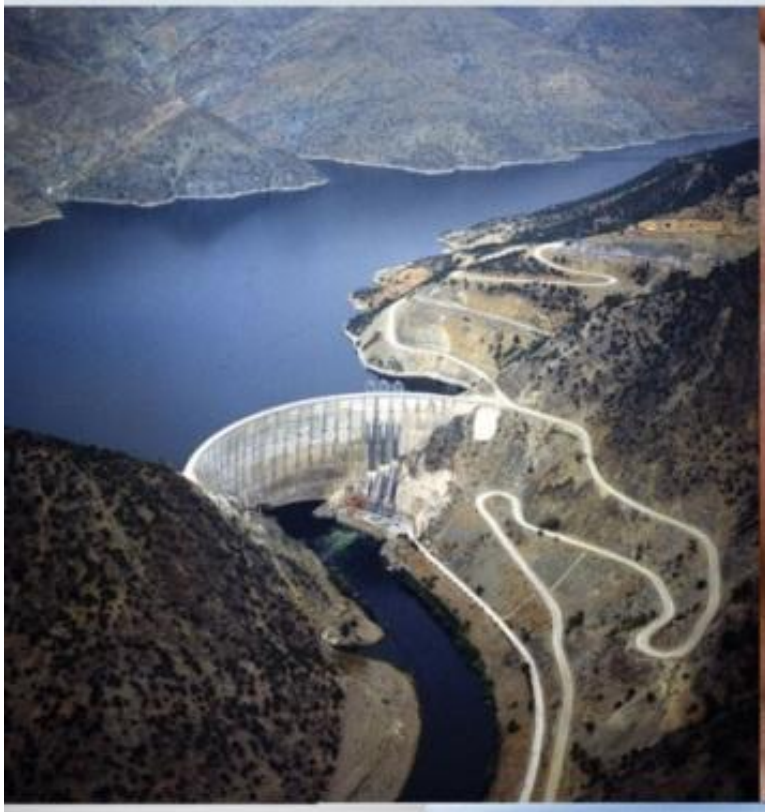


ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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





Issue 65

ORSAM WATER BULLETIN

27 February- 4 March 2012

Mithat Paşa Caddesi 46/4 Kızılay-Ankara TURKEY
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❖ Turkmenistan, Turkey sign intergovernmental agreements

Turkmenistan and Turkey have signed a package of intergovernmental agreements after negotiations at the highest level in Ankara, an official Turkmen source said on Thursday.

Turkmen President Gurbanguly Berdimuhammadov paid an official visit to Turkey after re-election as Turkmen president on Feb.28-March 1. He met with Turkish President Abdullah Gul during his visit.

The bilateral document signing ceremony took place at the Cankaya Palace.

The signed documents include: Agreement on cooperation between the Chamber of Commerce and Industry of Turkmenistan and the Union of Chambers and Commodity Exchanges of Turkey; the Protocol between the Government of Turkmenistan and the Government of Turkey on cooperation in archive business; An agreement on technical cooperation in the water sector between Turkmenistan and Turkey; Agreement between the Government of Turkmenistan and the Government of Turkey on cooperation in combating serious crimes, particularly terrorism and organized crime; An agreement on judicial cooperation in civil and criminal matters between Turkmenistan and Turkey; Memorandum of Understanding on cooperation between the Institute of International Relations of the Turkmen Foreign Ministry and the Diplomatic Academy of the Foreign Ministry of Turkey; and the Protocol between the State Committee for Tourism and Sport of Turkmenistan and the Turkish Agency for Cooperation and Coordination under the Turkish Prime Minister on the project "Organization of training programs for advanced training aimed at tourism development in Turkmenistan."

"Turkmenistan, Turkey sign intergovernmental agreements", 01/03/2012, online at:
http://en.trend.az/regions/casia/turkmenistan/1998461.html

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❖ Sultanate Takes Part in Islamic Conference of Water Ministers in Turkey

Muscat, Mar 4 (ONA)--- The Sultanate will take part in deliberations of the Islamic Conference of Ministers Responsible for Water due to be held in Istanbul, Turkey tomorrow (Monday).

The Sultanate's delegation taking part in the conference will be led by Ahmed bin Abdullah al-Shihi, Regional Municipalities and Water Resources Minister.

The conference will discuss a document for the vision of the Organization of the Islamic Conference (OIC) on water that focuses on water issues in the member states, in addition to finding solutions for them through preparing OIC vision on water. The vision includes different recommendations presented by water experts. The recommendations include major fields of cooperation among the member states in a bid to achieve water security among them.

The Water Ministers will discuss topics pertaining to cooperation in water fields through the initiative of preparing a vision for OIC that meets the OIC new and comprehensive vision.

"Sultanate Takes Part in Islamic Conference of Water Ministers in Turkey", 04/03/2012, online at: http://www.omannews.gov.om/ona/english/newsDetails_inc.jsp?newsID=69789

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❖ Britain gives £80m in aid to Turkey to help upgrade nation's sewer system

Millions of pounds of British aid is being used to upgrade Turkey's sewage system, MPs have been told.

Tory MPs reacted with anger last night as details emerged of a little-known Brussels scheme to channel hundreds of millions of pounds a year of aid into countries such as Turkey that are seeking to join the European Union.

MPs on the Commons international development committee were told that £570 million of EU aid money in Turkey last year, mostly on improving the sewage system to meet EU standards. In contrast, achieving EU sewage standards has required huge investment in Britain in recent decades, but this has been funded by increases in water bills.

The revelation came during a hearing in Brussels into how the EU spends the £1.2 billion of British aid money it receives each year.

Britain's share of the EU spending in Turkey is thought to total about £80 million.

Tory MP Richard Harrington said the money lavished on Turkey risked bringing the Government's controversial aid policy into disrepute.

Mr Harrington said: 'The Government's aid budget should be focusing on helping the poorest people in the world, not on a political project to improve the infrastructure of a country like Turkey.

'I have got nothing against Turkey but they are a middle income country and are doing very well. If they want to upgrade their sewage systems to meet EU standards then they can pay for it themselves.' Fellow Tory

Fellow Tory Pauline Latham said: 'I am extremely cross about the money the EU is spending in Turkey and the fact that we seem to be powerless to do anything about it.

'I was astonished at the level of spending. Turkey is not a poor country- - this money is just designed to soften them up to join the EU, which I don't think they will ever do.

'It highlights the problem of giving the EU money to spend on our behalf on aid. Ministers need to act to change the EU's priorities or find a way of reducing the money that goes to this fund.'

Andris Piebalgs, the EU's commissioner for development, told MPs that Brussels had a duty to help countries meet the standards required for EU membership.

Mr Piebalgs said: 'It is quite a substantial amount, but it is our contract, I would say. So we decided that they would be a candidate country. We assume that one day they should be able to take the responsibilities of member countries.

'Because of the expectation that one day negotiations will be over, there is a possibility that Turkey will be part of the EU, and then they should be able to fully apply EU legislation in all the areas. In some areas it is quite demanding; for example, protecting the environment.'

He said Turkey faced particular problems in meeting EU environmental standards which would require 'huge investment in treatment of waste water and solid waste'.

