manage water supply services, in developing countries other informal 'water managers' also become important. In these cities, thousands of people rely on self-supply, directly accessing the water source itself through private boreholes, or they obtain water through the private water market, where water vendors supply water through water tankers and treated drinking water. In Indore, like most developing country cities, the urban poor have limited access on all three fronts: the formal system is unavailable to them, private markets are unaffordable, and self-supply is not an option because they are landless.

"People in developing country cities like Indore manage water daily, wondering where they will get water from that day, how long they will wait for it, how much they will pay for it, what the quality of that water will be, and whether that water will be there tomorrow," said Meena Palaniappan, director of the Pacific Institute International Water and Communities Initiative. "From our comprehensive look at Indore, we identified a set of climate and water resilience strategies that are relevant for people who are water managers at every level in developing country cities, from the household to the utility, and it's a mix of both conventional and sustainable water management strategies."

The *Climate Change and Urbanisation* report recommends policy and tool solutions to ensure that the systems and the infrastructure for the provision of basic services are managed in a more environmentally, socially, and economically sustainable manner:
- diversify water supply (Indore, for example, relies on one primary and energy-intensive source: the Narmada River);
- increase access to municipal supply/improve infrastructure;
- increase water storage at all levels (municipal and household);
- promote water-use efficiency and reuse;
- implement equitable water rates;
- improve water quality;

- reduce energy dependence; and
- improve connections among all stakeholders in the sector.

"Strategies for Water Security in Developing Country Cities: Building Resilience in the Urban Water Sector**",** 01/12/2011, online at**:** http://www.pacinst.org/reports/urban_water_Indore/index.htm

BACK TO TOP

❖ FAO releases "The State of Land and Water Resources"

Managing systems at risk

By 2050, food production is projected to increase by about 70 percent globally and nearly 100 percent in developing countries. This incremental demand for food, together with demand from other competing uses, will place unprecedented pressure on many agricultural production systems across the world. These 'systems at risk' are facing growing competition for land and water resources and they are often constrained by unsustainable agricultural practices. They therefore require particular attention and specific remedial action.

The State of the World's Land and Water Resources for Food and Agriculture (SOLAW) analyses a variety of options for overcoming constraints and improving resource management in these areas of heightened risk. In each location, a mix of changes in institutional and policy measures will have to be combined with greater access to technologies for better management of land and water resources. Increased investments; access to novel financing mechanisms; and international cooperation and development assistance will also help overcome these constraints.

This first issue of SOLAW, which complements other "State of the world" reports published regularly by FAO, is intended to inform public debate and policy-making at national and international levels.

"FAO releases "The State of Land and Water Resources"**",** 28/11/2011, online at: http://www.fao.org/nr/solaw/en/

BACK TO TOP

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

❖ Reaching Rural Rwandans with Integrated Health and Livelihood Messages
Jeanne Nyirakamana, PHE Champion

Rwanda is one of the most densely populated countries on the planet, with more than 11 million people in one of Africa's smallest countries, most of whom depend on the land as subsistence farmers. The country has diverse mountain, lake, and savannah landscapes, and the Virunga Mountain chain in the northwest part of the country is home to one-third of the world's threatened mountain gorilla population. At the same time, the population throughout the country suffers from high rates of unmet need for contraception, and three percent of the adult population lives with HIV/AIDS. In a land under such intense pressure on natural resources, rural livelihood initiatives are critical to ensuring people have options for meeting their daily health and well-being needs.

For the past three years, Jeanne Nyirakamana has served as head of the health program for the Sustaining Partnerships to Enhance Rural Enterprise and Agribusiness Development (SPREAD) Project. Supported by the U.S. Agency for International Development through Texas A&M University, the SPREAD Project is integrating a dynamic coffee production and quality improvement program in Rwanda with health outreach to improve community well-being. The health component works to improve the lives of coffee farmers and cooperative members by providing them with health information and services related to family planning, maternal and child health, prevention of sexually-transmitted infections, including HIV, and water and sanitation.

Training Peer Educators

Working closely with the coffee program, Nyirakamana's team has trained more than 540 men, women, and youth peer educators who have reached more than 95,000 coffee farmers with education and services for family planning, improved health, as well as support for their coffee and livelihoods activities. Key communication messages highlight the links between sound decision-making and health-seeking behaviors, productive farms and agribusinesses, and strong and healthy families.

