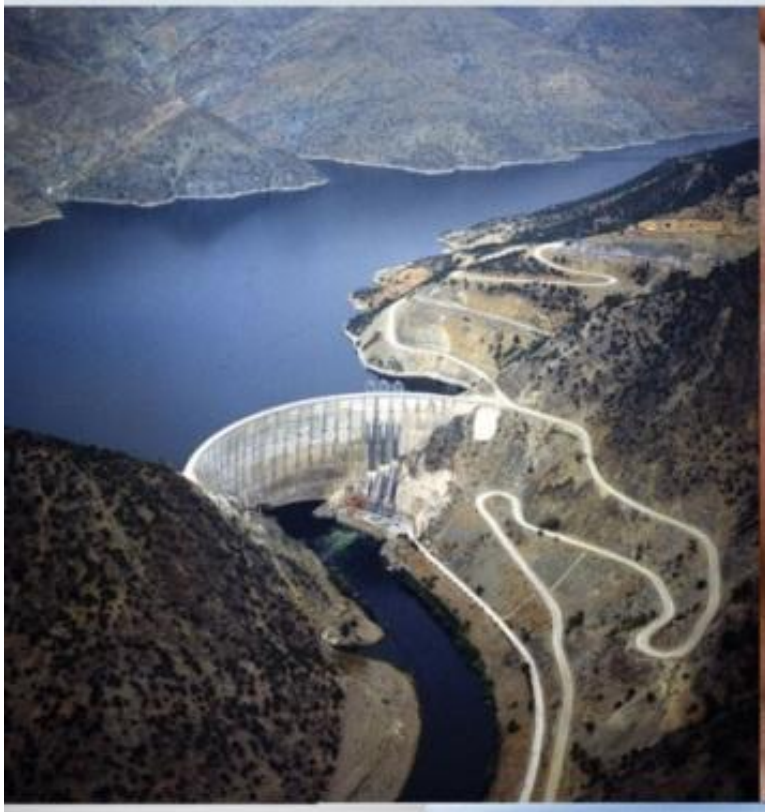


ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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





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❖ ORSAM Water Research Programme Published a report entitled " Constructed Wetlands and Re-Use of Waste Water For The Irrigation in Turkey and Israel"

ORSAM Water Research Programme Published a report entitled "Constructed Wetlands and Re-Use of Waste Water For The Irrigation in Turkey and Israel"on the 18th of the October, 2011. Report language is Turkish. The report includes natural treatment methods, constructed wetlands, constructed wetlands implementation in Israel, natural treatment and constructed wetlands implementation in Turkey, and re-use of waster water for the irrigation in Turkey and Israel.

ORSAM Water Research Programme Published a report entitled " Constructed Wetlands and Re-Use of Waste Water For The Irrigation in Turkey and Israel", Ebru Yıldız ,ORSAM, 18/10/2011, online at: http://www.orsam.org.tr/tr/SuKaynaklari/raporgoster.aspx?ID=2778

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❖ Water Transfer to the Lake Urmia and Increasing Importance of the Araks-Kura Basin

Upon the fact that Iran announced her plans for saving the Lake Urmia, eyes turned towards the Kura-Araks basin. The Lake Urmia, which started to shrink upon the decrease in precipitation, as well as upon the fact that consumption exceeded the annual feeding rate of the Lake, created a concerning situation for Iran and the peripheral countries. The fact that the example of Aral Sea is found in the same geography, mobilized Iran and the other countries to save the Lake before it dries up. Iran is preparing to transfer water from the Araks River throughout six months of year, in order to prevent the Lake from drying up. The Araks river, which will not be enough itself to save the Lake, is a transboundary basin, where Turkey, Georgia, Armenia, Azerbaijan, and Iran are riparians.

The size of the Kura-Araks river basin is approximately 290.000 square kilometer (1) and the 65 per cent of the basin is located within the borders of the Caucasian countries. The 31,5 per cent of the basin is located in Azerbaijan; while 18,2 per cent is found in Georgia; 15,7 per cent in Armenia; 19,5 per cent in Iran; and 15,1 per cent in Turkey. The originating in the north of Turkey, the Kura river firstly passes through Georgia and then through Azerbaijan; and 150 km before flowing into the Caspian Sea in Azerbaijan, it joins the Araks River originating in Turkey. Being a significant water resource for the region they are located in, the Kura and Araks rivers' annual average flows are respectively 0,575 billion cubic meters and 0,21 billion cubic meters. (2)

The Kura-Araks river basin is an important drinking water resource especially for Georgia, Armenia, and Azerbaijan. In Georgia, which is one of the heavy users of the basin waters, there is an excessive amount of water; while Armenia goes through water shortage resulting from water management problem in Armenia; and on the other hand, Azerbaijan is lacking in water. (3) While Georgia uses basin waters for agricultural purposes, and Armenia uses it for industrial and agricultural purposes; this resource is Azerbaijan's main freshwater resource. Millions of tons of untreated waste water and industrial wastes left in the river system have reached the water pollution beyond the international standards. In this case, there is a major water quality problem in the basin. (4)

Except for Turkey and Iran; Azerbaijan, which is one of the riparians most in need of water, has the largest agricultural land and per capita water availability, among the other three countries. The U.S., EU, and NATO carry out projects, sometimes also including the Araks-Kura basin, for the integrated regional water management. The Caucasus-Georgia Strategic Plan, which was conducted by the USAID, covering years between 2004 and 2008, was designed to support the Southern Caucasus Regional Water Management Programme; to prevent regional conflict; and to establish trust. From 2002 to 2007, the NATO-OECD has developed the South Caucasus River Monitoring Project. This project covers monitoring transboundary waters in terms of quality and amount; forming cooperation, data sharing, and basin management systems. The participant countries of the projects are Georgia, Armenia, and Azerbaijan. In addition to this, sub-component of the UNDP/GEF umbrella project "Reducing Transboundary Degredation" in Kura-Araks Basin, supported by Sweden, was put into

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practice. Covering Armenia, Georgia, Azerbaijan and Iran, this project aims at providing a regional cooperation monitoring quality and amount of Araks-Kura Basin waters. (5)

In 1927, Turkey and the USSR signed a 'Treaty on the Beneficial Uses of Boundary Waters', in which they agreed to share the Araks river waters on a fifty-fifty basis. And this treaty is still in force after the demolition of USSR. A similar treaty was signed between USSR and Iran, in 1957. Providing usage at the rate of 50 per cent, the Treaty covers water usage for agricultural and hydroelectric generation purposes at the rate of 50 per cent. In addition to this, another treaty on protecting the Araks river waters between Azerbaijan and Iran was signed, except for the this treaty. (6)

In accordance with the treaty Iran signed with Azerbaijan in the plan she developed in order to save the Lake Urmia, Iran will be able to use 50 per cent of her share. Indicating that this amount will not be enough to save the Lake, the authorities are in search of a second alternative. Depending on Araks river, Azerbaijan stated they are informed about the water transfer but there is no any official application; while they also indicated that Iran should inform them within this project and that they should be in tandem with each other. Related to Araks-Kura basin, on which quality problem has been focused with this project, especially the negotiations to be developed between the two countries on quantity and supply of water will come to forefront.

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26 September-2 October 2011

“Water Transfer to the Lake Urmia and Increasing Importance of the Araks-Kura Basin”, Tuğba Evrim Maden, ORSAM, 21/10/2011, online at: http://www.orsam.org.tr/en/WaterResources/homepage.aspx

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❖ The European Union and "Resource Efficiency" : Ambitious Targets, Moderate Steps

The European Commission has launched a campaign which aims "resource efficiency". The key message of the capaign is formulated as "consume differently, and think before you choose". The launch of the campaign has been held in Warsaw, Poland, which currently holds the EU Council Presidency.

Remarks of Janez Potočnik provides a summary of the campaign's framework: "With our economy in difficulty and our resources dwindling, it's time to start rethinking some of our habits. Using resources more carefully not only helps protect the environment, but saves money and reduces business costs. It's about using less to do more. Everyone can do their bit. We just need to wake up!"The main tools of the campaign include a viral clip, a dedicated website and a Facebook page where internet users are expected to join "Generation awake" and take on challenges, like "using only public transport for a month or reducing showering time to save water". We would argue that the roots of the campaign which is a social call for resource efficiency date back to earlier times.

The resource efficiency related efforts of the European Union gained momentum by its adoption of the "Resource Strategy" in December 2005. The Resource Strategy defined the term "resource" in a broad manner and emphasized the significance of an integrated approach which is deemed necessary for sustainable use of resources. In light of the perceived difficulty regarding the quantifiable criteria for future, the Resource Strategy document refrained from defining measurable targets, instead it proposes a generic goal as "to reduce the negative environmental impacts generated by the use of natural resources in a growing economy". In order to reach goal, some operational measures are designated. The Resource Strategy specified a 25 year period for attainment of the goals it defines. The issue of Resource Efficiency has also been adopted as one of the major seven initiatives listed within the "Europe 2020 Strategy", in 2010.

The Roadmap, confirming the 2020 targets, provides a to-do-list in more detail. In the "introduction" part of the document, the Commission states that provision of resources for the growing demands of Member States and other countries in the world would become more difficult in the future, mainly because of the wrong policies. The main axis of the document, then, is the need for a "change" in this current framework. Within this context, one of the most crucial things is to "transform the economy". In order to achieve this, several sub-headings come forward: improving products and changing consumption patterns, boosting efficient production, turning waste into a resource, supporting research and innovation, rethinking environmentally harmful subsidies, getting prices right, phasing out inefficient subsidies, and reorienting the burden of taxation. Sectoral policy changes and steps of implementation will mainly focus on the following areas: ecosystem services, biodiversity, minerals and metals, water, air, land and soils, and marine sources are the main areas that. Food, improving buildings and efficient mobility are the key sectors that Commission targets.

According to the Roadmap, the Commission will set up a structure called "EU Resource Efficiency Platform". Besides, there will be additional institutions and procedures ensuring the coordination and monitoring of the efforts aiming to reach the targets envisaged by the roadmap.

Contrary to the Resource Strategy document of 2005, the Roadmap defines some measurable, and through this way it aims to introduce significant targets for the Member States. One may recognize the overlap between argument that the Commission being the major promoter of the environmental protection within the European Union, and the ambitious targets that the Road Map contains. We will be able to see clearer in upcoming Commission Reports about how the campaign, which was launched on September 17, would play a role in attaining these targets and to what extent it will create a change in current awareness levels. In any case, the transition of the EU towards a resource-efficient economy would necessitate a challenging process. It is plausible to expect a process through which some of the Member States would be able to progress fast, while some of them would lag behind. Therefore, it will not be bewildering that the process of economic transformation would highlight the existing dividing lines within the EU.

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❖ Iran releases "polluted" water into Iraqi territories

Diyala, Oct. 17 (AKnews) - After months of dispute and controversy about the drying up of a river by the Iranian authorities that flows into Iraqi territories, the river has now been released again - but "the water is polluted".

The flow of water released into Alwand River that passes through Khanaqin district in Diyala province on the Iranian border reached today the center of the district after about a week it was first released by Iranian authorities.

Khanaqin's Irritation Director told AKnews that due to the small amount of water released by the Iranian authorities it takes long for water to reach Khanaqin and "its smell and taste is not good". "clean water that drinkable can nether have color nor smell, unlike this"

Iran now releases about 3 cubic meter. The drying up of the river by Iran has, according to agricultural officials, harmed more than 1,600 dunams of orchards and 5000 dunams of agricultural land.

Despite fears of its pollution, the people of Khanaqin on Monday cheered with the arrival of the first flow of water after months of a dry river.

Iraq has been complaining in recent years of cuts in water flow from its main rivers that originate from neighboring countries. The release of water by the Iranian authorities came after months of protests by the local residents of Khanaqin and Iraqi authorities delegations visiting Iran for the purpose.

"Iran releases "polluted" water into Iraqi territories", 17/10/2011, online at:
http://www.aknews.com/en/aknews/3/267661/

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❖ Iraq, Oil Majors Agree To Build Oil Field Water Injection Plant

Iraq has agreed with oil majors to build a multi-billion-dollar oil field water injection plant in the south of the country, after disagreement over costs that suspended the project for months, a senior Iraqi official said Wednesday.

Exxon Mobil Corp. (XOM) was picked on behalf of foreign oil firms to lead the mega water-injection project, needed to boost crude oil production rates from Iraq's southern oil fields.

International oil companies have expressed willingness to set up the common water injection project, and include U.K. super major BP PLC (BP), Russia's OAO Lukoil Holding (LUKOY), Italy's ENI SpA (E) and U.K.-Dutch oil major Royal Dutch Shell PLC (RDSA), which is expected to join in later.

"The two (Iraq and oil firms) have advanced toward reaching agreement and we have passed the heads of agreement (phase) into the FEED (Front End Engineering and Design) phase," Thamer Ghadhban, the top energy advisor to the Iraqi Prime Minister said on the sideline of an Iraqi energy conference in Istanbul held by the London-based CWC Group.

Foreign companies had suggested the cost would be a little more than $3 billion to build the first stage of the project, which is designed to process 4 million barrels of water a day, Iraqi oil officials had said.

The Oil Ministry's figures were much lower than those estimated by the oil companies, Ghadhban said.

To overcome differences over costs, Iraq has suggested starting a FEED study aimed at establishing an accurate costs for the project, Ghadhban said.

"It has been decided that they (Iraq and foreign companies) will work together to build the project," he said.

Last month, Nihad Mous, head of the ministry's State Company for Oil Projects, said the main issue delaying the project was that BP wanted costs of the water injection project to be reimbursed when production in these fields reached a 10% increase over their base line before the development process. The ministry wants to start paying back when 20% increase in output was reached.

"Of course an oil company wants to be paid early and of course the oil ministry thinks otherwise. I do not at all see these as stumbling blocks," Ghadhban said.

The water injection project aims to provide water to maintain reservoir pressure to fields such as Rumaila, West Qurna Phase 1 and 2, and Zubair and Majnoon in southern Iraq.

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Iraq has signed a series of deals with oil majors to develop its largest oil fields and is seeking to boost production as the country pulls back from years of war and economic sanctions.

"Iraq, Oil Majors Agree To Build Oil Field Water Injection Plant", Hassan Hafidh, 20/10/2011, online at: http://www.foxbusiness.com/markets/2011/10/19/iraq-oil-majors-agree-to-build-oil-field-water-injection-plant/

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❖ Iran opens 21st int'l congress on irrigation, drainage

TEHRAN (ISNA)-The 21st International Congress on Irrigation and Drainage (ICID) was opened Wednesday in Tehran in presence of Iranian President Mahmoud Ahmadinejad.

Ministers and ambassadors of ICID member states, the current head of the international Irrigation and Drainage commission from Canada, the secretary general of the commission and representatives of European, Asian, African, North and South American countries and hundreds of prominent experts from Iran and other countries have attended the congress.