The Department for International Development yesterday said it supported the EU's development programme but wanted to refocus some of its priorities.

International Development Secretary Andrew Mitchell last night stressed that his department does not have a direct aid programme for Turkey. He said ministers were already pressing the EU to focus its aid on the poorest countries.

Mr Mitchell said: 'DFID does not have a development programme in Turkey. This is from the Commission's budget to help Turkey join the EU.

'Following strong pressure from the Coalition Government, the EU is reforming the way it spends aid, making it more transparent and targeted at the poorest people. We will keep up that pressure over the coming years.'

"Britain gives £80m in aid to Turkey to help upgrade nation's sewer system", Jason Groves, 29/02/2012, online at: http://www.dailymail.co.uk/news/article-2107942/Britain-gives-80m-aid-Turkey-help-upgrade-nation-s-sewer-system.html

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❖ Iraq has worst environment record

EBRIL, Feb. 26 (AKnews) - Iraq has been ranked the worst country (out of 132) in the Environment Protection Index, and trends show the country's performance is in decline.

132 nations have been ranked across 10 environmental policy categories, including air and water pollution, climate change and biodiversity the Yale and Columbia Universities with the World Economic Forum.

Iraq performed the worst for biodiversity, access to drinking water and the vitality of its ecosystem.

Iraq also fared poorly in the category of fisheries management. However, the government recently announced plans to boost local fishing farms.

The EPI also measure the performance of a country over time, and Iraq is show to be declining in performance.

Angel Hsu, EPI's Yale-based project director, told Radio Free Europe that Iraq's position is understandable given that government-building trumps environmental concerns.

He added that for Baghdad to move up, they must tackle substantial habitat degradation, water management issues and air pollution.

The EPI, based on data from the World Bank, the UN, and other institutions, highlights both the achievements and shortcomings of countries and is used as a guide for policymakers.

Joining Iraq at the bottom of the index is Kazakhstan, Uzbekistan, and Turkmenistan, while topping the list is Switzerland, Latvia, Norway, Luxembourg, and Costa Rica.

"Iraq has worst environment record", 26/02/2012, online at: http://www.aknews.com/en/aknews/3/292429/

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❖ Emirati companies to implement service projects in seven Iraqi provinces

BAGHDAD, March 4 (AKnews) - Twenty three companies from the United Arab Emirates seek to implement various service projects in seven Iraqi provinces, said the Ministry of Municipalities and Public Works today.

The media adviser for the ministry Jassim Mohammed told AKnews that the companies will implement water purification plants, streets paving and sewer pipes in the provinces of Dhiqar, Basra, Kirkuk, Missan, Salahaddin, Anbar and Muthanna.

"The Ministry of Municipalities is working to reduce the bureaucratic and administrative problems faced by international companies to enter the Iraqi market and implement strategic projects," said Mohammed.

The ministry said that it has allocated 13,000 acres for the implementation of investment projects within the 2012 budget.

The ministry also announced announced that it is to prevent 23 local companies from working in its service projects in 2012 because of their reliance on secondary companies and failure to implement projects on time.

"Emirati companies to implement service projects in seven Iraqi provinces", Ak news, 04/03/2012, online at: http://www.aknews.com/en/aknews/2/293707/

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❖ Japan's Kubota likely to help rebuild irrigation systems in Iraq

KUBOTA CORP. (TSE:6326) is expected to help rebuild irrigation works in Iraq, the first large project of its kind financed with yen loans since the war ended there. Iraq's Ministry of Water Resources is seen placing the order with a group of firms, including Kubota and local construction companies, as early as next month.

* The total cost of the project is estimated at US$23.5 million.

* The Japanese firm will likely handle such tasks as replacing large nonfunctioning pumps at eight pumping stations for about US$15 million.

"Japan's Kubota likely to help rebuild irrigation systems in Iraq", 29/02/2012, online at: http://www.waterworld.com/index/display/news_display/1614838678.html

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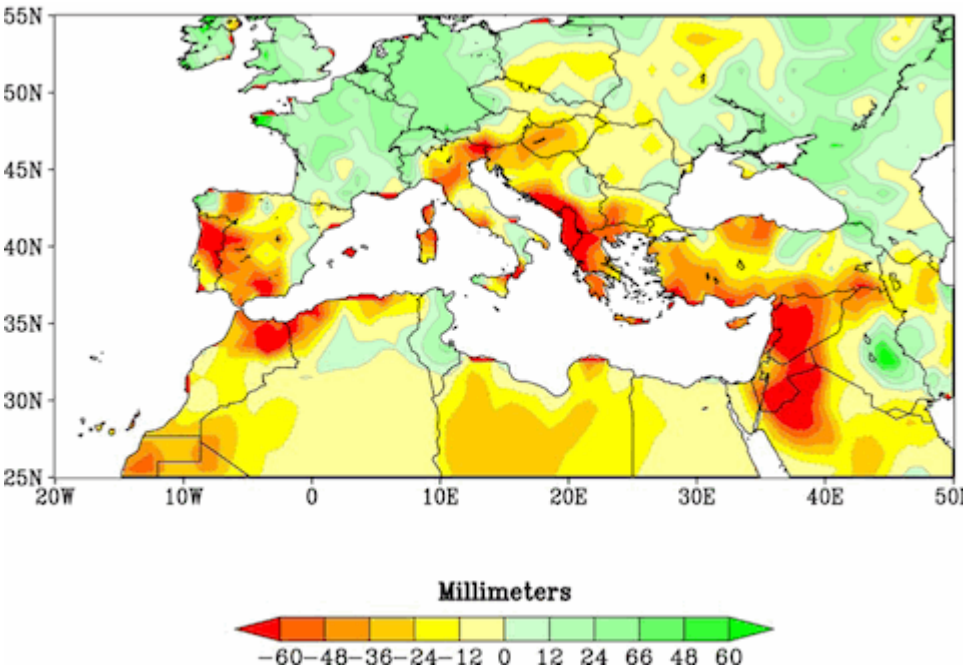
❖ Syria: Climate Change, Drought and Social Unrest



NOAA concluded in 2011 that "human-caused climate change [is now] a major factor in more frequent Mediterranean droughts." Reds and oranges highlight lands around the Mediterranean that experienced significantly drier winters during 1971-2010 than the comparison period of 1902-2010. [Click to enlarge.]

by Francesco Femia & Caitlin Werrell, in a Center for Climate & Security repost [Addendum by Joe Romm]

Syria's current social unrest is, in the most direct sense, a reaction to a brutal and out-of-touch regime and a response to the political wave of change that began in Tunisia early last year. However, that's not the whole story. The past few years have seen a number of significant social, economic, environmental and climatic changes in Syria that have eroded the social contract between citizen and government in the country, have strengthened the case for the opposition movement, and irreparably damaged the legitimacy of the al-Assad regime. If the international community, and future policy-makers in Syria, are to address and resolve the drivers of unrest in the country, these changes will have to be better explored and exposed.

Out of the blue?

International pundits characterized the Syrian uprising as an "out of the blue" case in the Middle East - one that they didn't see coming. Many analysts, right up to a few days prior to the first protests, predicted that Syria under al-Assad was "immune to the Arab Spring." However, the seeds of social

unrest were right there under the surface, if one looked closely. And not only were they there, they had been reported on, but largely ignored, in a number of forms.