The program also leverages and supports local health resources through referrals to existing public health services, organization of mobile clinics, and community-based distribution of a socially-marketed water purification solution (Sur Eau) and condoms (Prudence). According to Nyirakamana , one of the project's greatest successes is the increased acceptance of family planning by farmers and their families and the more than 7,500 farmers who have been tested for HIV. In order to draw in as many coffee farmers as possible, many of the health and livelihood activities take place at the stations where the coffee beans are washed, at other buildings used by the coffee farmer cooperative, or during combined community meetings or home visits. At the washing stations, Nyirakamana's team supports local health center staff to provide voluntary counseling and testing (VCT) and de-worming services while at the same time SPREAD-trained peer educators and coffee/health extension agents disseminate family planning information.

The cooperatives' buildings have clean water, hand-washing stations, and small kiosks where condoms and Sur Eau are sold. These community health agents work with SPREAD to ensure that

the greater community, not just the coffee farmers, has access to health knowledge and services. They learn how to teach the community about a range of health issues and each month they submit reports showing how many people they reached and with what kinds of messages. They are also becoming increasingly engaged in coffee and agribusiness activities. Through the success of their health activities, these agents are seen as vital community resources.

Integrated Results

By implementing this integrated population, health and environment (PHE) approach, the SPREAD Project staff is ensuring the health of the people and environment and success of the agribusiness. "You cannot care for the environment without first caring for the people who live and use that environment, so when you transmit dual messages [agriculture and health] you are able to hit two birds with one stone," said Nyirakamana.

According to a 2010 evaluation of the project, farmers and their families reported improvements in personal and household hygiene; an increase in understanding and acceptance of family planning; uptake of HIV and VCT services; and use of condoms and other local health services. As well, they noted shifts in gender norms affecting household revenue use, alcohol, and reproductive health. The agribusiness stakeholders value the integrated approach as a means to more holistically meet farmers' goals of increased incomes and improved lives and livelihoods.

This PHE Champion profile was produced by the BALANCED Project. A PDF version can be downloaded from the PHE Toolkit. PHE Champion profiles highlight people working on the ground to improve health and conservation in areas where biodiversity is critically endangered.

"Reaching Rural Rwandans With Integrated Health and Livelihood Messages
Jeanne Nyirakamana, PHE Champion", 02/12/2011, online at: http://www.newsecuritybeat.org/2011/12/beat-on-ground-reaching-rural-rwandans.html

BACK TO TOP

❖ Peace through water

Pakistan is once again accusing India of water hegemony. This time, however, the accusation refers not to Indian damming of the Western Rivers in the disputed regions of Jammu and Kashmir, but to Indian support for Afghan development projects along the Kabul River. This accusation indulges in conspiratorial thinking, and distracts from a factual understanding of the water issues between the two countries.

According to Pakistani media reports, Afghanistan (with assistance from India and the World Bank) has plans to build 12 dams on the Kabul River (a tributary of the Indus which runs through Afghanistan and Pakistan), with a combined storage capacity of 4.7 million acre feet (MAF). Pakistan is concerned that these dams will stop crucial water supply from flowing to the Indus River. It is also concerned that Indian support for these dams will increase India's sphere of influence over water issues in the region.

India has not confirmed its support to build all 12 Afghan dams on the Kabul River, though it is currently one of Afghanistan's largest assistance donors; Afghan media report that India has $1.3 billion invested in infrastructure projects. Water infrastructure, including dam building, is an integral part of Afghanistan's 2008 Development Agenda.

In order to understand India's possible participation in Afghan dam-building -- along with that of the U.S. Government, the World Bank, the International Monetary Fund (IMF), the Asian Development Bank (ADB), and others -- one has to understand the context -- namely Afghanistan's lack of hydro-development.

Firstly, due to successive wars in Afghanistan, water infrastructure in the country is incredibly underdeveloped. All 12 of the existing water reservoirs in the country were built between 1920 and 1940. Afghanistan has sufficient water to meet its needs. Overall, around 2,775 cubic meters of water are currently available per capita (an all-inclusive figure accounting for consumption and agricultural needs), which is well above the water threshold of 1,800 cubic meters per capita. However, the country has not been able to harness this water adequately because of a lack of infrastructure and international assistance.