The event which is held every three years coincides with the 62nd annual International Commission on Irrigation and Drainage (ICID).

The 8th International Micro Irrigation Congress is hosted by Iran as well. The 21st Congress on Irrigation and Drainage is scheduled by the subject of "using water for food security" with two key questions including "the challenges of using land and water" and "management of water in dry land."

Coincidence of the three important events in one country is unprecedented and Iran is the first country to host the three meetings. Ahmadinejad and the country's energy minister are due to give speech in the congress.

Iran enjoys high chance for the chairmanship of the next round of the commission to win majority of votes comparing to China and Egypt.

The 9-day meeting has hosted 400 articles and research achievements by different countries.

The International Commission on Irrigation and Drainage was established on June 24, 1950 as a Scientific, Technical and Voluntary Not-for-profit Non-Governmental Organization (NGO) with headquarters in New Delhi, India. The Commission is dedicated to enhancing the worldwide supply of food and fiber for all people by improving water and land management and the productivity of irrigated and drained lands through appropriate management of water, environment and application of irrigation, drainage and flood management techniques. The Mission of ICID is to stimulate and promote the development and application of the arts, sciences and techniques of engineering, agriculture, economics, ecological and social sciences in managing water and land resources for irrigation, drainage, flood management and river training applications, including research and development and capacity building for achieving sustainable irrigated agriculture. The activities of the Commission are pursued in accordance with the ICID Constitution and By-Laws. Latest version of these was adopted in 1996. English and French are the official languages of the commission.

The Iranian National Committee on Irrigation and Drainage (IRNCID) joined the International Commission on Irrigation and Drainage (ICID) in 1955 in order to facilitate the promotion of knowledge in irrigation and drainage networks, flood control, land and water management, as well as, water and environment conservation to maintain a sustainable development for Iran.

During that time IRNCID has proudly published numerous bulletins, newsletters, around 130 books that have added information and new techniques to the Irrigation and Drainage field. Furthermore, Iran has had the honor of having five Vice Presidents of ICID - Mr. A. Kahkachan (1972-1975), Prof. Javad Farhoudi (1996-1999), and Dr. Saeed Nairizi (2001-2004), Dr. Karim Shiati (2006-2009).

IRNCID won the third award of "Best Performing National Committee" for its outstanding achievements and contribution to ICID activities for period of 2005-2008. The award was presented to IRNCID by the Governor of Punjab on 17 October 2008 on the occasion of the 59th IEC and 20th ICID Congress held at Lahore, Pakistan.

IRNCID, with its general secretariat in Tehran, is affiliated to the Iran Ministry of Energy and is constituted of the High Council, Executive Board, Technical Working Groups and Regional Committees, which include a total of 2100 members composed of experts, professors and students. The Iranian National Committee hosted the 28th IEC meeting and Tehran Special Session in Tehran in 1977 and 4th Asian Regional Conference on Participatory Irrigation Management in Tehran, May 2-5, 2007. IRNCID is proud of holding International and National conferences, periodical seminars and technical workshops.

Iran has been picked as the ICID vice-president three times since the victory of Islamic Revolution of Iran 1979.

Iranian Deputy Energy Minister Mohammad Reza Attar-Zadeh said Iran would be the most likely option for chairmanship of ICID. The vote starts October 23 and Iran, China and Egypt will be involved in the rivalry. He expressed hope Iran would be elected in the poll.

ICID holds a seat in World Water Council and offers consultation to the UN over issues related to water. It also takes part in regional conferences in Asia, Europe, Latin America, the US and Africa.

"Iran opens 21st int'l congress on irrigation, drainage", 19/10/2011, online at: http://www.isna.ir/ISNA/NewsView.aspx?ID=News-1873060&Lang=E

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❖ Syria celebrates World Food Day

DAMASCUS- Increasing awareness about hunger is the objective of World Food Day, which is being observed Sunday by 150 nations. The Food and Agriculture Organisation (FAO) of the United Nations celebrated World Food Day 2011 on Sunday across the world under the theme "Food Prices: From Crisis to Stability" highlighting the challenges facing the world due to price hikes.

The FAO states that currently there are over 1 billion hungry and food insecure people around the world, out of which 98% live in the developing countries where food production needs to double by 2050 to feed their growing populations.

s the number of hungry people shoots past record levels, the United Nations World Food Program (WFP) called on the world to remember the more than one billion urgently hungry people with inadequate access to food.

"World Food Day is actually 'No Food Day' for almost one out of every six people around the world this year," said WFP Executive Director Josette Sheeran.

"Let's remember that more than one billion people won't get enough nutritious food to eat today. We can change this - so our challenge is to turn 'No Food Day' back into 'World Food Day' for the hundreds of millions without food on their table tonight."

Syria state-run news agency reported on Sunday, Ministry of Agriculture and Agrarian Reform in cooperation with the UN Food and Agriculture Organization (FAO) celebrated the international World Food Day, event on Oct. 16th, at al-Assad Library.

Minister of Agriculture Dr. Riyad Hijab said "Syria is heading towards more flexible and open agricultural economy as an essential element in the development process."

Minister Hijab highlighted the government's efforts to achieve self-sufficiency to meet daily needs and set up strategies to improve production quality and reduce the costs.

Dr. Hijab indicated to the importance of advanced irrigation projects carried out in Syria which helped rationalize use of water resources, increase work force in rural areas and improve living conditions through establishing agricultural development projects.

The Minister hailed efforts exerted by the FAO to achieve its goals regarding issues related to food crisis and emergency cases in certain countries under current circumstances, wars and changes all over the world.

FAO Representative in Syria Abdullah Taher Bin Yahya said that according to the World Hunger Report 2011, prepared by the FAO, IFAD and the World Food Program, small import-dependent countries to meet their food needs are at risk due to high and volatile prices and the world food crisis.

Ambassadors, representatives of diplomatic missions, UN organizations and experts participated in this event whose title for 2011 is "food prices… from crisis to stability".

"Syria celebrates World Food Day", 17/10/2011, online at: http://www.dp-news.com/en/detail.aspx?articleid=100183

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❖ India and Iran to cooperate in food security

The Minister of Water Resources Pawan Kumar Bansal stressed that India and Iran have a strong cultural affinity embedded deep in our history and there is great potential for cooperation in irrigation and water resources sector also.

The Minister of Water Resources Pawan Kumar Bansal represented India at the 21st ICID Congress on the theme 'Water Productivity towards Food Security' and 8th Micro Irrigation Congress on the theme 'Innovation in Technology and Management of Micro-irrigation for Crop Production Enhancement' in Teheran, Iran today.

Pawan Kumar Bansal said that the theme of the International Commission on Irrigation and Drainage (ICID) Congress, 'Water Productivity towards Food Security' has immense relevance in the current scenario, as the issue of poverty and hunger has become the most serious challenge facing the world today. In order to meet the increased food requirements of the global population, it is necessary to economise the use of water for irrigation by adopting improved technologies and improving water use efficiencies. Water productivity alone can be the answer to the challenge of water scarcity and for ensuring food security, he said in his address to the congress. The Minister of Water Resources Pawan Kumar Bansal stressed that India and Iran have a strong cultural affinity embedded deep in our history and there is great potential for cooperation in irrigation and water resources sector also.

He further said that in view of dwindling per capita availability of water and to meet the rising multi-sectoral demands, due emphasis is also being given in India to demand side management. While tapping of available water resource through accelerated development of new projects is continuing, India has taken several steps for ensuring optimal utilization of the created facilities.

Indian government has planned to undertake various measures to improve the efficiency of the surface water irrigation system by 20% in five years under the Nation Water Mission targets, Bansal said.

Bansal emphasised that Micro-irrigation is more than just a water saving tool. Over the years it has emerged as an important technological intervention in crop productivity enhancement. It has now been fully recognized that users' participation in the development and management of water resources is essential to achieve the objectives of efficiency and equity in the use of available water resources and maximization of productivity. Water resources development and management cannot and should not remain a governmental concern, he reminded. Water-related issues need to be addressed with the full involvement of the local communities and taking into account specific local conditions and concerns. Water Users Associations are also being increasingly set up to involve the farmers in best water use practices.

Following is the text of the Speech by the Minister of Water Resources, Government of India Pawan Kumar Bansal at the 21st International Commission on Irrigation and Drainage (ICID) Congress on the theme 'Water Productivity towards Food Security' and 8th Micro Irrigation Congress on the

theme 'Innovation in Technology and Management of Micro-irrigation for Crop Production Enhancement' on 19th October, 2011, at Tehran, Iran:

Hon'ble M.R. Attarzadeh Deputy Minister of Energy for Water and Wastewater, Govt. of Islamic Republic of Iran and Chairman of the Iranian National Committee of ICID (IRNCID) , Prof Dr. Chandra Madramootoo, President ICID, Mr. M. Gopalakrishnan, Secretary General ICID, other eminent personalities on the dais, distinguished delegates at the Congress, ladies and gentlemen,

It is a matter of great pleasure for me to attend this 21st ICID Congress and share my thoughts with you all. First of all I would like to thank Government of Iran for inviting me to participate in the event and giving me an opportunity to address this august gathering.

The theme of the Congress, 'Water Productivity towards Food Security' has immense relevance in the current scenario, as the issue of poverty and hunger has become the most serious challenge facing the world today.

The increasing population exerts more and more pressure on our land and water resources to meet its growing food grain requirement. Therefore, the situation demands that these resources are put to most efficient use for sustained high agricultural production.

We all are aware of the fact that world over and especially in the developing world, the per capita availability of fresh water is continuously declining. Many countries in Africa and Asia face the lurking threat of water stress conditions due to rising population, higher standards of living and climate change.

In the World about 70 percent of total water resources developed are estimated to be used for irrigation, 23 percent for industries and the balance by the domestic sector. Due to competing demands, particularly increased demand of water for non-agricultural sectors, quantum available for irrigation sector is coming down.

Therefore, in order to meet the increased food requirements of the global population, it is necessary to economize the use of water for irrigation by adopting improved technologies and improving water use efficiencies. Water productivity alone can be the answer to the challenge of water scarcity and for ensuring food security.

I would like to complement ICID and IRNCID for choosing to highlight the vital issue of water productivity through this Congress.

In India, irrigation has traditionally been the largest user of water, its present utilization being around 80% of the total water use. Therefore, water resources development and management is largely dictated by the needs of irrigation. Considering projected population of 1.6 billion in 2050, the food production is required to be around 420 million tonnes as against the present level of 230 million tonnes, to ensure desired level of food security.

So far, we have concentrated on harnessing more and more of our water resource through development and creation of infrastructure projects like dams, barrages, canals etc.

But today, in view of dwindling per capita availability of water and to meet the rising multi-sectoral demands, due emphasis is also being given to demand side management. While tapping of available water resource through accelerated development of new projects is continuing, we have taken several steps for ensuring optimal utilization of the created facilities.

Presently, the water use efficiency in surface water irrigation systems is low and estimated to be in the range of 35 percent to 40 percent though it is around 65% in case of ground water. Irrigation being the major consumer of water, even a marginal improvement in the efficiency of surface water use will result in saving a large volume of water.

For this we are planning to undertake various measures to improve the efficiency of the system by 20% in five years under the Nation Water Mission targets.

Applying the right quantity of water at the right time and using right cultivation and irrigation practices can make appreciable difference and help achieve high level of efficiency. Considerable savings in water can be achieved by adoption of sprinkler, drip/micro-sprinkler irrigation systems in water scarcity areas, having conditions conducive to their application. Micro-irrigation is more than just a water saving tool. Over the years it has emerged as an important technological intervention in crop productivity enhancement. As 8th Micro-Irrigation Congress is also being organised concurrently with be the ICID Congress, I am sure that deliberations during the Congress will bring to the fore the latest technological developments and innovations in the field.

It has now been fully recognized that users' participation in the development and management of water resources is essential to achieve the objectives of efficiency and equity in the use of available water resources and maximization of productivity. Water resources development and management cannot and should not remain a governmental concern. Water-related issues need to be addressed with the full involvement of the local communities and taking into account specific local conditions and concerns.

We have given due emphasis to capacity building and have established an excellent training institute, National Water Academy at Pune in the state of Maharashtra. This institute provides training to in-service engineers in various fields of Water Resources development and management. Courses to provide training to international candidates have also been started. I hope the member countries of ICID family would like to make use of these courses. Water Users Associations are also being increasingly set up to involve the farmers in best water use practices. ICID since its inception in the year 1950 has been actively working towards enhancing the productivity of irrigated and drained lands through appropriate management of water, environment and application of irrigation, drainage and flood management techniques.

My association with ICID began only in 2009 when India organized the annual event of ICID at New Delhi but since then it has grown immensely and I also attended the last year's event at Indonesia and have since been inter-acting with the ICID office bearers. The two outgoing eminent office-bearers of the ICID; President, Prof Dr. Chandra Madramootoo and Secretary General, Mr. M. Gopalakrishnan, have contributed passionately and immensely in promoting activities related to irrigation productivity enhancement. Their efforts in this field are indeed laudable and I convey my best wishes to them for

all success in their future pursuits.

I hope that deliberations during this Congress will be helpful in coming up with innovative solutions for important issues of enhancing water productivity and ensuring food security. It will definitely help in improving the knowledge base and share our expertise and experiences in the field gained over the years for fulfilling needs of agriculture and water sector of the world.

India and Iran have a strong cultural affinity embedded deep in our history and I feel there is potential for cooperation in irrigation and water resources sector also.

I wish to once again thank the Government of Islamic Republic of Iran for inviting me here and giving me the opportunity to share my thoughts with you.

"India and Iran to cooperate in food security", 20/10/2011, online at: http://www.indiainfoline.com/Markets/News/India-and-Iran-to-cooperate-in-food-security/5270675102

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❖ India keen on expanding Iran ties

Indian Water Resources Minister Pawan Kumar Bansal says his country will not yield to any pressure on the bolstering of its ties with Iran.

"Currently, more than 20 percent of India's oil imports are supplied by Iran and this indicates the magnitude of the cooperation among the two countries," Bansal said in a meeting with Iran's Energy Minister Majid Namjou on Thursday.

He pointed to the historic ties between the two countries, saying that India has no limitation in its desire to expand collaborations with the Islamic Republic, IRNA reported.

The Indian official urged for the enhancement of bilateral cooperation in various fields of energy.

He pointed to Iran's high stature in the world in building dam and related installations and said Iranian companies can invest in different fields related to water, road building and establishing ports, citing India's plan to expand its economic infrastructures with an investment equivalent to USD 500 billion.

Iran's First Vice President Mohammad-Reza Rahimi announced in October that Iran has the world's third biggest dam construction industry.

According to Rahimi, 135 dam projects are currently underway in Iran that will transform the level of agricultural production in the country once they come on stream.