Water shortages, crop-failure and displacement

From 2006-2011, up to 60% of Syria's land experienced, in the terms of one expert, "the worst long-term drought and most severe set of crop failures since agricultural civilizations began in the Fertile Crescent many millennia ago." According to a special case study from last year's Global Assessment Report on Disaster Risk Reduction (GAR), of the most vulnerable Syrians dependent on agriculture, particularly in the northeast governorate of Hassakeh (but also in the south), "nearly 75 percent … suffered total crop failure." Herders in the northeast lost around 85% of their livestock, affecting 1.3 million people.

The human and economic costs are enormous. In 2009, the UN and IFRC reported that over 800,000 Syrians had lost their entire livelihood as a result of the droughts. By 2011, the aforementioned GAR report estimated that the number of Syrians who were left extremely "food insecure" by the droughts sat at about one million. The number of people driven into extreme poverty is even worse, with a UN report from last year estimating two to three million people affected.

This has led to a massive exodus of farmers, herders and agriculturally-dependent rural families from the countryside to the cities. Last January, it was reported that crop failures (particularly the Halaby pepper) just in the farming villages around the city of Aleppo, had led "200,000 rural villagers to leave for the cities." In October 2010, the New York Times highlighted a UN estimate that 50,000 families migrated from rural areas just that year, "on top of the hundreds of thousands of people who fled in earlier years." In context of Syrian cities coping with influxes of Iraqi refugees since the U.S. invasion in 2003, this has placed additional strains and tensions on an already stressed and disenfranchised population.

Climate change, natural resource mis-management, and demographics

The reasons for the collapse of Syria's farmland are a complex interplay of variables, including climate change, natural resource mis-management, and demographic dynamics.

A NOAA study published last October in the *Journal of Climate* found strong and observable evidence that the recent prolonged period of drought in the Mediterranean littoral and the Middle East is linked to climate change. On top of this, the study also found worrying agreement between observed climate impacts, and future projections from climate models. A recent model of climate change impacts on Syria conducted by IFPRI, for example, projects that if current rates of global greenhouse gas emissions continue, yields of rainfed crops in the country may decline "between 29 and 57 percent from 2010 to 2050."

This problem has been compounded by poor governance. The al-Assad regime has, by most accounts except their own, criminally combined mismanagement and neglect of Syria's natural resources, which have contributed to water shortages and land desertification. Based on short-term assessments during years of relative plenty, the government has heavily subsidized water-intensive wheat and cotton farming, and encouraged inefficient irrigation techniques. In the face of both climate and

human-induced water shortages, farmers have sought to increase supply by turning to the country's groundwater resources, with Syria's National Agricultural Policy Center reporting an increase in wells tapping aquifers from "just over 135,000 in 1999 to more than 213,000 in 2007." This pumping "has caused groundwater levels to plummet in many parts of the country, and raised significant concerns about the water quality in remaining aquifer stocks."

On top of this, the over-grazing of land and a rapidly growing population have compounded the land desertification process. As previously fertile lands turn to dust, farmers and herders have had no choice but to move elsewhere, starve, or demand change.

Internal displacement, rural disaffection and political unrest

Massive internal displacements from rural to urban centers, and significant discontent among agriculture-dependent communities, are ill-explored factors of social and political unrest in Syria.

Rural-urban population movements throughout the course of the recent droughts have placed significant strains on Syria's economically-depressed cities, which incidentally have their own water infrastructure deficiencies. Poor have been forced to compete with poor not just for scarce employment opportunities, but for access to water resources as well. According to Damascus-based expert Francesca de Châtel, Syria has experienced a "huge deterioration of [water] availability per capita," partly as a result of a crumbling urban infrastructure. Furthermore, the role of disaffected rural communities in the Syrian opposition movement has been prominent compared to their equivalents in other "Arab Spring" countries. Indeed, the rural farming town of Dara'a was the focal point for protests in the early stages of the opposition movement last year – a place that was especially hard hit by five years of drought and water scarcity, with little assistance from the al-Assad regime.

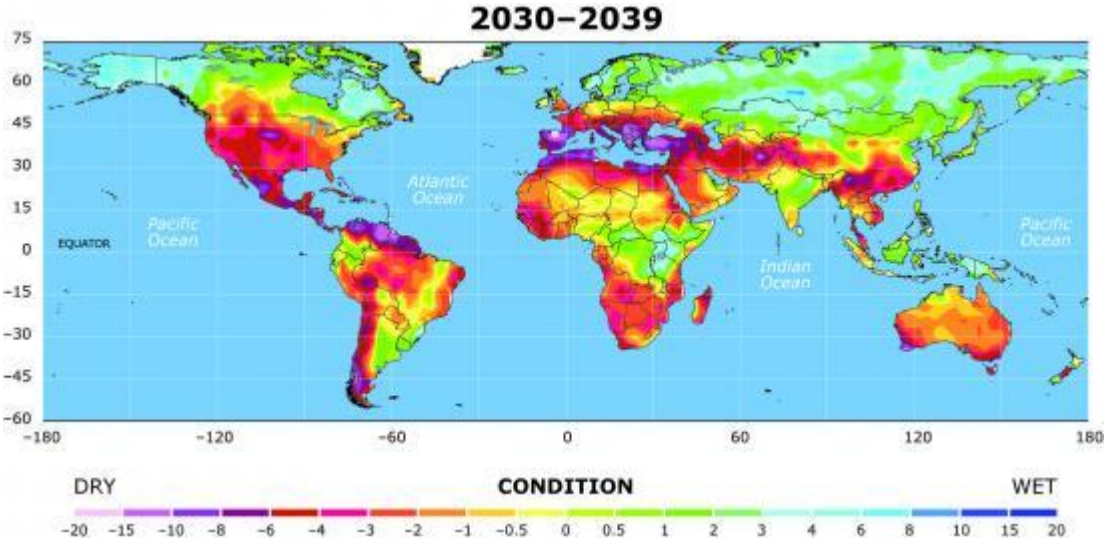
The degree to which internal population displacement, and rural disaffection, are driving unrest has been difficult to study, given the continuing instability, but available evidence suggests that the influence of this phenomenon may not be insignificant.

Looking ahead

The al-Assad regime's brutally violent suppression of the opposition movement is rightly the main focus of attention for an international community attempting to halt or lessen the human disaster unfolding in Syria. Unquestionably, stopping the slaughter of innocent people is the necessary first step. But a more well-rounded assessment of the dynamics of opposition in the country, including the possible social, environmental, and climatic drivers of unrest, will help policy-makers and opinion leaders fashion more responsible actions. In the short-term, stopping the violence and enhancing the likelihood of legitimate government will require an intelligent assessment of the needs and demands of the opposition movement, including those involving access to and management of vital natural resources, such as food, water and arable land. In the long-term, addressing the full gamut of Syria's societal, environmental and climatic ills will be critical for ensuring a resilient, free and conflict-proof nation – one that can constructively engage in the international community.