Secondly, even though the Kabul River Basin (KRB) is the most important river basin in Afghanistan -- containing half the country's urban population, including the city of Kabul -- it is one of the most underutilized basins in Afghanistan in terms of overall surface water availability. The proportion of water use in the KRB is 25 percent. In contrast, in the Northern and Helmand basins, water use is 100 percent and 58 percent, respectively, of the available surface water. Such figures refer to the amount of renewable freshwater reserves; any use beyond this will be overutilization as it might not be replenished.

Thirdly, Disaster Management Information systems have revealed that the mountainous north-eastern region of the country where the Kabul River is situated is one of the most flood- and drought-prone areas in Afghanistan. Annual flow is extremely erratic, dropping as low as 11.2MAF and rising as high as 34.8MAF. This makes storage all the more essential in order to provide water in lean periods,

and to avoid disasters like flash floods during sudden flow outbursts. (Afghanistan currently has one of the lowest storage capacities in the world.)

It goes almost without saying that development in Afghanistan is essential and unavoidable; a more prosperous and functional Afghanistan will aid security and stability across South Asia. Yet without the assistance it requires to build water infrastructure, Kabul cannot reach its development goals for agriculture, energy, and urban development.

It is also important to understand that the Kabul River, a tributary of the Indus, is a shared river between Pakistan and Afghanistan. Therefore, this challenge of the 12 dams is essentially an Af-Pak issue rather than an Indo-Pak one.

The issue of the 12 Kabul River dams, rather than simply being a reference point for India's development assistance program in Afghanistan, should be the spark for a water agreement between Afghanistan and Pakistan. So far, India/Pakistan is the only Indus Basin riparian pairing that enjoys a treaty or agreement on water sharing. Afghanistan and Pakistan do not enjoy the same advantage -- the two countries came close to drafting a water treaty in 2003 and 2006, but these attempts failed on both accounts.

From a strategic standpoint, the timing could not be better for a water treaty between the two countries. Recent months have seen an increase in tensions between them, reaching an apex with the assassination of former Afghan President Burhanuddin Rabbani. A comprehensive water accord -- one that addresses both the Afghan need for water development and Pakistan's apprehensions about a reduction in water flows -- could do wonders not only for water security, but also for political ties.

Though Indo-Pak water relations are not directly involved in the Kabul River issue, they still hold relevance. The Indus Water Treaty (IWT) between India and Pakistan can be used to inform an Af-Pak agreement on the Kabul River, and this can subsequently create pressure for a more comprehensive view of water security throughout the Indus River Basin.

The IWT is considered one of the more successful water treaties in the world. The treaty is one of the few on transboundary water that addresses specific water allocations; it provides unique design requirements for run-of-the-river dams that ensure the steady flow of water while at the same time guaranteeing power generation through hydro-electricity. The Indo-Pak water treaty also provides a mechanism for consultation and arbitration in case questions, disagreements, or disputes arise over water sharing. All of these features present in the IWT could be applicable to a similar accord between Afghanistan and Pakistan. It is also important to note that the IWT, by settling the rights of the upper and lower riparians, also gave India and Pakistan access to billions in World Bank financing. In Pakistan, this money was used to build the Mangla and Tarbela dams, as well as to develop irrigation infrastructure. Afghanistan can take similar steps to secure its national water development plans.

The IWT, however, does have its limitations, as it was formulated decades ago and therefore does not account for more recent challenges to water management.

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

Accordingly, an Af-Pak water treaty could also factor in more contemporary concepts like climate change and integrated river basin management, for instance. According to the Pacific Institute, "many existing treaties allocate water among the nations on the basis of river banks but very few -- if any -- account for the possibility of a river's flow diminishing over all or at crucial times of the year. Likewise most treaties ignore the possibility of intense floods that are expected to increase as the climate warms." In the institute's most recent report, authors Peter Gleick and Heather Cooley say that new as well as existing transboundary water treaties should be "climate-proofed." An Af-Pak water treaty can factor climate change in its draft, and can even inspire other stakeholders of the Indus River Basin like India and China to create a more comprehensive understanding and transparency over the effects of climate change on the basin as a whole.