Iran has engaged in dam construction activities in Tajikistan, Armenia and Azerbaijan, and consultations are underway with a number of other countries.

In addition to the necessity of generating electricity, Iran needs dams to effectively control and manage its water shortage across the country. The country's central provinces are located close to vast deserts and suffer from severe water shortages that threaten agricultural operations.

"India keen on expanding Iran ties", 20/10/2011, online at: http://www.presstv.ir/detail/205633.html

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❖ Majlis backs importing Tajik water'

Iran's Majlis Speaker Ali Larijani has voiced parliament's support for a proposal to exchange Islamic Republic's gas in return for Tajikistan's water.

Majlis supports transferring water to the Islamic Republic from the Central Asian country, Larijani said on Friday, adding that "Iran can in exchange provide Tajikistan with its needed gas."

Larijani made the remarks in a meeting with Tajik president Emomali Rahmon in the Tajik capital Dushanbe, IRNA reported.

Tajikistan is rich in water resources while Iran has the second largest natural gas reserves in the world.

Larijani described Iran-Tajikistan relation as "very friendly" and called for a boost in cooperation between the two countries, particularly in economic arena.

The Tajik president, for his part, called for further expansion of ties between the two countries.

Larijani arrived in Dushanbe on Thursday upon an invitation from Tajikistan's Majlisi Namoyandagon (lower chamber of parliament) Shukurjon Zuhurov at the head of a parliamentary delegation for a two-day visit.

He held separate meetings with Tajik Foreign Minister Hamrokhon Zarifi and Zuhurov.

"Majlis backs importing Tajik water"', 22/10/2011, online at: http://www.presstv.com/detail/205951.html

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❖ Sludge AD biogas Analysis in Turkey

At the $150m Antalya wastewater treatment plant, one of the biggest in Turkey, the operator knew what they wanted for anaerobic digestion (AD) biogas analysis. They specified a low maintenance AD biogas monitoring system, with completely automatic operation and remote online support from the manufacturer. In addition they wanted local sales support and service which is provided by the Geotech distributor in Turkey, RAM who supplied a Geotech (UK) AEMS static gas analyser.

At the plant every day over 3,000,000 cubic meters of waste water are treated through 28 units of biological waste water treatment plants, two advanced biological waste water treatment plants, nine waste-water preliminary facilities and 68 pumping stations. The operator is the Kuzu Group and General Directorate of Antalya Water and Wastewater Administration. The Kuzu Group operates all the wastewater treatment plants in Istanbul.

Before the biogas goes to a 2,569 kVA/h CHP engine it is analysed by the Geotech AEMS (Automated Extraction Monitoring System) unit. The biogas analysis data also indicates the stability of the anaerobic digestion process. The AEMS unit was installed and commissioned in a single day by a Geotech service support engineer and since then has run automatically 24/7. A second AEMS unit will be commissioned next.

When the site is fully operational, daily totals of 80,000kg of water-treatment sludge will be processed by four anaerobic digesters, producing up to 26,400 cubic meters of biogas. Built on top of the four anaerobic digesters is a conference room with panoramic views across the Antalya site. The city of Antalya, with a population if one million, is located on the Turkish Mediterranean coast.

The Geotech AEMS static gas analyser has extensive application options with multiple sampling points, data inputs and 4-20mA local data outputs, PROFIBUS and MODBUS comms options, Ethernet and Internet connectivity, data logging and data transfer.

Users of a Geotech AEMS unit have the option of using Geotech AEMS Data Centre software. With this the user retains their own set of data as the AEMS unit stores audit-trailed readings/data sets for well in excess of six months. The data can be viewed on-line with the password-protected Geotech AEMS Data Centre software globally from any PC and downloaded to spread sheets. Using the AEMS Data Centre, operators can remotely remove data from the on-site AEMS flash disk memory once received by the AEMS Data Centre so the in-field unit need never reach a data capacity limit.

For applications not requiring the extensive capability of Geotech AEMS, the user-installed Geotech GA3000 static gas analyser delivers exactly what many users need and at a very attractive package price. Newly announced for the GA3000 is MODBUS digital output allowing communication with SCADA systems. Simple and robust, MODBUS has become an industry standard, allowing communication between many devices. This means that biogas concentration data from the GA3000 can be readily integrated with flow, pressure, and other instrumentation.

"Sludge AD biogas Analysis in Turkey", 20/10/2011, online at: http://www.envirotech-online.com/news/gas-detection/8/geotech/sludge_ad_biogas_analysis_in_turkey/17210/

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❖ Israel controls 85 percent of Palestinian water sources

Cairo, Oct 16 (Petra) -- Israel has controlled 85 percent of Palestinian water resources and underground water in the occupied West Bank is "extremely threatened by the water theft", according to a report by the Arab League Secretariat.

It called on the international community to shoulder its responsibility towards Israel's violations and enable the Palestinian people to have full access to the available water resources.

According to Palestinian and international reports, Israel gets about 65 percent of its annual water consumption of 2,700 cubic meters from outside sources.

The report also referred to Israeli measures that have polluted West Bank water sources, adding that underground aquifers in the Gaza Strip have been contaminated to the extent that rendered them unsafe for human use.

It said the flow of untreated and waste water from Israeli settlements into West Bank valleys, which account for 30 million cubic meters annually, destroyed farmlands as well as underground reservoirs.

"Israel controls 85 percent of Palestinian water sources", 16/10/2011, online at:
http://www.jordandirections.com/2011101641244/local/israel-controls-85-percent-of-palestinian-water-sources

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❖ Struggling for water in Gaza

The Beach camp "Al-shate" is located to the west of Gaza City. Small houses are crowded together with an unbearable smell springing from the wastewater running through the alleys. As volunteers in Youth for the Right of Water and Sanitation project (YRWS) we occasionally visit homes there randomly for our case study on water problems. Residents suffer enormously from serious water problems caused by the Israeli occupation which for years has undertaken exploiting and withdrawing all our pure water resources; groundwater, the Jordan River, the Gaza valley and Lake Tiberius. Thus, all aquifers start to run out and the problem of salty water is increasingly appearing in most houses in Gaza.

We visited the home of Haider Saed Abu-Jazya, a 51 year old carpenter and a father of 14 children whose family has a long miserable history with water. "We have been suffering from water shortage and unfair distribution for 10 years. It's only available for two days a week beginning at midnight only to run out again in the morning. Along with the problem of polluted insufficient supply another problem has emerged, salty water" said Haider who looks older than his age.

The tone of Haider's voice tells us he is extremely worried about his family's life. He is likely to pass on the misery he inherited from his refugee parents to his children. "Can you drink a cup of tea melted with three spoons of salt? Absolutely you cannot" he stresses. He describes how salty and polluted water negatively affects his family. For this, he is obliged to buy a 500-liter gallon supply of water which costs 15 NIS 4 US dollars a day. Sometimes he borrows from a neighbor or friend to pay for it, other times his friends have no money to offer.

Not only is pure water used for drinking but also for ordinary daily use. Haider has a big family, yet he earns a low income to cover the simplest and most important needs of life like water which must be affordable to all people as a matter of human rights.

"A house without water as quiet as a desert", he concludes.

Once, he ran out of water for two weeks in a row, so his wife couldn't do the house chores like cooking, washing and laundering. Thus, they had to throw their dirty clothes away, which were not laundered for days and could not be used again.

How can a human being survive in such conditions?! How can not one be infected by diseases of salty water?

"The low quality of water causes allergies and red pimples arising on my children's skin" his wife whispers.

WHAT TO DO?!

"All dwellers of the neighborhood gathered and headed to the municipality to complain about the water problems we all face, there were promises made but never fulfilled" he said.

Haider speaks on behalf of the Palestinian nation, hoping this voice will be heard all over the planet.

To those who read this article, imagine that you cannot get a drop of pure water while your baby is strongly crying because his milk is his only food.

Palestine suffers from severe lack of water and Gaza's water in particular is going to run out by 2020. As long as the world commits absolute silence, Gaza will turn into a wasteland. Gaza needs your help, don't hesitate to help our people.

"Struggling for water in Gaza", 22/10/2011, online at: http://palsolidarity.org/2011/10/struggling-for-water-in-gaza/

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❖ A harvest of tears: Palestinian agriculture continues to suffer as a result of ruthless Israeli policies

Olive production

It is olive harvest season once again in the Occupied Palestinian Territories (OPTs) and something unusual is taking place, something unique to this region. Unlike most harvests around the world which are collected either by local farmers or migrant workers, in the case of Palestine people are literally flying in from all over the globe, albeit in very small numbers, in order to participate in the olive picking season. This is not due to a cultural tradition or as a communal celebration or festival, but to a sense of solidarity. These are international solidarity campaigners[i] who fly to the Holy Land to stand side-by-side with Palestinian farmers in order to be witnesses and, frequently, protectors for the farmers as they attempt to harvest their meagre crops while being brutalised by Israeli soldiers and illegal Jewish settlers who try to stop them.

The fruit of the olive tree is deeply symbolic to the Palestinian people; it is their most popular and enduring crop. The olive tree is connected to the land of Palestine historically, culturally and even spiritually, with the olive being mentioned as a blessed fruit in the Qur'an and the Bible. Olive trees can live for hundreds of years and generations of families look after the same trees. They are an enduring part of many Palestinians' heritage and create a special bond between the people and their land. An attack on the harvest and the trees by Jewish settlers and the Israeli authorities is therefore also an attack on the culture and identity of the entire Palestinian people.

An attack on Palestinian livelihood

Olives comprise "25% of the total agricultural production in the West Bank"[ii] and olives and their by-products, including soap, olive oil, etc., are one of the most robust elements of the Palestinian economy. However, this source of income is being targeted ruthlessly and has become the focus of a concerted campaign by Israel to force Palestinians off their land and, in the process, degrade and demoralise them. Palestinian farmers have had their land stolen, their crops set on fire, their trees uprooted, and their farms fenced-off beyond their reach and bricked up behind the Separation Wall, and so on. Their orchards have been razed to make way for the building of ever more illegal settlements and racist settler-only roads, and to make way for the continued construction of the illegal "apartheid" wall as well as for no other reason than simply to grab more Palestinian land.

Whereas in the past the olive harvest traditionally provided employment for thousands upon thousands of people in each region, with families working together to bring in the crops, to press the olives, to manufacture the by-products (and to export them), there are now fewer people who can earn a living this way; as a result, Palestinian families are struggling desperately. In 2010 alone it is estimated that "Israeli forces and settlers uprooted or burnt at least 10,346 olive trees in the West Bank."[iii] In Gaza it is estimated by the Palestinian Authority's Ministry of Agriculture, that Israeli forces have "destroyed at least 114,000 olive trees in the strip since the outbreak of the Palestinian Intifada in 2000."[iv] In fact, conservative estimates put the number of olive trees destroyed by the Israelis since the creation of the Zionist state on Palestinian land in 1948 at more than one million; of those, around half have been destroyed since 1987.

Moreover, it is not only olive production which has been affected. While olives and olive trees certainly form the bedrock of the Palestinian agricultural economy, and have a unique connection to Palestinian culture and history, they are by no means the only agricultural produce to come under attack. The whole Palestinian agricultural sector is threatened by the Israeli authorities in a number of ways. In Gaza, for example, the production of all crops is suffering not least because of Israel's designation of "no go" zones and "high risk" zones. According to the UN Office for the Coordination of Humanitarian Affairs in the OPTs (UN-OCHA), 17% of Gaza is now classified as one form of danger zone or another and is therefore inaccessible to farmers who risk being shot and killed by Israeli snipers if they attempt to set foot in those areas, let alone farm there; remember, this is the Palestinians' own land. Of that 17%, approximately 95%[v] is now out of bounds and can no longer be used even though it is arable land. It is further estimated that a staggering "35% of Gaza's cultivable land is located within the restricted area". This obviously has a serious effect in terms of the local economy.

As the UN-OCHA report states, "Considering that the large majority of the restricted area on land is agricultural and comprises some 35 per cent of Gaza's cultivable land, it is not surprising that agriculture-related assets, including fruit trees, greenhouses, chicken and sheep farms and water wells account for 90 per cent of all asset losses. The total value of this property was estimated at USD 275 million. Within this category, the most valuable type of asset is fruit bearing trees, including olive, almond, citrus and grapes. These trees, which take years to grow and maintain before yielding a profitable income, account for more than 213 million [dollars], or 77 per cent of all agricultural losses, followed by greenhouses (47 million [dollars]), water wells (9 million [dollars]), sheep farms (4.5 million [dollars]) and chicken farms (2 million [dollars])."

Furthermore, in the UN-OCHA report "Between the fence and a hard place – The humanitarian impact of Israeli – imposed restrictions on access to land and sea in the Gaza strip" it states: "The value of agricultural and other property destroyed in the past five years in the land restricted area is conservatively estimated at USD 308 million (replacement cost). Agriculture-related assets include fruit trees, greenhouses, chicken and sheep farms and water wells, and account for 90 per cent of this cost. It has been further estimated that access restrictions and the related destruction of agricultural assets results in a yearly loss of approximately 75,000 metric tons of potential produce. The market value of this produce is conservatively estimated at USD 50.2 million a year. Most farmers… indicated that since the expansion of the restricted area in 2008, their income from agriculture has been reduced to less than a third of its previous amount. Others reported having their income wiped out."[vii]

Official Israeli policy - levelling and confiscating the land

One way that the Israeli authorities destroy the crops of Palestinian farmers is by levelling the farmland using armoured tractors and bulldozers and simply razing the crops and groves. In the occupied West Bank, according to the Palestine Centre for Human Rights Annual Report for 2010, "Israel confiscated and/or levelled at least 13,149 dunums of land [around 3,250 acres] across the

West Bank; this figure includes areas of land annexed by Israeli settlers but does not include closed areas, such as the Jordan Valley in the east of the West Bank, access to which by Palestinians is prohibited by Israeli forces."

Israeli soldiers themselves are responsible for much of the destruction. A farmer from Gaza describes being present when "Israeli soldiers fired small bombs into his field, which soon after caught ablaze." He explained that, "The Israeli soldiers fired from their jeeps, causing a fire to break out on the land. They burned the wheat, burned the pomegranate trees… The fire spread across the valley. We called the fire brigades. They came to the area and put out the fire. But in some places the fire started again." Safadi estimates that he lost "30,000 square metres to the blaze, including 300 pomegranate trees, 150 olive trees, and wheat."[viii]

Another Israeli method is to issue military orders demanding that farmers refrain from picking their crops and then arrest them if they refuse to comply. Another common method is simply to set fire to the fields.