– by Francesco Femia & Caitlin Werrell in a Center for Climate & Security repost

Addendum by Joe Romm: The fact that the 2011 NOAA analysis confirmed the climate models' predictions of drying is especially worrisome because the climate models project a very dry future for large parts of the planet's currently habited and arable land in the coming decades — particularly this region:



The National Center for Atmospheric Research figure [click to enlarge] charts the Palmer Drought Severity Index [PDSI] where "a reading of -4 or below is considered extreme drought." The PDSI in the Great Plains during the Dust Bowl spiked very briefly to -6, but otherwise rarely exceeded -3 for the decade (see here).

The 2010 NCAR study, which Climate Progress reported on here, notes "By the end of the century, **many populated areas, including parts of the United States, could face readings in the range of -8 to -10, and *much of the Mediterranean could fall to -15 to -20*. Such readings would be almost unprecedented**."

The NOAA study should be especially sobering to those in the Mediterranean since they clearly face some of the most extreme drying in the entire world:

The Mediterranean has long been identified as a "hot spot" for substantial impact from climate change in the latter decades of this century because of water scarcity in the region, a rapidly increasing population, and climate modeling that projects increased risk of drought.

"The question has been whether this projected drying has already begun to occur in winter, the most important season for water resources," [lead author Martin] Hoerling said. "The answer is yes."

"Syria: Climate Change, Drought and Social Unrest", 03/03/2012, online at:
http://thinkprogress.org/romm/2012/03/03/437051/syria-climate-change-drought-and-social-unrest/

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❖ Measure Your Blue, Green and Grey Water Footprints

Country data reveals that Syria, Lebanon and Iraq are potentially the only virtual water exporting countries in the Middle East. Want to talk and argue about water? Get in the know about blue, green and grey water footprints.

Following the previous article on measuring your Ecological Footprint, here we will focus on the Water Footprint. Let's start with understanding the Virtual Water and Virtual Water trade: The virtual-water concept was established by J.A. Allen in 1998 to address water scarcity in the Middle East. Virtual water is a measure of the volume of water needed (and polluted) in order to produce a good in a specific country.

For example, the virtual-water content of wheat is 1,300 liters/Kg, while the virtual-water content of beef is 15,500 liters/Kg, to put this into perspective – one Kg of beef is the equivalent of letting the tap run for 1107 minutes (19.5 hours!) if there is 14 liters of water running from an average tap every minute.

The virtual water trade, refers to the idea that when goods and services are exchanged, so is what has been used to produce the good. When a country imports one ton of beef it is also importing water that has been used to produce the beef. By "choosing" not to produce one ton of beef domestically but importing it, the country is saving 15,500,000 liters of domestic water. On the other hand the exporting country has exported 15,500,000 liters of domestic water which will no longer be available for other purposes. Measuring the net virtual water flow for a country, especially for water scarce countries, is crucial to understand how to better achieve water sustainability. Here's how it's done:

For example:

"The Middle East imports 13,805 cubic meters of water per year, and exports 642 cubic meters of virtual water. Over all the Middle East is a net importer of virtual water 13,163 (cubic meters per year) (between 1995-1999)."

Country data reveals that Syria, Lebanon and Iraq are potentially the only virtual water exporting countries in the Middle East, while all other countries- especially Israel and Jordan – are more conscientious of their policy choices and have decided to reduce or even abandon exports of water intensive crops by importing those goods.
This however also means that the Middle East is largely externalizing their water footprint, so this impacts the use and pollution of water in other countries.

Global Water saving:

How does Syria, a net exporter of virtual-water, impact the local citizens and ecosystem? How does Israel a net importer of virtual water impact on the citizens and ecosystems of other countries? As we face water shortages in the coming decades, these questions will become more and more relevant and political.

Economists might have an answer to the above questions, they would tell you that international trade is an opportunity for global water saving. International trade can save freshwater globally if a water-

intensive commodity is traded from an area where it is produced with high water productivity (small water footprint and water abundant country) to an area with lower water productivity (large water footprint and water scarce country).

In theory this sounds great, in practice this will not happen until the cost of virtual water use is integrated into the price of that product. For example, a product that requires a large amount of virtual water and is being produced in a water scarce country should have a higher price than a product that is being produced with less virtual water in a country that is water abundant. Only then, could we start to see the "global water saving effects".

National water footprint:

The national water footprint is defined as the total amount of fresh water that is used to produce the goods and services consumed by the inhabitants of the nation. Part of this water footprint may lie outside the territory of the nation and this is captured by the net virtual water balance, ie whether it is a net importer /exporter of virtual water.

To get an overview of the per capita water footprint for each nation click here.
*For more detailed explanation on National water accounting framework. Source: Hoekstra et al. (2011).

A blue, green and grey water footprint:

Traditional water use accounting uses the rate of water withdrawal to gauge "water sustainability," however this *per se* does not really indicate the impact water use is having on a hydrological system. Hydrological systems are becoming an increasingly important aspect to consider because global warming is expected to have adverse impacts on regional hydrological systems.

Therefore the sustainability of the total water footprint in a geographic area is best accomplished by evaluating the impacts consumption and production patterns have on different "types" of water within a hydrological system. The water footprint splits up into three elements:

The blue water footprint refers to the volume of surface water (rivers, lakes etc.) and ground water consumed during production processes (i.e. evaporated or incorporated into the product – that does not return to the catchment from which it was withdrawn).

The green water footprint refers to the volume of rainwater consumed while the **grey water footprint**refers to the volume of freshwater that is required to assimilate the load of pollutants (the volume of water that is required to maintain an agreed water quality standard).

So, for example, the global average production of beef has a 93% green, 4% blue, 3% grey water footprint, this gives you an idea of how beef production impacts on the hydrological cycle – most of the water comes from fresh water sources but the amount of water needed to assimilate the load of pollutants is not as great compared to wheat which has a grey water footprint of 11% of its total water footprint.

Your water footprint :

At this point you might as well feel bad about your consumption habits and take this quiz to calculate your water footprint.

The idea is not necessarily to stop consuming certain products, although that would be preferable, but to understand what your actions entail. Often there are many hidden environmental costs in the things we do that affect people and places that are on the other side of the world. That is globalization for you. Hopefully in the future we will have products that are labeled with the amount of green, blue and grey water footprint so that, as consumers, we can make more conscientious decisions.

In the meantime you can get conscientious by downloading and using this great app.

"Measure Your Blue, Green and Grey Water Footprints", Linda Pappagallo, 27/02/2012, online at: **http://www.greenprophet.com/2012/02/water-footprint-measure/**

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❖ Environmental imbalance causes decrease of water in Orumieh Lake

Tabriz, Feb 28, IRNA – Environmental imbalance caused decrease of water of Orumieh Lake, the vice president and the chairman of the organization of protection of the environment, Mohammad Javad Mohammadzade said on Monday.

"Five decades of unlimited usage of Orumieh lake's watershed region for agriculture is the root cause for environmental imbalance in the region," he said.

The official noted that there are plans to correct the past environmental policies in case of Orumieh Lake and return back the region's natural eco-system.