Efficient use of existing water resources is another contemporary concept to water management not accounted for in the IWT, which can be included in an Af-Pak water treaty. So far transboundary treaties have been largely focused on the supply side. In other words, they have focused on developing water infrastructure rather than on changing patterns of water use. Adequate demand management has been lacking, and is desperately required in the developing economies of South Asia. An Af-Pak treaty could acknowledge ways in which limited -- and perhaps even diminishing -- water resources can be utilized in a sustainable way to meet the growing agricultural, industrial, and domestic needs of both countries. For example, the treaty could stipulate that each country pledge to undertake a certain percentage of annual repairs on water infrastructure governed by the treaty, in order to minimize wastage and other losses. It could also institute measures that will help Afghanistan and Pakistan shift from flood to drip irrigation.

Additionally, the spirit of sustainability in an Af-Pak water treaty should emphasize the sharing dimension of water resource management rather than one of segregation. In an age and an area of growing populations and limited resources, we can no longer afford to divide water; instead we need to learn how to share it. Why not stipulate that Pakistan, as the lower riparian, purchase hydro-power from the Afghan dams (it would presumably be cheaper than purchasing it from diesel-driven rental power projects)?

An Af-Pak water treaty, if consummated, would represent a rare regional success story in South Asia. A shared interest of Pakistan and Afghanistan -- enhancing water security -- would be addressed through cooperative institutional mechanisms. India's desire to assist Afghanistan with dam construction would be less politically fraught, given that Pakistan would presumably be more willing to accept the existence of these dam projects if its concerns were addressed via treaty. And the United States would welcome an Af-Pak water accord's political implications: A convergence between two nations whose cooperation is essential for Washington's goal of proceeding with reconciliation in the country. Perhaps most importantly, an Af-Pak water accord could eventually be applied to an understanding of water-sharing for the region at large that is founded on cooperation rather than competition.

“Peace Throuh Water”, 02/12/2011, online at: http://afpak.foreignpolicy.com/posts/2011/12/02/peace_through_water

BACK TO TOP

❖ Asia's water stress challenges growth and security

NEW DELHI — Water, the most vital of all resources, has emerged as a key issue that will determine whether Asia is headed toward cooperation or competition. After all, the driest continent in the world is not Africa, but Asia, where availability of freshwater is not even half the global annual average of 6,380 cubic meters per inhabitant.

When the estimated reserves of rivers, lakes and aquifers are added up, Asia has less than one-tenth of the waters of South America, Australia and New Zealand, not even one-fourth of North America, almost one-third of Europe and moderately less than Africa per inhabitant. Yet the world's fastest-growing demand for water for food and industrial production and for municipal supply is in Asia, which now serves as the locomotive of the world economy.

Today, the fastest-growing Asian economies are all at or near water-stressed conditions, including China, India, South Korea, Vietnam and Indonesia. But just three or four decades ago, these economies were relatively free of water stress. Now if we look three or four decades ahead, it is clear that the water situation will only exacerbate, carrying major implications for rapid economic growth and inter-riparian relations.

Yet Asia continues to draw on tomorrow's water to meet today's needs. Worse still, Asia has one of the lowest levels of water efficiency and productivity in the world. Against this background, it is no exaggeration to say that the water crisis threatens Asia's economic and political rise and its environmental sustainability. For investors, it carries risks that potentially are as damaging as nonperforming loans, real estate bubbles and political corruption. Water has also emerged as a source of increasing competition and discord within and between nations, spurring new tensions over shared basin resources and local resistance to governmental or corporate decisions to set up water-intensive industries.

These developments raise the question whether the risks of water conflict are higher in Asia than elsewhere in the world. With Asia becoming the scene of increasingly fierce intrastate and interstate water competition, the answer clearly is yes. Water is a new arena in the Asian Great Game.

In fact, water wars — in a political, diplomatic, or economic sense — are already being waged between riparian neighbors in several Asian regions, fuelling a cycle of bitter recrimination and fostering mistrust that impedes broader regional cooperation and integration. Without any shots being fired, rising costs continue to be exacted. The resources of transnational rivers, aquifers and lakes have become the target of rival appropriation plans.