Settler attacks on farmers and agricultural land

It is not only the Israeli government and soldiers who make life miserable for Palestinian farmers but also illegal Jewish settlers, who are given a free rein by the Israeli authorities to wreak havoc in the OPTs. Settler attacks take many forms, including the burning of fields and trees; digging-up trees, both ancient and saplings; beating-up farmers who tend their crops, and so on. The reasons for these attacks include "price tag" or revenge attacks whereby the uprooting or burning of trees is said to be in "retaliation" for Palestinian acts of resistance[ix] and, bizarrely, the removal of settlement outposts (illegal even under Israeli law) by Israeli security forces. It is also done to intimidate Palestinians and make life as difficult as possible to "encourage" them to leave their land.

While some attacks take place in broad daylight by brazen settlers who know they can get away with it, other acts of arson, vandalism and violence are committed under cover of darkness. It is common to read news items like the following: "This morning Maher Abu Sab'a' discovered that 248 out of the 250 olive tree saplings that had recently been planted on his land had been destroyed over-night. The saplings which had been planted three months previously had been systematically uprooted from the earth and broken with their remains left scattered over the earth… The attack took place right next to the Israeli checkpoint and watch tower on road 60, however it would appear that there was no intervention in the attack."[x]

Not only do such attacks usually go unchallenged by the Israeli soldiers and other authorities who turn a blind eye to settler outrages, but settler attacks are also given the religious go-ahead by extremist rabbis. In 2002, for example, "Rabbi Mordechai Eliahu, Israel's former chief rabbi, issued a religious edict allowing Jewish settlers to steal Palestinian olive crops in their respective areas."[xi] This

sort of pronouncement encourages settlers to rampage through Palestinian farms stealing and destroying Palestinian property.

This has been a matter of concern highlighted by UN Special Rapporteurs. According to the Special Rapporteur on the right to food, Olivier De Schutter, "The ongoing demolition of agricultural and livelihood structures has exacerbated food insecurity amongst Palestinians in the West Bank... Herder communities have lost access to water for their animals, farmers have been evicted from their land, and Bedouin communities have been especially affected by these demolitions – sometimes having had their property destroyed on repeated occasions." In addition, the Special Rapporteur "expressed concern about the loss of livelihoods due to unchecked attacks by Israeli settlers on Palestinian-owned productive land and natural resources." (27th Sept 2011)[xii]

Conclusion

The destruction of Palestinian property in a way which results in the mass deprivation of traditional sources of livelihood for entire communities should be a matter of concern to all human rights advocates. The fact that this is being done by a regime which is conducting a military occupation of the land of a native population in breach of the Geneva Conventions and all standards of moral decency is a disgrace. It is a cowardly act to attack the source of income for a people already struggling under that occupation and living with the threat of arrest, harassment and death. It is a matter which should be addressed by the international community as a matter of urgency.

Furthermore, the destruction of agricultural land and the razing of crops, trees and farmland should be a cause of serious concern to all environmental activists. Organisations like Greenpeace, environmental campaigners and ecologists the world over should broaden the scope of their concerns to include the wanton destruction of millions of trees, huge swathes of farm land and other environmental hazards created by the Israeli regime. The uprooting and burning of trees is only the tip of the iceberg in terms of Israel's environmental violations. There is also the significant pollution of the land and water supplies of Gaza through the Israelis' use of hazardous and toxic munitions such as white phosphorous. The long-term effect of this is still being calculated in terms of its harmful impact on human beings, plants and animals. The environmental catastrophe affecting wildlife habitats in the OPTs is another way by which Israel is guilty of inflicting collective punishment on the Palestinians. This should not be overlooked by the international community and must be challenged before there is nothing left to save.

[xii] "A harvest of tears: Palestinian agriculture continues to suffer as a result of ruthless Israeli policies", Hanan Chehata, 19/10/2011, online at: http://www.middleeastmonitor.org.uk/reports/by-dr-hanan-chehata/2959-a-harvest-of-tears-palestinian-agriculture-continues-to-suffer-as-a-result-of-ruthless-israeli-policies

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❖ Plumbing the Depths of Deception

Nancy Scola Ignores the H2Occupation of Palestine

"[It is] of vital importance not only to secure all water resources already feeding the country, but also to control them at their source." - Chaim Weizmann, President of the World Zionist Organization and the first President of Israel, at the 1919 Paris Peace Conference

"And when I talk about the importance to Israel's security, this is not an abstract concept… It means that a housewife in Tel Aviv can open the tap and there's water running to it, and it's not been dried up because of a rash decision that handed over control of our aquifers to the wrong hands." - Prime Minister Benjamin Netanyahu, May 17, 1998

"All water has a perfect memory and is forever trying to get back to where it was." - Toni Morrison

On October 18, *The Atlantic* published a lengthy article by Nancy Scola exploring the possible rationale for Texas Governor and terrible GOP Presidential nominee Rick Perry's deep and abiding affinity for Israel. Scola, after citing potential reasons such as "the religious affinities of a conservative Christian" and "a shared fighting spirit" (in addition to "oil", which is odd considering there's no oil in Palestine) for Perry's affection and admiration, suggests a different explanation:

In 2009, Perry told the Jerusalem Post that part of the Texas-Israel "connection that goes back many years" included the reality that "Israel has a lot we can learn from, especially in the areas of water conservation and semi-arid land." It raised the possibility that at the root of Perry's deep commitment and professed connection to Israel doesn't lie in what Texas has in abundance -- oil, faith, orneriness -- but what it lacks: water.

Scola goes on to explain that, when he was Texas agriculture commissioner in the 1990's, "Perry helped to lead the Texas-Israel Exchange, a program that aims to transfer knowledge between the two lands, where farming is a way of life but the water to do it with is often difficult to come by" and draws an environmental and hydrogeological parallel between the two regions. "Texas' mountain aquifers have their equivalent in Israel's karst aquifers," she writes, before quoting UT professor and water expert David Eaton as saying, "Israel doesn't have enough water, but they've figured out how to succeed."

Among the ways Scola describes Israel's victory over water scarcity through "a variety of technologies to try to squeeze the maximum possible water from dry land" are "projects focused on water reclamation -- that is, using treated waste water, including sewage, to irrigate, cool, or in manufacturing processes."

What Scola omits - and considering she devotes considerable space (nearly 2,000 words) to this issue, the omission can not be anything but willful and deliberate - is *Palestine*. In fact, the word

itself never appears in the entire article, nor is the 44-year occupation and blockade that controls Palestinian lives each and every day.

The reason this omission is so glaring is because over 60% of Israel's fresh water supply comes from Palestinian aquifers in the West Bank, illegally seized in 1967 after a conflict instigated by Israel and subsequently controlled exclusively by the Israeli government and military in occupied Palestine.

An October 2009 report by *Amnesty International* entitled "Troubled Waters – Palestinians Denied Fair Access to Water" notes that, in 1967, "Israel forcibly took control of water resources and imposed significant changes in the area's water sector. This included extracting large quantities of groundwater and diverting surface water for its own benefit, while preventing access by the local Palestinian population to these same resources."

In 1982, then-Defense Minister Ariel Sharon transferred all West Bank water systems to the Israeli national water company *Mekorot* for the nominal price of one shekel. A decade later, the Oslo accords established a (so-called) Joint Water Management Committee, granting Israel a veto over all water resources, facilities and infrastructure in the West Bank.

Amnesty reveals that "[d]uring more than four decades of occupation of the Palestinian territories Israel has overexploited Palestinian water resources, neglected the water and sanitation infrastructure in the OPT, and used the OPT [Occupied Palestinian Territories] as a dumping ground for its waste – causing damage to the groundwater resources and the environment" and that "Israeli policies and practices in the OPT, notably the unlawful destruction and appropriation of property, and the imposition of restrictions and other measures which deny the Palestinians the right to water in the OPT, violate Israel's obligations under both human rights and humanitarian law."

The report's introduction states:

Lack of access to adequate, safe, and clean water has been a longstanding problem for the Palestinian population of the Occupied Palestinian Territories (OPT). Though exacerbated in recent years by the impact of drought-induced water scarcity, the problem arises principally because of Israeli water policies and practices which discriminate against the Palestinian population of the OPT. This discrimination has resulted in widespread violations of the right to an adequate standard of living, which includes the human rights to water, to adequate food and housing, and the right to work and to health of the Palestinian population.

The inequality in access to water between Israelis and Palestinians is striking. Palestinian consumption in the OPT is about 70 litres a day per person – well below the 100 litres per capita daily recommended by the World Health Organization (WHO) – whereas Israeli daily per capita consumption, at about 300 litres, is about four times as much. In some rural communities Palestinians survive on far less than even the average 70 litres, in some cases barely 20 litres per day, the

minimum amount recommended by the WHO for emergency situations response.

Access to water resources by Palestinians in the OPT is controlled by Israel and the amount of water available to Palestinians is restricted to a level which does not meet their needs and does not constitute a fair and equitable share of the shared water resources. Israel uses more than 80 per cent of the water from the Mountain Aquifer, the only source of underground water in the OPT, as well as all of the surface water available from the Jordan River of which Palestinians are denied any share.

The stark reality of this inequitable system is that, today, more than 40 years after Israel occupied the West Bank, some 180,000 – 200,000 Palestinians living in rural communities there have no access to running water and even in towns and villages which are connected to the water network, the taps often run dry. Water rationing is common, especially but not only in the summer months, with residents of different neighbourhoods and villages receiving piped water only one day every week or every few weeks. Consequently, many Palestinians have no choice but to purchase additional supplies from mobile water tankers which deliver water at a much higher price and of often dubious quality. As unemployment and poverty have increased in recent years and disposable income has fallen, Palestinian families in the OPT must spend an increasingly high percentage of their income – as much as a quarter or more in some cases – on water.

In the Gaza Strip, the only water resource, the southern end of the Coastal Aquifer, is insufficient for the needs of the population but Israel does not allow the transfer of water from the West Bank to Gaza. The aquifer has been depleted and contaminated by overextraction and by sewage and seawater infiltration, and 90-95 per cent of its water is contaminated and unfit for human consumption. Waterborne diseases are common.

The report also documents how "[s]tringent restrictions imposed in recent years by Israel on the entry into Gaza of material and equipment necessary for the development and repair of infrastructure have caused further deterioration of the water and sanitation situation in Gaza, which has reached crisis point," causing both "water shortages and poor sanitation services" throughout occupied Palestine.

"Since Israel occupied the West Bank in 1967," *Amnesty* reports, "it has denied its Palestinian inhabitants access to the water resources of Jordan River, preventing them from physically accessing the river banks and diverting the river flow upstream into Lake Kinneret/Tiberias/Sea of Galilee." Furthermore, "As well as depriving the Palestinians of a crucial source of water, the drying up of the Jordan River has had a disastrous impact on the Dead Sea, which has seen the fastest drop in its water level to an unprecedented low."

Consequently, without access to the Jordan, the Mountain Aquifer is the only remaining source of water for Palestinians in the West Bank. Still, despite having two other main water resources (Lake Kinneret/Tiberias/Sea of Galilee and the Coastal Aquifer), Israel "limits the amount of water annually

available to Palestinians from the Mountain Aquifer to no more than 20 per cent, while it has continued to consistently overextract water for its own usage far in excess of the aquifer's yearly sustainable yield. Moreover, much of Israel's over-extraction is from the Western Aquifer, which provides both the largest quantity and the best quality of all the shared groundwater resources in Israel-OPT."

Clearly, the miracle of Israeli ingenuity that so enamors Rick Perry and impresses Nancy Scola is not so much technological advancement as it is illegal military occupation and heavily-armed dominance over Palestinian land and resources.

Yet, Israel not only appropriates and exploits Palestinian water supplies ("regardless of the consequences that this disproportionate and unfair division has for the Palestinian population in the OPT and its impact on Palestinians' human rights," says *Amnesty*) through its past and continual colonization, illegal annexation of land via the Apartheid Wall (which has isolated at least 39 groundwater wells from their Palestinian communities with more wells threatened for demolition in the Wall's "buffer zone"), and ethnic cleansing of indigenous populations, it also deliberately destroys what resources Palestinians still have.

During Israel's three-week Gaza massacre in the winter of 2008-9, the Israeli military "destroyed more than 30 kilometres of water networks – the equivalent of more than double the width of the strip at its widest – and 11 water wells," reports the *Emergency Water Sanitation and Hygiene group* (EWASH), a coalition of 30 leading humanitarian organizations operating in occupied Palestine.

Israeli forces also "carried out a strike against a wall of one of the raw sewage lagoons of the Gaza wastewater treatment plant, which caused the outflow of more than 200,000 cubic metres of raw sewage onto neighbouring farmland," reported the UN Fact-Finding Mission. The Goldstone Report continued,

The circumstances of the strike suggest that it was deliberate and premeditated. The Namar wells complex in Jabaliyah consisted of two water wells, pumping machines, a generator, fuel storage, a reservoir chlorination unit, buildings and related equipment. All were destroyed by multiple air strikes on the first day of the Israeli aerial attack. The Mission considers it unlikely that a target the size of the Namar wells could have been hit by multiple strikes in error. It found no grounds to suggest that there was any military advantage to be had by hitting the wells and noted that there was no suggestion that Palestinian armed groups had used the wells for any purpose.

The Mission determined that this assault ("carried out...unlawfully and wantonly") on water facilities constituted "a violation of the grave breaches provisions of the Fourth Geneva Convention," explaining, "Unlawful and wanton destruction which is not justified by military necessity amounts to a war crime" and that such deliberate destruction "was carried out to deny sustenance to the civilian population, which is a violation of customary international law and may constitute a war crime."

Nearly three years after the bombardment of Gaza, the consequences of such war crimes are still devastating.

In March 2011, EWASH notes, "the Khuza'a municipality warehouse was hit by an airstrike destroying a large quantity of essential water and sanitation materials and spare parts to the value of over US$ 60 000. In April, the Al-Mintar water reservoir in Al-Quba area of Gaza City was hit leaving 30 000 people in eastern Gaza city with no water for three days." In mid-July 2011, "an Israeli airstrike destroyed an agricultural well in the eastern part of Beit Hanoun," injuring seven civilians including four children and three women. "The strike also caused damage to nine water tanks belonging to five households in the adjacent neighbourhood, serving 59 people," the report continues.

Whereas the destruction of water facilities in Gaza is the result of Israeli policies of deliberate deprivation and collective punishment, Israeli military actions in the continually colonized West Bank serve a different purpose. *Amnesty* reports, "[t]he Israeli army's destruction of Palestinian water facilities – rainwater harvesting and storage cisterns, agricultural pools and spring canals - on the grounds that they were constructed without permits from the army is often accompanied by other measures that aim to restrict or eliminate the presence of Palestinians from specific areas of the West Bank."

In the past two years, EWASH has documented "the destruction of 100 water, sanitation and hygiene structures, 44 cisterns, 20 toilets and sinks, 28 wells. This year alone, 20 cisterns have been destroyed," *The Guardian* reports. "Most of this is happening in Area C, which is under full Israeli military control." Israeli Occupation soldiers often shoot at vitally-needed Palestinian water tanks.