Orumieh Lake is a salt lake in northwestern Iran, near Iran's border with Turkey. The lake is between the Iranian provinces of East Azerbaijan and West Azerbaijan, west of the southern portion of the similarly shaped Caspian Sea. It is the largest lake in the Middle East and the third largest salt water lake on earth, with a surface area of approximately 5,200 km (2,000 mile), 140 km (87 mile) length, 55 km (34 mile) width, and 16 m (52 ft) depth. Lake Orumieh is protected as a 'National Park' by the Iranian Department of Environment.

The lake is divided into north and south parts separated by a causeway in which a 1500m gap provides little exchange of water between the two parts. Due to drought and increased demands for agricultural water in the lake's basin, the salinity of the lake has risen to more than 300 g/L during recent years, and large areas of the lake bed have been desiccated. As a result the fishery has been degraded.

Lake Orumieh is home to some 212 species of birds, 41 reptiles, 7 amphibians, and 27 species of mammals, including the Iranian yellow deer. It is an internationally registered protected area as both a UNESCO Biosphere Reserve and a Ramsar site. On the national level, it is a 'National Park' as designated by the Iranian Dept. of Environment.

The construction of a dam on part of the lake and the recent drought has significantly decreased the annual amount of water Orumieh receives. This in turn has increased the salinity of Orumiyeh's

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water, causing the lake to lose its significance as home to thousands of migratory birds including the large flamingo populations.

The lake is marked by more than a hundred small rocky islands, which are stopover points in the migrations of various kinds of wild bird life (including flamingos, pelicans, spoonbills, ibises, storks, shelducks, avocets, stilts, and gulls).

By virtue of its high levels of salinity, the lake does not sustain any fish species. Nonetheless, Lake Orumieh is considered significant natural habitats of Artemia, which serve as food source for the migratory birds such as flamingos. Most of the area of the lake is considered a national park.

The lake is a major barrier between two of the most important cities in West Azerbaijan and East Azerbaijan provinces, Orumieh and Tabriz.

"Environmental imbalance causes decrease of water in Orumieh Lake", 28/02/2012, online at: http://www.irna.ir/ENNewsShow.aspx?NID=80009847

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❖ Water Security And Climate Change: Challenges And Strategies

Compiled and finalized jointly by Dr Gursharan Singh Kainth and Dr Archana Sinha from Indian Social Institute New Delhi; with inputs from Shri Sanjay Soni and Dr. K. Subramaniam, Managers from National Bank for Agricultural and Rural Development Regional offices of Uttar Pradesh, Lucknow and Haryana, Chandigarh respectively

Global warming and the subsequent climatic change over the Himalayas, South Asia's major water source is a topic of intense debate and scientific researches as it has huge ramification for both security and socio economic scenario in future. With global warming altering weather patterns and affecting fresh water availability, it has been often stressed that the next war will be fought not over oil but cover water. As the world gears up for the next round of United Nations climate-change negotiations in Durban, South Africa, in November, Guru Arjan Dev Institute of Development Studies called for its 3rd IDSAsr International Seminar to provide much needed scientific exposure about water stress and water security concerns and provide a road map for better water resources in the future.

The seminar was jointly sponsored by Government of India through its Ministry of Earth Science; Indian Council of Social Sciences Research; Council for Scientific and Industrial Research and National Bank for Agricultural and Rural Development. Guru Arjan Dev Institute of Development Studies is a centre for advanced research and training in multi-disciplinary areas under the aegis of Guru Arjan Dev Institute of Development Studies Society Amritsar. The main objectives of this seminar has been to contribute to the understanding of the development processes and problems related to water security and climate change; to focus on studies relating to this problem of the by-passed section and regions; and to provide a forum for dialogue on the subject.
Food production and social development has depended heavily on access to the water needed to grow crops or rear livestock.

In the past, balance between water supplies and human need has come under increasing threat from growing populations, urbanization and climate change. The likely increase in rainfall variability could have devastating effects on food production and rural livelihoods. Even a short dry spell during the growing season where farmers rely almost entirely on rainfall to water their crops, can devastate food supplies. Freshwater fit for human consumption is a scarce resource. Discussions about freshwater availability increasingly focus on water security, which refers to people's access to enough safe and affordable water to satisfy their needs for household use, food production and livelihoods.

Water insecurity and scarcity already affect large parts of the developing world. An additional threat to water security comes from climate change. Climate change has already affected water resources across the world. Agriculture accounts for more than 70 per cent of water use in the world. Addressing water scarcity will inevitably imply revising agricultural practices and policies worldwide to ensure their sustainability. Inadequate knowledge of policy framework and its poor implementation of water management process are proving to be the root cause of many water related problems. Hence, it is felt necessary to deliberate these issues both scientifically and socially with policy makers, international and national water experts. The seminar endeavors to share latest as well as traditional water knowledge and best practices on this issue, and discuss the possible options

available for integrated water resource management. This seminar has provided a space for discussion, interaction, dissemination of information to policy-makers, water managers, academics, students and the public in general.

Dr Rajinder Singh Bawa, Chairman Research Advisory Council of the institute while delivering his welcome address reflected on the main purpose of holding the seminar. He welcomed Dr Gurdev Singh Khush, the chief guest to inaugurate the seminar, who is one of the global leaders on crop breeding and a major brain behind the development of productive rice varieties and the Green Revolution in plant breeding and contributed to food security. He also welcomed Dr. Ashok Gulati, Chairman, Commission for Agriculture Cost and Prices, Government of India for presiding over the seminar. He expressed his appreciation for Dr. Gulati as one of India's sharpest and most respected agricultural economists, besides his wide publications in national and international research journals, rendering policy advice to the Government of India.

Dr. Bawa also welcomed all the distinguished representatives from government and non-governmental organizations present in the seminar. He stated that in terms of water, India stands among those most challenged, because with 16 per cent of world population, India has just 4 per cent of its available fresh water. At the end, he commended the efforts of Dr. Gursharan Singh Kainth and his team for the untiring efforts in organizing the seminar.

Dr Gursharan Singh Kainth Seminar Director delivered his introductory remarks on the theme of the Seminar. While welcoming all the key speakers, session chairpersons, distinguished guests and participants stated that this periodic seminar aims at providing a platform for the exchange of ideas and presentation of viewpoints related to sustainable management of water resources. Dr. Kainth said that freshwater is a scare resource and issues about freshwater availability increasingly focuses on water security, which refers to people's access to enough safe and affordable water to satisfy their needs for household use, food production and livelihoods.

Water insecurity and scarcity already affected large parts of the developing world. Further, last century has seen a six fold increase in global water demand. India currently has among the world's most destructive approaches to water consumption and where 85 per cent of the country's water goes each year to agriculture sector. Domestic consumption accounts for just 7 per cent of the total, and industry, energy generation, and other uses the remainder. Dr. Kainth highlighted the need to 'fix' irresponsible usage, theft and leakage of water. India's long standing emphasis on water—intensive crops such as grains and even sugarcane needs also to be re- assessed and planned afresh for if our equal need for water is to be responded to appropriately. This will acquire a greater urgency now, given the government's commitment to the Food Security Act. At the end, Dr. Kainth re-emphasized upon this periodic seminar aiming at providing a platform for the exchange of ideas and presentation of the viewpoint's related to the sustainable management of water resources. He concluded by stating that the time has come for us to draw deep from this tradition and launch India and its billion people on a path of ecologically sustainable development.