With a river or groundwater basin often becoming tied with a nation's identity, ownership and control over its resources is considered crucial to national interests. That has helped give rise to grand but environmentally questionable ideas — from China's Great Western Route to divert river waters from the Tibetan Plateau to its parched north and South Korea's politically divisive four-rivers project, to India's now-stalled proposal to link up its important rivers and Jordan's plan to save the dying Dead Sea by bringing water from the Red Sea through a 178-km canal, which is also to serve as a source for desalinated drinking water.

Several factors have contributed to the Asian water crisis, which is leading to river and aquifer degradation. One is that Asia is not only the largest and most-populous continent but also the fastest developing. How the swift economic rise of Asia has brought water resources under increasing pressure can be seen from the fact that most Asian economies now are water-stressed.

The exceptions are few: Bhutan, Burma, Papua New Guinea, Laos, Cambodia, Brunei and Malaysia.

Unlike the fossils fuels, mineral ores and timber that they import even from distant lands, the Asian economies must make do with their own water resources, a significant share of which is in transnational watercourses. This fact only serves as a strong incentive for some nations to try and commandeer internationally shared waters before they leave their national borders. Given the critical role of water in economic modernization, this continent has emerged at the centre of the global water challenges.

Another factor is consumption growth, as a consequence of rising prosperity. The plain fact is that on average Asians are consuming more resources, including water, food, oil and energy. The consumption growth is best illustrated by the changing diets, especially the greater intake of meat, whose production is notoriously water-intensive.

A third factor is the role of irrigation in accentuating the Asian water stress. Asia more than doubled its total irrigated cropland just between 1960 and 2000. Once a continent of serious food shortages and recurrent famines, Asia opened the path to its dramatic economic rise by emerging as a net food exporter on the back of this unparalleled irrigation expansion.

Asia now boasts the leonine proportion of the world's surface land under irrigation. About 70 percent of the world's 301 million hectares of land equipped for irrigation is in Asia alone, making it the global irrigation hub. Just three sub-regions of Asia — South Asia, China and Southeast Asia — by themselves account for about 50 percent of the world's total irrigated land.

It is thus hardly a surprise that Asia leads the world in the total volume of freshwater withdrawn for agriculture. Indeed, almost 74 percent of the total global freshwater withdrawals for agriculture by volume are made in Asia alone.

Water literally is food in Asia. Yet the growth of rice and wheat output in Asia, after the dramatic increases of the previous quarter-century, has actually slowed since the late 1990s, raising concerns that Asian countries will become major food importers, roiling the international market. The international food market is not large enough to meet major import demands from Asia.

A fourth factor is that the fastest increase in water demand in Asia is now coming not from agriculture but from the industrial sector and urban households, in keeping with the fact that this continent has become the seat of the world's fastest industrialization and urbanization.

A final factor linked to Asia's water stress is the large-scale impoundment of water resources through dams, barrages, reservoirs and other human-made structures without factoring in long-term environmental considerations. Dams, to be sure, bring important benefits. But upstream dams on rivers shared by two or more nations or provinces in an era of growing water stress often carry

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
Tel: +90(312)4302609 Fax: +90(312)4303948 orsam@orsam.org.tr

broader political and social implications, especially because they can affect water quality and quantity downstream. Dams can also alter fluvial ecosystems, damage biodiversity and promote coastal erosion and saltwater intrusion.

Asia is not just the global irrigation hub; it is also the world's most dam-dotted continent. China, the world's biggest dam builder, alone has slightly more than half of the approximately 50,000 large dams on the planet. Most of the best dam sites in Asia already have been taken. Yet the numerous new dam projects in Asia show that the damming of rivers is still an important priority for policymakers. Such a focus on dam building has only intensified intrastate and interstate water disputes and tensions in Asia, with implications for regional security and stability.

The countries likely to bear the brunt of upstream diversion of waters are those located farthest downstream on rivers like the Brahmaputra, Mekong and Tigris-Euphrates: Bangladesh, whose very future is threatened by climate and environmental change; Vietnam, a rice bowl of Asia; and Iraq, still internally torn. Cross-border water appropriations from the Illy River threaten to turn Kazakhstan's Lake Balkhash into another Aral Sea, which is dying.