On December 14, 2010, Israeli occupation authorities demolished eleven water cisterns dug by Bedouin in the South Hebron Hills. *Ha'aretz* reported that "[t]he move, intended to push Bedouin off IDF firing ranges, left dozens of families in the region with no water for their sheep and livestock."

In March 2011, *AFP* reported that "Israeli troops have destroyed three water wells belonging to Palestinian villagers living near a sprawling Jewish settlement outside Hebron." Later that same month, Israeli authorities destroyed "an ancient water well and reservoir southeast of Bethlehem used by Palestinian Bedouin shepherds as their main sources of water."

On July 5, 2011, it was reported that "a convoy of Israeli Army, civil administration, and border police arrived in the Palestinian village of Amniyr accompanying a flat bed truck with a front end loader and a backhoe. Israeli settlers having a picnic at the settlement outpost next to the Susiya archaeological site looked on as the army destroyed nine large tanks of water and a tent." It was the fifth time this year.

Just one week ago, *WAFA*, the Palestinian News and Info Agency, reported, "The Israeli authorities Thursday handed a number of Palestinian farmers demolition orders of several water wells and green houses and stopped construction work of rehabilitating an agricultural road in an area in Kufr Al-Deek, a town in Salfit," according the town's mayor.

Drilling new wells and rehabilitating existing wells is prohibited in the West Bank without the authorized consent of the Israeli occupiers and *Mekorot*, Israel's National Water Company, routinely disrupts the flow of water to Palestinian land that relies on irrigation. Meanwhile, as Palestinians are "denied access to an equitable share of the shared water resources and are increasingly affected by the lack of adequate water supplies, Israeli settlers face no such challenges - as indicated by their intensive-irrigation farms, lush gardens and swimming pools. The 450,000 Israeli settlers, who live in the West Bank in violation of international law, use as much or more water than the Palestinian population of some 2.3 million."

In her *Atlantic* column, Nancy Scola addresses none of these issues. Instead, she notes that many state governments in the U.S. have business partnerships with the State of Israel, noting that "the exchange between the state of Texas and the state of Israel is generally considered the oldest such relationship, and it is certainly one of the most robust."

Scola also quotes from a 1996 op-ed Rick Perry wrote for the *Austin American-Statesman*, in which he "bragged about teaming up with Israel, 'a country known for using technology to turn a desert into an agricultural oasis of productivity.'" This pernicious myth of "*Desert-Bloomism*", while articulated by Perry, is allowed to stand on its own, unchallenged, in Scola's article.

While Scola suggests Rick Perry's love affair with Israel may be based on a shared lack of water, it is abundantly clear that the common ground between the Texas governor and the Israeli government has far more to do with a shared lack of humanity.

"Plumbing the Depths of Deception", Nima Shirazi, 22/10/2011, online at: http://mwcnews.net/focus/analysis/14322-the-atlantic.html

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❖ France Delivers Feasibility Study to Water Authority

RAMALLAH, October 18, 2011 (WAFA) – The Palestinian Water Authority (PWA) Tuesday received a French-funded feasibility study on the establishment of water training center, according to a press release.

The release said the Consul General of France in Jerusalem, Frederic Desagneaux, delivered a feasibility study on the establishment of a Palestinian training center for professionals working in the water and sanitation sector to the head of PWA, Shaddad Attili.

The study conducted by the International Office for Water at the request of the PWA focused on the terms of reference of such a center (technical features, cost, location, governance), in view of improving the training supply in the water sector in Palestine.

The water sector is a top priority for French cooperation in the Palestinian territories, both in the West Bank and Gaza, with a total funding estimated at 100 million euros since 1998.

"France Delivers Feasibility Study to Water Authority", 18/10/2011, online at: http://english.wafa.ps/index.php?action=detail&id=17800

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❖ John Holtz: Don't let fracking ruin clean water for our kids

In 1995, the vice president of the World Bank declared that the wars of the 21st century would be fought over water like war was fought over oil in the 20th century.

In May of 2000, an article in Fortune Magazine declared, "Water is the Oil of the 21st Century."

To buy a gallon of boutique spring water today costs at least twice as much as purchasing a gallon of gasoline. Which is more valuable? Which resource can keep being renewed and replenished? Which one are we about to let our government grant dominion over the other?

Is the present-day commodity that is natural gas more valuable than the potential return on the commodity of clean water in the future? The real economic prize is not to be had now; it is to be had a bit down the road. Today's thinking is the equivalent of my grandparents spending their money on a new Model A instead of buying 100 acres of lakefront land.

I can imagine a day soon when the pure sweet waters are worth more than any gas we sell now. If we frack it now, we risk everything.

Pennsylvania is in a fracking gas boom right now. Let the good times roll! We can be just like them. Their bonanza has the Department of Labor Statistics stating their unbelievably low unemployment rate (thank the gods of gas) is at 7.8 percent. Non-fracked New York is a sky-high 8 percent. What a vast difference this miracle has bequeathed on those who frack.

Right now, the southwestern part of the United States is experiencing record drought. Water that was once diverted to irrigation projects needs to be saved for human consumption.

In the oil-rich Mid-East, Israel and Saudi Arabia are no longer using water to irrigate croplands. Their underground aquifers have dwindled past the point of being able to replenish. Can you read these tea leaves, tea partiers?

What if we bank away the shale gas for future, safer extraction that may be developed 10 to 20 years from now? Imagine what the gas prices will be then.

But that means our kids benefit, not us. They get the gas prices down the road; they get a generation's use of clean water. If you want to bet, why not bet that gas prices will be up quite a bit in 20 years? Why not bet that clean, pure water will be a highly sought product in the future, too?

The tables will turn. History does repeat. Fossil fuel is not forever, but water is a life-giving system that naturally replenishes.

Natural security is not just having the biggest bomb; national security is having shale gas banked away, and it is having clean water, everywhere.

We can win the future, but not if we lose the present. If we go the way that it seems the power brokers are leaning, which is to allow the fracking of our beloved land, then hope is lost.

"John Holtz: Don't let fracking ruin clean water for our kids", John Holtz, 19/10/2011, online at: http://www.dailynewstranscript.com/z_dead_mysource/business/x1199435156/John-Holtz-Dont-let-fracking-ruin-clean-water-for-our-kids#axzz1bM0z4zUW

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❖ Israeli wastewater treatment firm wins int'l recognition

Emefcy named Early Stage Company of the Year and selected to the Global Cleantech 100 list. Talkbacks (2)

Caesarea-based wastewater treatment company Emefcy was named Early Stage Company of the Year and selected to the Global Cleantech 100 list for the second year in a row at the Global Cleantech 100 Summit and Gala held in Washington, DC, on Monday and Tuesday, the company announced at the conference's conclusion.

The summit and list, produced by the San Francisco-based Cleantech Group and the United Kingdom's Guardian News and Media, narrowed down an original list of 4,274 nominees from more than 45 countries to 100 firms from 16 nations, an Emefcy statement explained.

Founded in 2008, Emefcy develops different technologies that treat wastewater, with the goal of being as economically efficient and energy-efficient as possible, the company said. Two of its major technologies, the Electrogenic Bio- Reactor and the Spiral Aerobic Bio-Reactor, allow the wastewater treatment mechanism to simultaneously generate renewable energy that can be funneled into national grids.

"Being given the Early Stage Company of the Year Award is a vote of confidence in Emefcy's vision of changing the economics of wastewater treatment," said its co-founder and CEO, Eytan Levy, in the statement.

"We are also excited by the recognition Emefcy has gained among corporate community and regulators to be named as one of the Global Cleantech 100."

Among the internationally prominent environmental and energy officials, innovators and businesspeople to address the event was US Environmental Protection Agency administrator Lisa P. Jackson, according to the Cleantech Group.

"There are many promising cleantech companies coming out of Israel, but Emefcy is a stand-out in the eyes of the international cleantech community," Richard Youngman, Cleantech's managing director for Europe and Asia, said in a statement. "To achieve the rating it did within the Global Cleantech 100, and the positive praise from both investment and industry players within our expert panel, as a pre-revenue company, was impressive. [It is a] worthy winner of the Early Stage Company of the Year award."

"Israeli wastewater treatment firm wins int'l recognition", Jerusalem Post, Sharon Udasin, 21/10/2011, online at: http://mideastenvironment.apps01.yorku.ca/?p=3521

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❖ The Basis of Rick Perry's Middle East Policy: It's Not Oil, It's Water

Ever since it became apparent that Texas Gov. Rick Perry was a staunch defender of Israel, and all the more so when a video emerged showing him joining rabbis in a spirited Hanukkah dance in the governor's office last year, the roots of his long-standing affection for the nation state have been a subject of speculation in some quarters. Was it oil? The religious affinities of a conservative Christian? Or was it a shared fighting spirit? Perry, after all, once drew a connection between Masada, the site of a siege during the First Jewish-Roman War, and the Alamo.

After Perry gave a speech on Israel at the W Hotel in New York City late last month, Maggie Haberman of *Politico* picked up on a detail that points to yet another explanation. In 2009, Perry told the *Jerusalem Post* that part of the Texas-Israel "connection that goes back many years" included the reality that "Israel has a lot we can learn from, especially in the areas of water conservation and semi-arid land." It raised the possibility that at the root of Perry's deep commitment and professed connection to Israel doesn't lie in what Texas has in abundance -- oil, faith, orneriness -- but what it lacks: water.

For eight years in the '90s, while Texas agriculture commissioner, Perry helped to lead the Texas-Israel Exchange, a program that aims to transfer knowledge between the two lands, where farming is a way of life but the water to do it with is often difficult to come by.

"Get a globe and draw a line from Texas to Israel," observes Prof. David Eaton, a water expert at the University of Texas' Lyndon B. Johnson School of Public Affairs. "They're basically the same neck of the woods." Indeed, as far as latitudes go, they are: Austin and much of Israel both sit at 31° North of the Equator. "Texas isn't England," says Eaton, continuing to lay out the similarities. "We've got wet years, dry years, geographic variability. They've got South Israel and North Israel, and we've got East Texas and West Texas." Homeowners in El Paso, says Eaton, are being encouraged to practice xeriscaping, the art of having a lawn that requires little hydration by virtue of it being filled with low-water plants, rocks, and pebbles. It's a method of landscape beautification that is traced back to Israel -- and its often strict residential water restrictions. Texas' mountain aquifers have their equivalent in Israel's karst aquifers. "You can't be theoretical with farming," says Eaton. "You want to have it done in the field with real farmers. So many of the conditions of uncertainty are consistent between the two that it makes for a really useful parallel. Israel doesn't have enough water, but they've figured out how to succeed."

Begun back in the mid-'80s, the Texas-Israel Exchange has experimented with a variety of technologies to try to squeeze the maximum possible water from dry land, and to make the most out of what does exist at the surface. One early $50,000 grant under TIE, as it's known, studied whether some plants could be watered with salt water. (It worked for Blackfoot daises; on velvet sage, not so much.) Drought-resistant Israeli grains were cultivated for their genetic material so that they might be tried in Texas. One major effort involved using drip irrigation to grow rice, rather than the water-hogging flood irrigation method in more general use. The Lower Colorado River Authority and the Tel Aviv-based firm Netafim partnered on the project; proponents say it can grow the same amount of rice with half the water. Then there are projects focused on water reclamation -- that it, using treated waste water, including sewage, to irrigate, cool, or in manufacturing processes. For both sea-adjacent lands, desalination through either evaporation or forcing the salt water through a permeable

membrane is seen to have potential. Texas has its eyes on its 350 miles of coast along the Gulf of Mexico, and what it says is 2.7 billion acre-feet of brackish groundwater. In 2002, Perry, then governor ordered the Texas Water Development Board to explore whether the state might build a large-scale desalination plant that might produce for Texans a supply of fresh drinking water.

The partnership between Texas and Israel officially began under Perry's predecessor as agriculture commissioner, Democrat Jim Hightower, who held the post for two terms in the '80s before becoming a liberal radio personality. And in something of a strange political twist, some observers say that one person that Perry might have to thank for his early and frequent exposure to the needs of Israel is...the Rev. Jesse Jackson.

Steven A. Moore, director of the sustainable design program at the University of Texas, wrote a 2001 book on Laredo's Blueprint Farm, one of the earliest fruits of the Texas-Israel partnership. Hightower became a prominent national supporter of Jackson's presidential bid, writes Moore. That created problems for Hightower when, shortly after Jackson made a high-profile visit to Texas, he was quoted in the *Washington Post* referring to Jewish Americans as "hymies." The incumbent commissioner soon planned a trip to Israel, saying that Texas "should take its cue from Israel's water conservation pioneers." Analyzes Moore, "Hightower's dramatic and timely construction of common cause with Israel was born a brilliant solution to political (and agricultural) problems."

It was while touring Israeli kibbutzim that Hightower met Avraham Katz-Oz, Israel's deputy minister of agriculture. The next year, Katz-Oz visited Texas, and the Texas-Israel exchange program was born soon thereafter. As Hightower tells it in his own book, the partnership's origin was as a new kind of "global trade deal" that brought together "plain old dirt farmers" and others on the lower rungs of Texas farming society with their counterparts in Israel. In 1991, the relationship was further formalized with the creation of a Texas-Israel Fund Board, focused on paying for applied research between the two places. That same year, Perry -- who beat Hightower in the race for agriculture commissioner in part by playing up the Hightower-Jackson connection -- took his first trip to Israel.

Perry made himself a champion of the Texas-Israel knowledge exchange. But, says Moore today, "what Rick Perry wouldn't say is that it originated under Jim Hightower."

It's origins notwithstanding, Perry became a staunch advocate for the Israel research partnership. In a 1996 op-ed in the *Austin American-Statesman*, Perry bragged about teaming up with Israel, "a country known for using technology to turn a desert into an agricultural oasis of productivity." For Perry, the emotional impact of the Texas drought ran deep: "If you asked an old-timer what two events in this century left their imprints the deepest in the minds of rural Texans, I'll bet the answer would be the Great Depression and the drought of the 1950s." Even if, for him, the pain was somewhat removed: "They both spawned more hardship for grown folks than most of us can imagine today. I lived through the big drought but l had my pony and my dog, so I didn't pay much attention to my dad sitting at the kitchen table scratching out figures on a Big Chief tablet."

About ten years after authoring the newspaper piece, Perry, now governor, solidified his intellectual debt to Israel, with the creation of the Texas-Israel Chamber of Commerce, "a private, not-for-profit business organization whose aim is to boost the economies of Texas and Israel by helping member companies develop important business relationships with each other and explore new market

opportunities," with a focus on high-tech collaborations. Today, the Chamber claims as its two main champions Perry and Israel's Ministry of Industry, Trade, and Labor.