In his Inaugural Address, Dr. Gurdev Singh Khush FRS Member US National Academy of Sciences, Adjunct Professor University of California, Davis, and Former Head Department of Plant Breeding Genetics and Biotechnology, IRRI, Philippines complemented Guru Arjan Dev Institute of Development Studies for organizing this conference on climate change and water security. Water is

earth's most vital resource. He stated that climate change shall affect our lives mainly by impacting water supplies for agriculture, as emphasized in 'Gurbani' the three most important things that sustain humans are air, water and earth (Pawan Guru, Pani Pita and Mata Dharat). Also from our worldly entrance in a burst of amniotic fluid to the ritual washing of the dead, water flows through our lives; and, more than 75 per cent of our bodies are water.

"Water Security And Climate Change: Challenges And Strategies",01/03/2012, online at: http://www.eurasiareview.com/01032012-water-security-and-climate-change-challenges-and-strategies/

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❖ Treading Water: Map Reveals Global Footprint

Management of water resources is becoming a key issue as population expands. Not only do the resources available vary around the world but trade in goods that use significant amounts of water to produce shifts large amounts of "virtual water" between nations. With that in mind, researchers have created a high-resolution map of water footprints across the globe that includes water use for producing internationally traded commodities.

"Water management is generally perceived as a local issue with local solutions," Arjen Hoekstra of the University of Twente in the Netherlands told **environmentalresearchweb**. "However, freshwater is a global resource and freshwater scarcity is a global concern. For water-scarce regions, import of commodities that require a lot of water in their production can be a solution. On the other hand, since water is generally priced far below its value, many rivers and aquifers are overexploited to produce cheap products for export."

Hoekstra and colleague Mesfin Mekonnen calculated water use for making commodities that are internationally traded. They named three types of water footprint: green, associated with use of rainwater; blue, related to use of ground and surface water; and grey – the volume of water needed to assimilate the pollutant load to ambient water quality standards.

The global annual average water footprint for 1996–2005 was 9,087 Gm^3 per year, made up of 74% green, 11% blue and 15% grey. Agricultural production contributed 92% of this amount. Production for export was responsible for roughly one-fifth of the global footprint; the biggest share of the international virtual water flow was due to trade in oil crops such as cotton, soybean, oil palm, sunflower and rapeseed.

"We quantify and localize the water footprint of national consumption for all countries of the world," said Hoekstra. "It appears that many countries have a very significant external water footprint, which means that many people depend on water resources elsewhere in the world, often in places where water use is unsustainable and can thus not be continued in the long term."

The largest exporters of blue virtual water were the US, Pakistan, India, Australia, Uzbekistan, China and Turkey – all countries that are partially under water stress.

Hoekstra believes that wise use of our scarce global freshwater resources requires a fundamental evaluation of agricultural and trade policies. "There are too many instances where current policies

promote the development of agriculture for export in places where locally available water resources cannot sustain the projected growth in agriculture and economic development," he said. "Also energy policies that include the increased use of biofuels, the production of which requires a lot of water, need to be seen in the context of water scarcity."

Countries with a large external water footprint were often, but not always, water-scarce, the researchers found. For example, Malta depends on external water for 92% of its needs, Kuwait for 90%, Jordan 86% and Israel 82%. But Northern European nations such as the Netherlands and the UK have both a large external water footprint and plenty of water available at home.

"Many countries have significantly externalized their water footprint, without looking at whether the imported products are related to water depletion or pollution in the producing countries," write the researchers in **PNAS**. "Knowledge of the dependency on water resources elsewhere is relevant for a national government, not only when evaluating its environmental policy but also when assessing national food security."

The team also found countries differed in their water footprint per inhabitant. "The US, for instance, has a water footprint of 2842 m^3 per year per capita, more than double the global average," said Hoekstra.

Industrialized countries had water footprints per capita in the range 1,250–2,850 m^3 per year, with the UK at the low end of the scale. The difference in size tended to be due to national consumption patterns and the amount of water used in making products. Developing countries, meanwhile, showed a much wider variation – from 550 to 3,800 m^3 per person per year – with the Democratic Republic of Congo having the lowest footprint and Bolivia, Niger and Mongolia towards the top of the range. The high water footprints of developing countries were typically due to a large consumption of water in creating products. For example, in Bolivia the water footprint per tonne of meat is five times the global average.

"Treading Water: map reveals global footprint", 27/02/2012, online at:
http://environmentalresearchweb.org/cws/article/news/48782

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❖ Israel to sell $300 million in water tech to China

Feb 29 (Reuters) - Israel on Wednesday signed a deal to sell China water technology valued at $300 million for use in the agriculture sector, the Israeli Finance Ministry said in a statement.

The deal was signed by both countries' finance ministers in Beijing during a visit to China by Israeli Finance Minister Yuval Steinitz.

Israel is a world leader in water technology products and has pioneered drip irrigation that was developed for arid Middle Eastern conditions. No details of the companies or technology involved in the deal were in the statement.

It has been increasing its exports to China in recent years as its two largest trading partners, Europe and the United States, have been in the throes of an economic slowdown.

"Israel considers the deepening of economic ties with China to be a very important strategic target for both countries," Steinitz saud in the statement.

The statement also said officials from the two countries had discussed possible natural gas exports by Israel to China and that Chinese Finance Minister Xie Xuren said "talks would begin soon", although it gave no more details.

Israel has made several huge offshore natural gas discoveries over the past three years that will ensure its energy independence for decades and even make it an exporter, although the first field will be online in the second quarter of 2013.

"Israel to sell $300 million in water tech to China", 29/02/2012, online at:
http://www.reuters.com/article/2012/02/29/israel-china-water-idUSL5E8DT4WW20120229

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❖ City of Akron enters agreement with Israel's national water company

The city of Akron and Mekorot, Israel's National Water Company, have signed a Memorandum of Understanding to bring Mekorot's WaTech (Entrepreneurship and Partnership Center for Water Technologies Program) companies to Akron through Akron's Global Business Accelerator. They plan to focus on exchanging information to improve security and services and then on economic and business development projects

"City of Akron enters agreement with Israel's national water company", 27/02/2012, online at: http://www.clevelandjewishnews.com/news/local/article_03a5dbcc-618d-11e1-831c-001871e3ce6c.html

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❖ Israel's National Water Company Coming to America

Israel's National Water Company, Mekorot, will soon be setting up shop in the United States.

Israel's National Water Company will soon be setting up shop in the United States.

Mekorot last week signed a Memorandum of Understanding with the city of Akron, Ohio to bring and commercialize its WaTech program to the U.S. through Akron's Global Business Accelerator.

The agreement culminated a relationship that has been developing since 2010, when the city sent a professional delegation to Israel to explore areas for joint venture, technical and professional exchanges.

WaTech, the Entrepreneurship and Partnership Center for Water Technologies Program, will receive dedicated office space in Akron as its initial U.S. business development location as part of the deal.

The company's focus will be on innovations in water system security, treatment and distribution and waste water collection, and expanded energy sources.