So, the big question is: How can Asian nations prevent the sharpening struggle for water resources from becoming a tipping point for overt conflict? To contain the security risks, Asian states must invest more in institutionalized cooperation on trans-boundary basin resources in order to underpin strategic stability, protect continued economic growth and promote environmental sustainability.

The harsh truth is that only four of the 57 transnational river basins in Asia have a treaty covering water sharing or other institutionalized cooperation. These are the Mekong, Ganges, Indus and Jordan river basins. The absence of a cooperative arrangement in most Asian transnational basins is making inter-country water competition a major security risk, increasing the likelihood of geopolitical tensions and instabilities.

With its multitude of inter-country basins, Asia cannot continue to prosper without building political and technological partnerships to help stabilize inter-riparian relations, encourage greater water efficiency, promote environmental sustainability, take on practicable conservation strategies, and invest in clean-water technologies. If Asian states are to address their water challenges, they will need to embrace good practices on the strategic planning and management of water resources.

“Asia's water stress challenges growth and security”, Brahma Chellaney, 03/12/2011, online at: http://www.japantimes.co.jp/text/eo20111203bc.html

BACK TO TOP

❖ Latest Japanese technologies in water, renewable energy outlined at JCCI meeting

JEDDAH: Water and energy experts from Japanese companies introduced their latest technologies, products and know-how in the water and renewable energy sectors, at a meeting in the Jeddah Chamber of Commerce and Industry (JCCI) on Saturday.

Advancements in desalination, water and wastewater treatment, water leakage solution, water-reuse, financing for water and wastewater projects, solar power projects, sustainable urban development and strategic plan on smart city projects were outlined at the meeting by a delegation of Japan's 12 companies and two public entities. The JCCI and the Japan Cooperation Center for the Middle East (JCCME) jointly hosted the event, which was attended by a number of local businessmen and professionals.

"The meeting aims to enable Japanese companies and local partners make combined efforts to contribute to water and energy infrastructure development in the Kingdom," JCCME President Tadatsuna Koda said while speaking at the opening session. He noted that Saudi Arabia's rapid population growth and dramatic economic progress are spurring extremely high demand for water and power. "Of course, measures are being taken to meet the increasing demand for water, an indispensable resource in the region," he said and referred to the steps taken so far across the Kingdom and Middle East to meet water needs. He especially referred to the seawater desalination plants that are being constructed to expand water supply capacities and, more recently, greater attention being placed on establishing a water supply management system including leakage prevention as well as recycling treated wastewater.

As regards energy, he added, there is a heightened interest in renewable energy such as solar power generation, nuclear energy and wind-power generation from the perspectives of utilizing oil resources effectively and conserving the environment in oil-producing countries.

JCCME, founded in 1973, is a non-profit private organization that operates under the aegis of Japanese Ministry of Economy, Trade and Industry, he said explaining its objective which is to promote economic cooperation between Japan and the Middle East through direct investment and technology transfer from Japan to these countries.

JCCI Secretary General Adnan Mandoura in his welcome remarks said the Kingdom was looking forward to Japan for technology and know-how transfers, in addition to increased investments in different industrial sectors.

In his keynote address, Satoshi Takizawa, professor at the University of Tokyo, leader of the delegation and chairman of Japan Cooperation Committee on Water Resources for the Middle East, referred to various measures Japan had taken to satisfy the increasing needs for water and energy in different parts of the country.

Japanese Consul General Jun Yoshida reviewed the strong bilateral economic and trade relations between Saudi Arabia and Japan and hoped that the meeting in which major Japanese companies are

participating would pave the way for increased business interactions and engagements between the two countries.

Japanese companies gave presentations on their specialized fields — Mitsubishi Heavy Industries on its SWRO desalination technology, Swing Corporation on its role as a water business partner, Hitachi on water environment solutions, KOBELCO Eco-Solutions Co. on technicalities of combined desalination system, Toray Industries on its water treatment business and Japan Bank for International Cooperation on financing water business in the Middle East.

"Latest Japanese technologies in water, renewable energy outlined at JCCI meeting", 03/12/2011, online at: http://arabnews.com/economy/article542470.ece

BACK TO TOP