Contacts between U.S. states and Israel aren't, of course, exclusive to Texas. Among the states whose governors have made recent trade missions to Israel are Massachusetts, Rhode Island, and Oregon; Virginia maintains a tech alliance focused on encouraging Israeli companies to do business in the commonwealth. But, going back as it does more than quarter century, the exchange between the state of Texas and the state of Israel is generally considered the oldest such relationship, and it is certainly one of the most robust.

The Texas-Israel Exchange program has had its critics. The Sunset Advisory Commission is a body of the Texas legislature that evaluates the state's government agencies with an eye towards identifying and eliminating "waste, duplication, and inefficiency." In its once-every-12-years review of the Texas Department of Agriculture, conducted in 2008, the commission, citing the $500,000 in grants paid out through TIE in 2008 and 2009, found that the program was too much of a black box. "The Texas-Israel Exchange Fund Board provides funding for agricultural research projects intended to be of mutual benefit to Texas and Israel," wrote the commission in its report. "While the program is able to leverage state dollars to fund useful research for Texas agriculture, the funding for and results of these projects are not transparent to the Legislature, the agriculture industry, or the public. The same functions could be provided by an advisory committee, rather than a semi-independent board." The board was indeed abolished, and its functions rolled back into the department as a whole. Eaton also points to the obstacles inherent in trying to move farmers into new and, in their eyes, potentially, untested ways of farming. "You're changing how people farm," he says. "You're changing how you go to market. It's a challenge."

The reality, of course, is that both Israel and Texas continue to struggle with water. Israel, mindful of the mid-60s "Water Over Water" concerning rights to the Sea of Galilee -- thought to have contributed to the tensions sparking the Six Day War -- has worked to bring online major new desalination plants. This summer, the country said that with the completion of a plant in Ashdod, "desal" water -- expensive, energy-intensive desalinated water -- would now make up 75 percent of the water consumed by its people. And Texas, of course, is in the midst of a drought of historic proportions, one that the state's existing water system can't cope with. The lack of water is reported to have caused some $5.2 billion of economic pain to the state's agricultural sector, and the state has been ravaged by fires. On the latest U.S. Drought Monitor color-coded map of drought conditions, Texas is nothing but a big angry red ball. Some three-quarters of the state is suffering through "exceptional" drought conditions, and the state climatologist is warning that this situation could continue through 2020.

Perry, who said during a September presidential debate that climate change science is "not settled" and seemingly compared global warming doubters to Galileo, has coupled his belief in the benefits of knowledge transfer with a faith of the more spiritual variety. In April, Perry declared a long weekend of prayer. "It seems right and fitting that the people of Texas should join together in prayer," reads the proclamation from his office, "to humbly seek an end to this devastating drought and these dangerous wildfires." Texans might be forgiven for getting down on their knees. A scary 2012 draft state water plan from the Texas Water Development Board recently found that unless the skies open

up, the state "does not and will not have enough water to meet the needs of its people, its businesses, and its agricultural enterprises."

It's a major challenge. For the Israelis' part, the Consulate General for the southwestern U.S. has stated that "with water set to become the oil of the 21st century," research jointly funded by Texas and entities in Israel "will be essential in helping stretch this precious natural resource as far as possible in two arid agricultural producing areas: Texas and Israel." The severity of Texas and Israel's shared challenge is something that Perry seems to have been attuned to for at least two decades now, and understanding his approach to Israel would seem to require paying a good deal of attention not just to oil, but to water.

"The Basis of Rick Perry's Middle East Policy: It's Not Oil, It's Water", 18/10/2011, online at: http://www.theatlantic.com/politics/archive/2011/10/the-basis-of-rick-perrys-middle-east-policy-its-not-oil-its-water/246839/

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❖ Ministry negotiating wheat cultivation investments in Europe, Central Asia

AMMAN – The Ministry of Agriculture has started negotiating with officials from several European and Central Asian countries to allow Jordanian businesses to invest in wheat cultivation in these water-rich countries, a senior official said on Sunday.

Ministry of Agriculture Secretary General Radi Tarawneh explained yesterday that ministry officials, fully aware of the insufficiency of local wheat production and the unsuitability of the Kingdom's environment for growing the staple crop, met with their counterparts from Romania, Russia, Bulgaria and Kazakhstan to discuss acquiring pieces of land to be developed for wheat cultivation by Jordanian investors.

But Jordan Agriculture Engineers Association (JAEA) President Abdul Hadi Falahat questioned the feasibility of the projected wheat cultivation investments, saying "even if they are implemented, they will not yield the envisioned results".

"Such projects will be implemented by businessmen and thus will be governed by the market mentality that is primarily focused on increasing profits and not achieving food and social security," he pointed out.

Realistically, Jordan is far from achieving self-sufficiency in wheat production, but it can at least increase its production of the strategic produce to reach reasonable levels, Falahat told The Jordan Times in a telephone interview yesterday.

"The severe lack of water resources and the shrinking of agricultural lands due to the expansion of urbanisation and infrastructure development activities are the major reasons that make Jordan unable to become self-sufficient in wheat production," he noted.

Falahat added that the JAEA informed the ministry about a plan it devised to increase the Kingdom's production of wheat, but "unfortunately, nothing tangible has been done yet".

"The plan is simple, summarised just in two phases: giving farmers in the Jordan Valley and Disi region, where water resources are plentiful, incentives to cultivate wheat and drafting a law that regulates the use of agricultural land," Falahat said.

Jordan's annual wheat production of 10,000 to 15,000 tonnes can be increased to reach 80,000 to 100,000 tonnes if the plan is implemented, according to the JAEA president.

"When it comes to wheat production, there should be a strong will on the part of the government, manifested in institutionalised decisions, because it is a matter that lies at the heart of political, social and food security," Falahat said.

According to a Department of Statistics (DoS) report issued on Saturday, Jordan produces around 5 per cent of its needs of wheat while the rest is imported from other countries, mainly the US.

The DoS report, a copy of which was sent to The Jordan Times, indicated that the Kingdom imported 98 per cent of its wheat needs in 2009 and 96 per cent in 2010.

"Locally produced wheat meets the Kingdom's consumption needs for only 17 days [out of the year]," the report said.

However, Jordan has achieved self-sufficiency in the production of five other basic food items: olives, olive oil, milk, eggs and tomatoes, according to another DoS report published recently.

Despite the encouraging production of these items, the Kingdom has yet to achieve self-sufficiency in the production of red meat, which Jordan imports in large quantities to meet local market demand, the DoS report said.

Local production of olives, olive oil, tomatoes, milk and eggs witnessed considerable increases of 102 per cent, 106 per cent, 201 per cent, 100 per cent and 115 per cent respectively in 2010, the report said.

According to the report, Jordan's self-sufficiency rates of red meat fell from 35 per cent in 2009 to around 20 per cent in 2010.

"Ministry negotiating wheat cultivation investments in Europe, Central Asia, Jordan Times", Raed Omari, 21/10/2011, online at: http://mideastenvironment.apps01.yorku.ca/?p=3523

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❖ EU grant of €755,000 for the rehabilitation of the Nahr el Bared canal in Lebanon

The Nahr el Bared canal in Northern Lebanon, the main source of irrigation for farmers in several municipalities, benefiting nearly 35,000 people, has recently been rehabilitated through an EU grant amounting to €755,000. *"The EU always followed a dual strategy: the implementation of high impact local development projects, and the institutional strengthening of relevant authorities. In this regard, the partnership with Water Company in Northern Lebanon is promising,"* Ambassador Angelina Eichhorst has said, according to a Delegation press release.

In addition to the important rehabilitation work, awareness raising activities related to water management were held with communities in order to ensure the maintenance of the canal and respect for the environment when implementing agricultural practices.

Jamal Krayem, Director of the Water Company in Northern Lebanon said: *"The Water Company in Northern Lebanon and its team were able to acquire new expertise in the design, management and execution of a contract concluded with the EU, according to its conditions and criteria. This is a first experience for us."*

Furthermore, Ambassador Eichhorst met the team of the Council for Development and Reconstruction and the Economic and Social Fund for Development, responsible for the implementation of the "Programme to support local development in Northern Lebanon".Through a grant of €18 million, this programme will fund agricultural rural infrastructure andsupport local initiatives implemented by municipalities.

She also visited the village of El Bourj to inaugurate a photo exhibition titled "The natural resources of High Akkar" as part of a project funded through an EU grant of €414,000, titled "Promoting economic and public participation of women in Lebanon". The exhibition, organised by the Rene Moawad Foundation andMADA NGO, displayed the rich natural heritage of NorthLebanon. A discussion with elected officials – mayors and deputies – was held on the subject ofthe natural park of Qammoua.

Ambassador Eichhorst said: "*There is no appreciation or protection of resources without a common vision and prior and coordinated planning. The strategy should be elaborated at regional level and involve all development stakeholders. In the High Akkar, the European Union is committed to supporting this local development dynamic by financing a plan on land use at the regional level."*

"EU grant of €755,000 for the rehabilitation of the Nahr el Bared canal in Lebanon", ENPI, 04/10/2011, online at: http://mideastenvironment.apps01.yorku.ca/?p=3509

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❖ EGYPT: Water challenges forcing a rethink on usage

SHARQIA, 18 October 2011 (IRIN) – Leaking water pipes, evaporation and a rapidly growing population may be significant concerns for those trying to manage and plan water supplies in Egypt, but compounding such problems – and forcing Egyptians to rethink how they use water – is the threat posed by downstream countries which also want to take more water from the Nile, say observers.

"Egyptians have to adapt to less water every day," said Rida Al Damak, a water expert from Cairo University.

Egypt has a population of about 85 million, and receives an annual Nile water share of 55.5 billion cubic metres, according to experts. Around 85 percent of that water is used in agriculture, but a lot simply leaks away.

According to a 2007 research paper by Fathi Farag, an independent water expert (link in Arabic), Egypt loses two billion cubic metres of water to evaporation, and three billion cubic metres to grass growing on the banks of the Nile and on river islands.

Around 40 percent of the remaining water – used domestically and in industry (2.3 billion cubic metres) – is lost to leaking pipes and drains, while 2.5 billion cubic metres are used to generate electricity, the paper says.

"If you calculate all this amount of lost water, you will discover that Egyptians are left with a fraction of what their country receives every year from the Nile," Farag told IRIN. "This can also show why we should start to worry."

For farmers like Hamdy Abuleinin, who was able to irrigate his 2.1 hectares of rice only after an argument over water with neighbours in Sharqia near Cairo, this year has proved difficult. "Finding water for irrigation is becoming a daily worry for farmers here," he told IRIN.

International threat

A 1959 water-sharing agreement between Egypt and Sudan gives Egypt 55.5 billion cubic metres of Nile water, but according to Maghawri Shehata, an adviser to the irrigation and water resources minister, population pressure means the country is already facing a shortfall of 10-15 billion cubic metres annually, and "plans by upstream countries to redistribute the water will be very harmful to Egypt".

According to the Nile Basin Initiative countries that share the Nile River basin have demanded the revision of colonial-era agreements that allot the bulk of the river's water to Egypt and Sudan and allow Cairo to veto upstream projects.

Egypt does not recognize a recent agreement signed by Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda, that seeks to allow irrigation and hydroelectric projects to go ahead without Cairo's consent. Ethiopia, for instance, is planning a series of dams along the Nile to generate electricity.

In March, Ethiopia announced the construction of the Renaissance Dam, which aims to be the largest hydroelectric plant in Africa. Experts like Mehari Beyene, writing for the International Rivers network, however, say the dam, which is being constructed near the Sudanese border, has raised concerns about its environmental and human impacts.

Haytham Awad, an irrigation engineering professor from Alexandria University, said Ethiopia's plan to construct dams along the Nile would reduce Egypt's current share by five billion cubic metres annually, but he thought this might be manageable if Egypt could cooperate with Ethiopia and buy some of the electricity generated.

Protests over water shortages in Egypt are nothing new especially in July and August, the hottest summer months. On 11 October a 16-year-old farmer was killed in a dispute over water in the southern governorate of Aswan.

Farmers like Abuleinin worry about the future for his seven children. "Fights over water sometimes become physical as water becomes scarcer and these fights might entail loss of life. But the alternative for us is to starve."

"EGYPT: Water challenges forcing a rethink on usage – IRIN", 21/10/2011, online at: http://mideastenvironment.apps01.yorku.ca/?p=3525

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❖ 44 power and water projects worth USD 32 billion in GCC pipeline

Arabian Business reported that a total of 44 power and water projects are being built or set to start in 2012 in the GCC valued at nearly USD 32 billion.

According to a study by Ventures Middle East, the UAE leads the way with 11 projects valued at USD 10 billion including the USD 800 million Hassyan 1 Independent Power Plant where construction is slated to begin next year.

The research said that Saudi Arabia also has 11 new projects underway or due to start in 2012 valued at USD 8.6 billion. In Kuwait, ten projects are underway valued at USD 3.4 billion 7 of which will begin construction in 2012.

Bahrain has three projects valued at USD 4.1 billion including the independent water and power plant in Al Dur, which has been ongoing since 2008.

Ventures said that Qatar has three projects valued at USD 3.3 billion while Oman has 6 projects valued at USD 2.5 billion all of which will begin construction in 2012.

Mr Abdulla Saif Al Nuaimi DG of Abu Dhabi Water and Electricity Authority said that "The power sector in the GCC region has seen exponential growth ranging from 10% to 15% annually in many of its member states with demand for electrical power to triple over the next 25 years. Similarly, the water industry is expected to be worth USD 70 billion over the next 10 years."

Mr Anita Mathews exhibition director for Power + Water Middle East said that "The latest developments in the power and water sectors of the GCC countries underline the fact that the region is not only one of the fastest growing but also holds the most potential of global electricity markets."

"44 power and water projects worth USD 32 billion in GCC pipeline", 18/10/2011, online at: http://www.steelguru.com/middle_east_news/44_power_and_water_projects_worth_USD_32_billion_in_GCC_pipeline/230152.html

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❖ Cornell Law to Host "Water Scarcity and Policy in the Middle East and Mediterranean" Conference

Scholars from around the Mediterranean Basin will gather at the Cornell University Law School from Nov. 4 through 6 for a conference, "Water Scarcity and Policy in the Middle East and Mediterranean." The conference is designed to bring together scholars from multiple disciplines to address the global fresh-water crisis, primarily in the Middle East, the Mediterranean Basin and the Nile Basin. Issues to be covered include topics such as water rights, governance of water law, international water law and cultural approaches to water-policy solutions. The conference is sponsored by the Law School, Cornell's David Atkinson Center for a Sustainable Future, the Department of Biological and Environmental Engineering and the Institute for European Studies and Higher Education for Development.

"Cornell Law to Host "Water Scarcity and Policy in the Middle East and Mediterranean" Conference", 21/10/2011, online at: http://wvbr.com/news/932

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❖ Q&A: Dr. Peter Gleick on The World's Water Volume 7

Peter Gleick, an internationally recognized water expert, tells Circle of Blue what has changed — and what has not — since the 2009 release of Volume 6. The Pacific Institute's biannual report analyzes how water relates to climate change, corporate interests, and policy reform.