The agreement makes Akron the first American city to secure an agreement with WaTech portfolio companies to assist in water system security, research and development, infrastructure development, joint commercialization and the promotion of international cooperation.

Mekorot and Akron will collaborate on the promotion of economic and business development initiatives, said Akron Mayor Don Plusquellic, who emphasized the mutual exchange of information that would result from the agreement. He noted that his recent trip to Israel, where he met with officials at the Ministry of National Infrastructures, had been fruitful in many other ways as well.

"Not only did we come back with a deal with Mekorot WaTech, but we also were introduced to other energy related businesses who are now interested in introducing their technologies to the United States, specifically to Akron," he added. "To say that this trip was successful would be a major understatement."

"Israel's National Water Company Coming to America", 27/02/2012, online at:
http://www.israelnationalnews.com/News/News.aspx/153212#.T09rHIcaNQI

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❖ Boil water notice in place for Palestine residents

PALESTINE — Due to a line break at Bassett Creek, the Texas Commission on Environmental Quality (TCEQ) has required our water system, City of Palestine, PWS ID 0010001, to notify customers of the need to boil their water prior to consumption.

To ensure destruction of all harmful bacteria and other microbes, water for drinking, cooking, and making ice should be boiled and cooled prior to use. The water should be brought to a vigorous, rolling boil and then boiled for two minutes. In lieu of boiling, you may purchase bottled water or obtain water from some other suitable source.

When it is no longer necessary to boil the water, the water system officials will notify you that the water is safe for consumption. Instructions to discontinue boiling will be issued in the same manner as this notice.

"Boil water notice in place for Palestine residents", 28/02/2012, online at:
http://palestineherald.com/localscene/x1875169399/Boil-water-notice-in-place-for-Palestine-residents

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❖ City of Palestine working on major water break, water outages possible

PALESTINE — City of Palestine Public Works employees were working on a large water break late Saturday that disrupted water services for some Palestine residents. Work continued of press time Saturday and was unknown when it will be repaired.

"Some residents are still without water in the Upper Lake area and those on the west side of town," City of Palestine Emergency Management Coordinator Schelby Wells said Saturday night. "Ever since this occurred, we have had city crews working and they will continue to work until the situation is repaired," she said.

Due to a high volume of calls to the Palestine Police Department and 911 Saturday about the water outage, Wells asked citizens not to call in order to keep the lines free for those who are in an emergency situation.

"I do ask that people check on their neighbors, especially if they are elderly or are special needs and possibly help them get to a friend or relative's place in another area of town that does have water," Wells said.

As of Saturday night, there was no word on whether a boil notice would be issued.

"Whether there is a boil notice issued all depends on the water pressure caused by the leak. If there is a boil notice, we will use our Code Red notification system to let everyone be aware," Wells said.

Code Red is a telephone notification system used to send critical communications to local citizens such as evacuation notices, storm alerts, missing child alerts and water outage information.

Those who have not signed up for Code Red can sign up online at www.cityofpalestinetx.com

The Palestine Fire Department did deliver water to Palestine Healthcare Center, a nursing home facility located on Tile Factory Road in the Westwood area.

"Situations like this is a good example of why we ask residents to be prepared to take care of themselves for 72 hours — 72 hours of water and food — in case of emergencies like these," Wells stressed. "It's very important to make personal preparedness a priority in your home."

"City of Palestine working on major water break, water outages possible", Cheril Vernon, 25/02/2012, online at: **http://palestineherald.com/localscene/x952193690/City-of-Palestine-working-on-major-water-break-water-outages-possible**

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❖ One state for Palestinians and Israelis

For decades the two-state solution to the Israeli-Palestinian conflict has eluded well-intentioned peacemakers. Diplomats have talked, shaken hands, snapped photos — and returned home from summits with strikingly little to show for their efforts. Meanwhile, the occupation of Palestinian territories grew more restrictive. Israel's settlements developed into towns and small cities as Palestinians were penned into smaller and smaller spaces. While diplomats shuffled from Madrid to Oslo to Wye River, from Camp David to Taba to Annapolis and resort towns in between, the illegal settlements expanded. And the window for two states closed.

Palestine and Israel are two parts of the same country — something those who have not been to the region may find hard to imagine. The area of Mandate Palestine — that's Israel, the West Bank and Gaza — is about the size of New Jersey. The country is so small that Palestinians on the hilly West Bank can view the Israeli coastline from their homes (never mind that restrictions on Palestinian movement have prevented the vast majority from ever visiting the sea). Moreover, one out of five Israelis is a Palestinian, and about one of every six residents of the occupied territories is a Jewish settler.

The degree to which the country is a single, indivisible unit is sometimes underscored by the most mundane experiences. A Palestinian friend recently told me about being pulled over for speeding in the West Bank. The person who ticketed him was an Israeli army official.

Yes, Palestine has been colonized out of existence, and the Israeli army is busy policing traffic.

The army's nearness to the average Palestinian extends beyond settlements. The region has few freshwater resources. In Israel, maintaining access to water is a matter of national security. The mountain aquifer underneath the West Bank's rocky topography is one major source, and the army regularly destroys "unauthorized" wells and cisterns to secure Israeli hegemony over the scarce resource.

It was awareness that there will never be a viable Palestinian state that prompted me to work with other Harvard students to organize a one-state conference this weekend. Our work has been informed by the uncontroversial view that all people are created equal. Assessing an environment in which Israel controls the lives of 4 million people and deprives them of basic human rights, we ask whether there is an alternative: Can the one-state solution deliver equal rights to everyone?

Critics say that raising the question of equal rights in Israel/Palestine reveals our motives; we seek to destroy Israel, they say. They contend civil rights for everyone in the country will mean "the elimination of Israel as the national homeland of the Jewish people."

For some, everything that happens in the Middle East is viewed through the prism of what is best for the Jewish people. But the Palestinians are people, too. Preserving "Israel as the national homeland of the Jewish people" is a costly endeavor. And I regret that the cost is borne almost exclusively by Palestinians living under apartheid.

It is also worth asking whether permanent occupation is good for the Jewish people. Palestinians learn about thousands of years of Jewish suffering, persecution and genocide, and we wonder whether Israel can really be the height of Jewish achievement. Did the Jewish people survive for so long only to become another people's occupiers and permanent oppressors?

Many of my Jewish friends and peers in Israel and in America answer that question resoundingly: No. Peter Beinart has done an admirable job chronicling the movement of young American Jews away from Israel. But in Israel, something different is happening.

About a year ago, I marched down a winding lane in the windswept village of Bilin to protest the Israeli seizure of village lands. The nonviolent action was organized by the village's Popular Committee, and, as is typical, a group of Israelis joined in solidarity. Many of these young people had publicly rejected their Jewish privilege. They were there because we were equals, united in our rejection of military occupation and apartheid.

In Israel/Palestine, the struggle for human dignity and freedom is edifying. The call for equal rights is energizing and uplifting. And in a region where hope founders and falters so frequently, that's saying a lot.