More and more regions around the world – from the Yellow River in China to the Great Plains in the United States – are reaching their "peak water" limits, according to the latest biennial report on freshwater resources by the Pacific Institute for Studies in Development, Environment, and Security.

The seventh volume of *The World's Water* analyzes the role of climate change in transboundary water politics, looks at the corporate risks and responsibilities around water, probes the effects of fossil fuel production on water quality, and lays out the need for reform and a soft-path approach to U.S. water policy.

The study also looks at Australia's decade-long drought as a case study for other parts of the world — including California and the Western United States — and explores the regional and global consequences of China's rampant dam-building policy. Other topics include bottled water, The Great Lakes Water Agreement, and how water impacts security.

"The idea behind this book is to provide a regular update on the state of the world's water – what progress have we made in solving water problems, where are we falling behind – and to provide an update on data," said Dr. Peter Gleick, president of the Pacific Institute and lead author of the report. "We also look back over a long period of time at the trends, and the fact that this is now Volume 7 gives us an increasingly long view on water issues."

Circle of Blue spoke with Gleick about the report and the state of the world's water.

Circle of Blue: Which regions of the world are facing the highest risk of reaching "peak water," and what does this really mean globally?

Peter Gleick: The last volume of *The World's Water* – Volume 6 – laid out the concept of peak water, that is, growing constraints in three areas. One is on renewable water resources: limits to our ability to take more water from renewable systems. And we see examples of "peak renewable water" all over the world, including the Colorado River, the Nile River, the Yellow River — rivers where we are effectively taking almost the entire renewable river flow, and that's a peak renewable limit. We also talk about "peak non-renewable water resources," where we are overpumping non-renewable groundwater faster than nature recharges it. And we see these limits again in many parts of the world — in California, the Great Plains, Northern China, India, large areas of the Middle East. These are peak non-renewable limits, and they are not sustainable. And the third category is "peak ecological water," where we are running up against environmental constraints on how much water we can use in any system; where we are causing more ecological harm than we are producing economic benefit. And several parts of *Volume 7* are examples of peak water. The chapter on Australia is a good

example of peak water constraints in Australia, where we are simply running against physical contraints on how much water we can use.

The report features a chapter on corporate water management. What is the potential for business to push the global sustainability agenda?

Peter Gleick: I think the good news is that the corporate sector and businesses are increasingly aware of their impacts on water resources; on the risks they face from water scarcity and contamination; on their responsibility for using and managing water in a more sustainable way. And that's actually a change from 14 years ago [when we did Volume 1], when participation by the business sector in these conversations was almost non-existent. There's good news in that the corporate sector is playing a more positive role. But the corporate sector is only one player. They have certain responsibilities, but it's also critical that governments and communities address these problems as well. No one sector is going to solve these problems.

One chapter in the report summarizes your upcoming book on 21st century U.S. water policy. What did you find?

Peter Gleick: Some people wonder if there's a U.S. water policy at all. And there isn't a formal U.S. water policy, but there are very important federal efforts, activities, and responsibilities around water. We reviewed the role of the federal government in water policy, and we've laid out what we would argue is a comprehensive set of reforms for federal policy around water quality, water management, water allocations. We've looked at where it's appropriate that the federal government be involved in water policy. And we put out a set of reforms — in particular, around the area of new thinking about water quality, about the management of federal infrastructure and financing, about strategies for integrating what are terribly disjointed and uncoordinated federal agencies, at the moment. And we make some of these recommendations in a chapter in *The World's Water*, but the book that is coming out in the spring is going to give a much more comprehensive look.

And what are some of the regions that are using innovative approaches?

Peter Gleick: In the first chapter, we talk about some transboundary-river agreements, which have been somewhat successful at reducing tensions over water resources. For example, the Great Lakes region, where a fairly comprehensive agreement between the U.S. and Canada has been put in place to manage the shared water resources. Another partial success is in the response of Australia to their severe drought, where very innovative agreements have been put in place to manage water allocations and ecosystem water. They've been forced on Australia by the severity of the drought, but the response has been some pretty innovative programs. And some of these might be lessons for other regions, as well. The experience of Australia was so dramatic that they were forced to put in place truly innovative and potentially transformative, policies — but the challenge is always whether or not those policies remain in place after the drought's end, and I don't think we know yet.

What are some of the new data in this volume?

Peter Gleick: One of the interesting data sets that we included this year is looking at public perception around water resources. What we found is that the publics — in countries all over the world — find water issues to be at the top of their list of environmental concerns. Climate change goes up and down with the American public, goes up and down with the publics in other countries, but water issues have been at the top — and remain at the top — of the environmental concerns of people around the world. To some degree, that's good news. People care a lot about water, and they care about water consistently over the years: they worry about water availability, and they worry about the quality of their water. And if there's any good news in all of this, it's that – that people care about water. And, if we are going to make progress at solving our water problems, it's only going to come because people demand progress.

Disclosure: Circle of Blue is an affiliate of the Pacific Institute.

"Q&A: Dr. Peter Gleick on The World's Water Volume 7", 18/10/2011, online at:
http://www.circleofblue.org/waternews/2011/world/qa-dr-peter-gleick-on-the-worlds-water-volume-7/

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❖ The Nile: Shifting Balance of Powers

In the long-running "water wars" debate the Nile has often been quoted as an example of a river basin where armed conflict is sure to erupt. The threats and counter-threats of former leaders are presented as proof that violent confrontation is looming – from former UN Secretary General Boutros Boutros Ghali's repeated declaration that "the next war in the Middle East will be fought over water" to World Bank Vice President Ismail Serageldin's statement in 1995 that the wars of the 21st century would be about water.

Quick to dispel what they claim to be baseless rumors and media hype, officials from both upstream and downstream countries today vehemently deny that such tensions exist in the Nile basin. "Media reports about tensions in the Nile Basin are not accurate," Alemayehu Tegenu, Ethiopia's Minister of Water and Energy, told *Revolve*. "Normally there is no tension between us and we do not accept media reports that claim otherwise." Tegenu and his counterparts from Sudan and South Sudan emphasized the great sense of goodwill between the 11 Nile Basin countries – Burundi, the Democratic Republic of Congo, Egypt, Eritrea, Ethiopia, Kenya, Rwanda, South Sudan, Sudan, Tanzania and Uganda.

Even Egypt, which just last year issued defiant statements regarding future water development schemes in upstream countries, has adopted a conciliatory tone in recent months. "It is in Egypt's best interest to arrive at an amicable solution," Osama Elmagdoub, the Egyptian Ambassador to Sweden, told *Revolve*. "What we are asking for is not something rigid or unjust to other states. All we are saying is that it is important for upstream countries not to initiate projects that will affect the amount of water arriving in downstream countries."

It is a far cry from the belligerent statements issued just 18 months ago by Egypt's then-Minister of Water and Irrigation, Mohammed Nasreddin Allam, who said in May 2010 that Egypt's share of the Nile's water was "a historic right" and a matter of national security to Egypt. "We won't under any circumstances allow our water rights to be jeopardized," he said, adding that Egypt reserved the right "to take whatever course it sees fit to safeguard its share".

But while all parties today talk about the "win-win approach" and hasten to emphasize the importance of not harming their neighbors, many are at the same time forging ahead with ambitious irrigation and hydropower projects. As climate change and population growth place further pressure on water resources in the basin, this inevitably raises the question of whether the 11 Nile Basin countries will succeed in sharing the Nile equitably. And can all parties really be winners?

Upstream vs. downstream rights

With a length of 6,671 kilometers, the Nile is generally considered to be the longest river in the world, draining an area of approximately 3.5 million square kilometers, equivalent to about a tenth of the African continent.

The river's two main tributaries, the White Nile and the Blue Nile, meet in the Sudanese capital Khartoum to form the Nile proper. The river has an annual average flow of 84 billion cubic meters, as measured at Aswan on the Egyptian-Sudanese border. The Blue Nile, the Atbara and the Sobat, which all rise in Ethiopia, contribute approximately 85 percent of the water that reaches the Sudanese-Egyptian border at Aswan. The White Nile, which draws its water from Lake Victoria and its tributaries, contributes the remaining 15 percent of the Nile waters.

As in the Euphrates-Tigris Basin, the water-sharing controversy along the Nile opposes upstream countries – Burundi, Ethiopia, Kenya, Rwanda, Tanzania and Uganda – and downstream Egypt and Sudan.

However, unlike many other river basins, where downstream countries are usually seen as the weaker actors, Egypt – and to a lesser extent Sudan – have traditionally been seen as the "Nile powers".

Together, these two countries currently lay claim to the total 84 billion cubic meters of Nile water – 18.5 billion cubic meters for Sudan and 55.5 billion cubic meters for Egypt – under a bilateral water-sharing agreement that was signed in 1959. The 1959 agreement replaced a 1929 treaty between Egypt and Great Britain, which was acting on behalf of its East African colonies, present-day Uganda, Kenya, Tanzania and Sudan.

Over the years, upstream countries have voiced increasing discontent with this arrangement, which was made before many of them had gained independence and which denies them what they see as their rightful share of the Nile waters.

"The 1929 and 1959 agreements are not binding to the upstream countries," said Yacob Arsano, an associate professor of political science at Ethiopia's Addis Ababa University. "The upstream countries were not signatory to these agreements and their interests were not considered in either of the agreements, which entirely ignore their rights."

However, downstream Egypt, which draws 97 percent of its water from the Nile, insists that it has "historical rights" and fears that upstream developments will reduce its current share. It argues that the Nile is Egypt's lifeblood, while upstream countries can rely on supplies from other rivers and rainfall.

The upstream countries counter that the previous agreements, which give Egypt the right to "inspect and investigate" the whole length of the Nile, form an obstacle to their own development. More specifically, these agreements prevent upstream countries from developing hydropower dams that would help them address the severe electricity shortages they face and implement irrigation projects.

A new agreement

In a bid to dampen tensions and build trust among the Nile Basin countries, the World Bank and the United Nations established in 1999 the Nile Basin Initiative (NBI), a 10-year project aimed at encouraging sustainable development in the Nile Basin countries.

One of the initiative's key objectives was to develop a new water-sharing agreement that would include the upstream countries. After years of negotiations, the Nile Basin Cooperative Framework Agreement (CFA) was issued in May 2010. However, instead of uniting the parties, the new agreement once again sowed discord in the basin, with Egypt and Sudan leaving the negotiating table in 2010.

Unlike previous agreements, the CFA focuses on water-sharing principles and does not outline specific water allocations per country. Yet Egypt and Sudan perceived the wording of the agreement – and more specifically the omission of any mention of their current allocations – as a threat to their water security.

However, this did not stop Ethiopia, Tanzania, Uganda, Rwanda and Kenya from signing the agreement in 2010, a move which marks a turning point in the history of the Nile Basin. "The importance of the CFA lies in the fact that these [upstream] countries acted alone, disregarding the opposition from the traditional powers on the Nile, Egypt and the Sudan," said Terje Tvedt, an historian and professor of geography at the University of Bergen in Norway. "Compared to many different initiatives during the 20th century, the CFA represents an entirely new direction."

Two controversies surround the CFA. One centers on article 14b, which states that the Nile Basin States agree "not to significantly affect the water security of any other Nile Basin State". Egypt and Sudan have argued that this compromises their share of the Nile and instead proposed the phrase "not to adversely affect the water security and current uses and rights of any other Nile Basin State" – a wording that would guarantee their current allocations.

"There is a point of difference on article 14b of the agreement," Kamal Ali Mohammed, Sudan's minister of Irrigation and Water Resources, told *Revolve* in August 2011. "[The upstream countries] took article 14b out of the legal framework and they are explicitly saying 'we don't recognize your existing rights'. We are trying to find a compromise to this."

In addition, Egypt and Sudan want decisions concerning the Nile Basin to be made by consensus and not majority vote, which would make it possible for a single country to veto any decision. In practice, this would give Egypt the possibility to block any upstream projects it perceives as threatening.

Egyptian worries over Ethiopian mega-projects

Yet, regardless of Egyptian and Sudanese objections, the upstream countries are moving ahead. After the first five countries signed the CFA in 2010, Burundi joined in March 2011, providing the required two-third majority that will make the agreement valid after ratification. The next step will be the creation of a Nile Basin Commission that will oversee water development projects throughout the basin.

Observers say that it is a matter of time before the downstream countries sign the CFA as well. Ana Cascao, a program manager at the Stockholm International Water Institute (SIWI), argues that Egypt is unlikely to remain on the sidelines for long. "Egypt would never stay out [of the commission]," she said. "It has an interest in cooperating with all the countries in the basin." Far from harming Egypt's water security and long-term interests, she believes large parts of the CFA actually protect Egypt's

position. "Of course Egypt is afraid that the CFA and the subsequent creation of a Nile Basin Commission will lead to the implementation of new projects. But I think this is blindness. New projects are already being implemented – even in these 10 years of cooperation."

In this context, Ethiopia is the one to watch. The "water tower of Africa", which provides approximately 86 percent of the water that arrives at the Sudanese-Egyptian border, has to date been incapable of exploiting its own water resources. While the country has an annual water availability of an estimated 123 billion cubic meters – the equivalent of one and a half times of the annual flow of the Nile measured at Aswan – it only makes use of 3 percent of this water, with the bulk flowing across its borders.

Failure to develop the country's abundant water resources has had a knock-on effect on food security: Ethiopia currently only irrigates 5 percent of its irrigable land and its population is frequently exposed to food shortages and famine. In addition, the country, which remains one of the poorest in the world, has a high population growth rate and faces severe problems of environmental degradation.

In a bid to lift itself out of a decades-long vicious cycle, the Ethiopian government has launched an ambitious development plan that will use water and hydropower as the pillars for economic growth. A series of dams and irrigation projects throughout the country are set to increase electricity supply and reduce Ethiopia's chronic dependence on food aid. The centerpiece of this development scheme is the $4.5-billion Grand Renaissance Dam on the Blue Nile, which was announced in March 2011 and which is set to be the tenth largest dam in the world.

The announcement of such a large-scale project would previously have prompted an aggressive response from Egypt. However, recent political events in the downstream country have noticeably lightened the mood in the basin. The fall of Hosni Mubarak was rapidly followed by diplomatic overtures, with Egyptian governmental delegations visiting several upstream countries in a bid to "turn a new page in Egypt's relationship with the Nile Basin countries", according to Egyptian Prime Minister Essam al-Sharaf. Most significantly perhaps, the frosty relationship between Egypt and Ethiopia has started to thaw, with the announcement in September of the creation of a trilateral team of experts from Egypt, Ethiopia and Sudan to assess the impact of the Grand Renaissance Dam on the Nile flow.

"We all agree that the Nile is a bridge, it is not a barrier," Ethiopian Prime Minister Meles Zenawi said at a press conference in Cairo following the bilateral meeting in September. "The future is a new relationship between Ethiopia and Egypt based on a win-win strategy. The past is a past based on a zero-sum game. That is gone. There is no going back."

In a startling about-turn, Sharaf went so far as to describe the planned Grand Renaissance Dam as a "source of benefit". "We can make the issue of the Grand Renaissance Dam something useful," he said. "This dam, in conjunction with the other dams, can be a path for development and construction between Ethiopia, Sudan and Egypt."

The rhetoric surrounding the CFA has also been tempered. "We believe that we should find ways for upstream countries to benefit from the water and implement development projects without affecting

the amount of water received by the other countries," said Ambassador Elmagdoub. "Do we stick to 14b to the letter? I don't think it's necessary. We are not saying 'give us water and have scarcity'. That's not the approach. The approach is 'let's be fair'."

Balancing demand and supply

But beyond all the handshaking and the general feel-good atmosphere in the basin, the question still remains: will there be enough water to go around in the future?

More than a third of the African population lives in the Nile Basin countries, which have a combined population of 370 million inhabitants, with 200 million living in the basin. According to the UN, this figure is set to nearly double by 2030 with up to 700 million people living in the Nile Basin countries and 400 million in the basin itself.

Ethiopia has one of the fastest-growing populations in the basin. According to UN figures, the country's population is set to rise from approximately 82 million inhabitants today to 145 million in 2050. In Egypt, which already suffers from water scarcity, the population is expected to grow from the current 81 million inhabitants to 123 million in 2050. This growth, coupled with increased demand as living standards improve, will mean that per person water shares will be drastically reduced, not only in Egypt but throughout the Nile Basin.

The added threat of climate change, which is likely to lead to higher temperatures, more frequent droughts and reduced rainfall in certain parts of the basin, will further impact the flow of the Nile.

Such prognostics may appear to spell disaster – and presage armed conflict – in a region that is already affected by poverty and low development. However, water experts in the region as well as outside observers point to the enormous amount of water that is wasted throughout the basin – through evaporation in dam reservoirs, lakes and marshes, but also through inefficient water management and wasteful agricultural practices across the basin. For example, a yearly average of 10 billion cubic meters of water evaporates from the reservoir of Egypt's High Aswan Dam, known as Lake Nasser.

"Some estimates show that the total amount of water to be utilized in upstream countries is less than what is wasted in evaporation from Lake Nasser, in rice paddies and through flood irrigation in Egypt alone," political scientist Yacob Arsano said. "Mitigating wastage and mismanagement of water in all basin countries would provide the best opportunity to save water."

Egypt also stands to gain from a rationalization of domestic water use. Of the 55.5 billion cubic meters of Nile water that is allocated to the country every year, around 86 percent is used in agriculture, where inefficient traditional irrigation methods such as flooding are practiced on 88 percent of the irrigated land. And while Egypt is classified as a "highly water-stressed" country, it continues to cultivate and export water thirsty crops. In 2010, the country exported between 600,000 and 800,000 tons of rice and produced 131,500 tons cotton.

According to Ambassador Elmagdoub, the Egyptian government is aware of this inefficient water use and working hard to reassess crop choices, modernize irrigation methods and improve urban

networks. In addition, Egypt is seeking to tap into alternative sources of water through desalination and use of treated wastewater, he said.

Increasing supply

Egyptian water experts also argue that huge gains are to be made in upstream countries, not just through rationalization of agricultural or urban water use, but also by capturing rain water and water that is now lost to evaporation along the course of the Nile.

Egyptian scientists claim that the Nile Basin receives a total of 1,660 billion cubic meters of rain a year. In that context, they argue, Egypt's use of 55.5 billion cubic meters of this water is negligible, particularly given that the Nile is its only source of water, whereas upstream countries can rely on other rivers, groundwater and rain.

"There is physically speaking more than enough water for everybody in the Nile Basin," historian Terje Tvedt said. "But the question is: how interesting is this observation?"

Tvedt argues that while overall water availability in the basin may be high on paper, it is not a given that all of this water can and will be exploited.

"Hydrological experts from Egypt and Sudan claim that between 20 and 30 billion cubic meters of water is lost annually in the swamps of South Sudan," he said. "Others will argue that this swamp ecology should not be tampered with. If this argument wins through, then the 30 billion will be available for the rest of the basin on paper only."

The exploitation of the Sudd marshes in the newly independent state of South Sudan remains a highly sensitive topic. Scientists estimate that half of the water that flows into the 135,000-square-kilometer area is lost to evaporation, and say that losses could be greatly reduced by building a canal to channel the water more directly upstream.

Originally conceived by the British in colonial times, the Jonglei Canal Project was partly implemented by Egypt and Sudan in late 1970s with the aim of recovering 4.8 billion cubic meters per year.

Through the creation of several other such diversion canals at various points in the Sudd, the Egyptians hoped to recover an annual total of 18.5 billion cubic meters from the White Nile. However, work on the first project was interrupted in 1984 when the violent civil war erupted between the local African tribes and the Sudanese army.

Egypt and Sudan remain strong advocates of the Jonglei Canal, which would increase water flow to the downstream countries. But the project remains taboo among officials from the newly independent South Sudan, who consider it one of the causes of the conflict that ravished their country in the 1980s and 1990s. The large-scale diversion of water from the Sudd would have far-reaching effects on the local environment and lifestyles.

Moreover, increasing the flow of the Nile is certainly not a priority for South Sudan. The world's youngest state is today also one of the least developed. According to Emmanuel Parmenas of the Ministry of Water Resources and Irrigation of South Sudan, the country faces huge challenges in the domain of infrastructure, clean water supply, sanitation, security, health services and education. "Our main challenge at the moment as a new republic in Africa is that we lack clean and safe water supply infrastructure, both in urban and rural settings," he said. "We were overwhelmed by the return of people to South Sudan. Over 80 percent of our population is rural and supplying them with water is a great challenge."

Parmenas added, however, that expanding irrigated agriculture is one of the main pillars of South Sudan's development plans. Observers argue that while South Sudan is unlikely to lay claim to a share of the Nile in the near future, it could nevertheless play a significant role in the basin – particularly for downstream countries – as it holds the key to increasing the flow of the Nile.

"Some people argue that South Sudan is quite unimportant, since the White Nile is in any case only bringing 10 to 15 percent of the total water flow of the Nile at Aswan," Tvedt said. "But this argument overlooks the important fact that according to some experts the flow of the Nile can be increased by up to 30 percent in South Sudan."

Competing interests

Developments in Ethiopia and Sudan are likely to have a greater impact on the flow of the Nile in Egypt. The Ethiopian government has outlined ambitious plans for the development of a series of hydroelectric dams and irrigation projects, which will not only boost the country's electricity supply, but also improve food security.

According to historian Terje Tvedt, the impact of these projects on the Nile flow remains unclear. "It depends on the purpose of the dams," he said. "Ethiopia's Tekeze dam has helped even out the flow of the Atbara, thus improving conditions for irrigation and agriculture in eastern parts of Sudan. If Sudan uses more of its share of the Nile because of this, less water will flow into Egypt."

The Ethiopian government estimates that the country could generate a total of 45,000MW of hydropower. However, in addition, it has outlined plans to massively develop irrigated agriculture in a bid to improve the country's food security. According to one Ethiopian official, the country aims to expand irrigated agriculture from the current 250,000 hectares to more than 2.5 million hectares by 2015. Despite insistence from the Ethiopian government that these projects will not affect the flow of the Nile, it is hard to see how a tenfold expansion of irrigated land would not influence the amount of water flowing downstream.

However, SIWI's Ana Cascao questions to what extent Ethiopia will be able to implement its plans. "[Ethiopia] doesn't have the capacity to use this water, except if they conceive of a mega-project to transport water over huge distances, but they would not be able to finance this," she said.

Cascao believes agricultural development in Sudan could have a greater impact on downstream flow. Following the secession of South Sudan, the north has lost significant oil resources, making agriculture an important source of revenue for Sudan in the future. Moreover, Sudan has extremely

fertile soils, particularly in the Gezira Triangle between Khartoum, Kassala and Kosti where the British developed irrigation networks in the early 20th century. "The potential is enormous," Cascao said. "We're talking about extremely fertile, flat land and an irrigation scheme that already exists, even if it needs upgrading."

Slowed by civil war and political strife, Sudan has never used its full share of Nile water allocated in the 1959 agreement. Of the 18,5 billion cubic meters of water, only 12,5-14,5 billion is used in Sudan while the remainder flows downstream to Egypt. A series of development projects throughout the country aims to maximize on water resources in order to develop Sudan's agricultural sector and hydroelectric potential. According to the Sudanese government, the country will require 32 billion cubic meters of water by 2025 for food security and other essential uses. Indeed, the daunting race towards food security drives these massive development plans that no doubt imply an important ripple effect downstream.

Thus, the question remains: will there be enough water for all these schemes? Some propose the trade of water, as an international commodity or even currency, as a way to bypass investment in hydropower and irrigation projects. But betting water security against food security on the increasingly volatile and risky international market hardly seems a valid alternative to the development of sound, regional riparian cooperation.

The verdict is out. Water security in the Nile Basin can no longer be divorced from increasingly urgent issues of food security and energy supply. The future of urbanization, climate change, increased drought, and decreased rainfall do not simplify the task at hand. It is exactly the shared nature of the predicament in the Nile Basin that should push its communities to work together in finding a sound and sustainable solution at the regional level.

The development of Nile Basin countries will not only shape the northeastern corner of Africa; it will have implications beyond the continent. The shared challenges that lie ahead have been part of the Common Framework Agreement negotiations and efforts to streamline the premise for Nile water utilization in the decades to come. The future, as always, remains unpredictable and uncertain. Tensions, conflict, geopolitical shifts and cooperation will take place at different places and times. But the steps taken in the Nile Basin are to be watched carefully, as examples for other shared river basins facing growing stress on food and water security.

"The Nile: Shifting Balance of Powers", Terje Oestigaard, Revolve-Magazine, 17/10/2011, online at: http://www.revolve-magazine.com/2011/10/17/nile-shifting-balance-powers/

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❖ Why the World May Be Running Out of Clean Water

Earlier this month, officials in the South Pacific island nation of Tuvalu had to confront a pretty dire problem: they were running out of water. Due to a severe and lasting drought, water reserves in this country of 11,000 people had dwindled to just a few days' worth. Climate change plays a role here: as sea levels rose, Tuvalu's groundwater became increasingly saline and undrinkable, leaving the island dependent on rainwater. But now a La Niña–influenced drought has severely curtailed rainfall, leaving Tuvalu dry as a bone. "This situation is bad," Pusinelli Laafai, Tuvalu's permanent secretary of home affairs, told the Associated Press earlier this month. "It's really bad."

So far Tuvalu has been bailed out by its neighbors Australia and New Zealand, which have donated rehydration packets and desalination equipment. But the archipelago's water woes are just beginning — and it's far from the only part of the world facing a big dry. Other island nations like the Maldives and Kiribati will see their groundwater spoil as sea levels rise. Texas, along with much of the American Southwest, is in the grip of a truly record-breaking drought — even after days of storms in the past month, Houston's total 2011 rainfall is still short of its yearly average by a whopping 2 ft., or 60 cm. Australia has experienced severely dry weather for so long, it's not even clear whether the country is in a state of drought, or more worryingly, a new and permanent dry climate that could forever alter life Down Under. "Climate-change impacts on water resources continue to appear in the form of growing influence on the severity and intensity of extreme events," says Peter Gleick, one of the foremost water experts in the U.S. and head of the Pacific Institute, an NGO based in Oakland, Calif., that focuses on global water issues. "Australia's recent extraordinary extreme drought should be an eye-opener for the rest of us." (See photos of the world's water crisis.)

Volume 7 of the Pacific Institute's regular report on global water usage, *The World's Water*, comes out today, just in time to address the squeeze of droughts, the increasingly apparent impact of climate change and the threats facing our relatively scarce supplies of freshwater. The sweeping report is a reminder that clean water is vital to life — as Gleick points out, more than 2 million people die each year from preventable water-related diseases — and that on the whole, we're not doing a very good job of husbanding that resource. There's even a risk here that parts of the U.S., especially the arid West, may have passed "peak water" — the point at which it becomes essentially impossible to increase supply.

Potential water shortages are one more reason to try to reduce carbon emissions and blunt the worst impacts of climate change — a warmer world is likely to further dry out already arid regions, even as extreme rainfall intensifies in already wet areas. But however severe the effects of climate change become, we're going to need to use water much more efficiently than we do now: the world's population is expected to pass the 7 billion mark by the end of this month, and more people will need more water. "New thinking about solutions and sustainable water planning and management, better data, case studies and efforts to raise awareness, are all needed," Gleick writes in *The World's Water*.(Read about radioactive water in Japan.)

Smarter water policy might mean rethinking other fields of resource use. Take, for example, natural gas drilling. Hydraulic fracturing has vastly increased American supplies of natural gas, which is good for gas companies and, because natural gas generally has a greener footprint, potentially good for the environment as well. But fracking requires a significant amount of water — up to 5 million

gal. (19 million L) per well. That might not be a major problem in a relatively wet state like Pennsylvania, but in bone-dry states like Texas, water-intensive fracking has sparked a backlash. There's also the uncertain risk of water contamination from fracking and drilling, and the problem of water waste. "The rapid expansion of the use of hydraulic fracturing to increase natural gas production has serious potential consequences for local water resources," says Gleick. It's important that "more effort be put into both understanding the real risks and protecting water resources before pushing for accelerated programs of natural gas production."

What we need most of all is a rethink of how we deal with water and a recognition of just how valuable it is — especially in a warming world. That means focusing on modulating demand as much as increasing supply. Through most of the 20th century, governments dealt with water problems through massive construction projects designed to expand and regulate supply — think the Hoover Dam near Las Vegas or the Three Gorges Dam in China.

But the era of those big projects may be ending, largely because we've begun to recognize the environmental problems that come with major dams, including the loss of aquatic wildlife and the displacement of local populations. Last month Burma's military government — not ordinarily responsive to public opinion — canceled a planned $3.6 billion Chinese-backed hydroelectric dam that would have displaced thousands of villagers. Just as we've recognized that energy efficiency is often the fastest and cheapest way to address carbon emissions, there's much that can be done to curb water waste. We need to "adopt 21st century strategies of new forms of sustainable water supply, rethink water demand and efficiency of use, and [embrace] smart use of pricing and economics," says Gleick. The alternative could mean ending up like poor Tuvalu — high and dry.

"Why the World May Be Running Out of Clean Water", Bryan Walsh , 18/10/2011, online at:
http://www.time.com/time/health/article/0%2c8599%2c2097159%2c00.html#ixzz1b94qw1bk

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