"One state for Palestinians and Israelis", Ahmed Moor, 03/03/2012, online at: http://www.washingtonpost.com/opinions/one-state-for-palestinians-and-israelis/2012/03/01/gIQAzOZanR_story.html

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❖ Conflict zones looking to U.S.- Israeli NGO's model for environmental cooperation

The Good Water Neighbors program encourages communities in Israel, Jordan and the Palestinian territories to cooperate with one another to improve shared water resources.

Water and peace are two of the scarcest commodities in the Middle East. But Friends of the Earth Middle East, a nonprofit environmental and peace organization, has managed to find a measure of success by pursuing both at once.

The Good Water Neighbors program - which encourages communities in Israel, Jordan and the Palestinian territories to cooperate with one another to improve shared water resources - has steadily expanded over the last decade, even as other regional peace efforts have foundered. Friends of the Earth was founded in the United States in 1969.

"The peace camp in Israel has been decimated in the last decade," said Gershon Baskin, a board member for several peace organizations, including the Israel-Palestine Center for Research and Information. "Friends of the Earth is pioneering a new model, and it seems to be working."

There are a handful of organizations that work on either water issues or grassroots cooperation among local communities, say the nonprofit's directors, but Friends of the Earth is unique in that it does both. Its flagship program, Good Water Neighbors, pairs Israeli, Jordanian and Palestinian communities on either side of the Green Line to teach residents about their mutual dependence on water resources and to encourage them work together to advocate for improvements.

"We chose water as an issue because it's on everyone's mind, said Gidon Bromberg, the director of the program's Tel Aviv office, who was born in Israel and grew up in America. "There is real water scarcity and you can see it."

Organizations in other areas of conflict have begun to take note of the program. Friends of the Earth's directors have traveled to Pakistan, Serbia and Sri Lanka in the last several months, and they are now in the early stages of adapting Good Water Neighbors to each of these locations. While some analysts doubt that such a model can be transplanted overseas, Friend's of the Earth and its foreign partners say that its basic principles are universal.

"Our region is the mother of all conflicts," said Yana Abu Taleb, the assistant director of Friend of the Earth's Amman office in Jordan. "If it works here it will work anywhere."

Abu Taleb and Bromberg spent a week last month touring Sri Lanka's Eastern District, which was devastated during the 25-year civil war between Tamils and Sinhalese. Following their return, the directors outlined a plan to implement a program styled after Good Water Neighbors in the area.

"We think that environmental cooperation can be powerful a vehicle for reconciliation at this time when Sri Lanka is in a post-war phase," said Vinya Ariyaratne, the executive director of Sarvodaya, the Sri Lankan development NGO that will be implementing the program.

Leaders from other areas of conflict are also seeking to bring the program to their countries. In July, Abu Taleb traveled to Lahore, Pakistan, to speak to Pakistani and Indian members of the World Economic Forum's Young Global Leaders program about adapting Good Water Neighbors to the Indus Valley between India and Pakistan. And in December, Bromberg traveled to Dubrovnik, Croatia, where he spoke about Good Water Neighbors on a panel with the co-presidents of Croatia and mayors from several Balkan cities.

Many more meetings are planned for this year.

However, the program has not actually been tested outside of the Middle East, and some analysts caution that it will not be easy.

"Conflicts are very complicated and unique, said Prof. Mordechai Tamarkin, head of Tel Aviv University's Tami Steinmetz Center for Peace Studies. "There are internal factors like history, religion, politics ... and then there are regional and international factors. If you don't have a deep understanding of a conflict, you'd be better off not intervening at all."

Friends of the Earth's directors respond that the very reason the program works is because it transcends regional differences. The prospect of clean water motivates people to work with "the enemy" and allows them to defend their work from would-be spoilers, they say.

"It's an issue of self-interest that becomes common interest, because the water resource itself is common," said Bromberg.

Friends of the Earth was founded in 1994, in the heady days following the signing of the Oslo Accords. It started with offices in Israel, Jordan and Egypt, and mostly conducted research and advocated for greater attention to environmental issues in the peace process, say its directors. But political negotiations soon collapsed with the outbreak of the second intifada. At the same time, public opposition to cooperation increased and international funding dwindled, say longtime activists.

Friends of the Earth's Egyptian office closed in 1998 under pressure from then-President Hosni Mubarak's government. The director of the Amman office was shot at while driving to work in 2000. And in 2001 the organization's Palestinian director tried to convince all of the Arab staff members to quit.

"It hasn't been easy," said Nader Khateeb, the director of the NGO's Bethlehem office. "Especially during the intifada we felt that we were constantly under threat. We sometimes discussed not coming to the office and working from home."

But the group's directors say that trust and a shared purpose, forged in less trying times, enabled them to reinvent the organization. They created a united political front by publicly endorsing a two-state solution based on the 1967 borders, overcame new limitations on travel by opening an office in Bethlehem, and initiated the Good Water Neighbors program.

Although social and governmental resistance has not abated since the intifada, and most surviving peace NGOs continue to struggle, Good Water Neighbors has expanded from 11 to 29 communities

and from 14 to 35 staff members. It is working with mayors on a range of regional projects, including the construction of several multi-million-dollar sewage treatment plants and a proposed "Peace Park" along the Jordan River.

Good Water Neighbors has also become Friends of the Earth's largest source of fundraising. Between 2001 and 2010 its annual funding ballooned from $278,000 to $2.8 million, according to its tax filings. Good Water Neighbors accounted for most of the increase, with contributions and grants to the program increasing from $400,000 to $1.9 million between 2009 and 2010 alone.

"Conflict zones looking to U.S.- Israeli NGO's model for environmental cooperation", Andrew Tobin, 02/03/2012, online at: http://www.haaretz.com/weekend/anglo-file/conflict-zones-looking-to-u-s-israeli-ngo-s-model-for-environmental-cooperation-1.416003

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❖ Tests show dye in Beirut River not dangerous

BEIRUT: Tests show the red liquid that contaminated the Beirut River earlier this month was not dangerous, Environment Minister Nazim Khoury said Thursday.

Around two weeks ago, the Beirut River turned red after a stream of an unidentified liquid began pouring into the river through a sewage pipe adjacent to a bridge in Furn al-Shubbak.

The results of tests carried out at the American University of Beirut's Central Laboratory indicate that the change in color was caused by a large amount of industrial red dye.

"In general, the laboratory tests indicate that the substance found in the river is not harmful to the environment and it is simply a dye used as coloring in industry," Khoury said.

However, the tests and efforts by the Environment Ministry have not identified the source of the red dye which spilled into the Mediterranean Sea last month.

"On Feb. 22, I sent separate letters to the Council for Development and Reconstruction and the Energy Ministry to help us locate the source of the red dye … neither has replied to my request," Khoury told The Daily Star.

Khoury said his ministry would continue its investigation along with other ministries and the Public Prosecutor's office.

Speaking at a news conference, Khoury said the ministry was currently trying to identify the sewage network connected to the pipe that emptied the red dye into the river. "It's not going to be an easy task given the vast geographic space surrounding the area [where the dye was emptied]," he said.

"We are still waiting for the map of the sewage networks in the area from the Council for Development and Reconstruction, and we hope they will send it to us soon," Khoury added.

But the map could be a dead end, Khoury said. "We cannot rule out the possibility that the waste was transferred to the area by trucks and then discharged into the area's sewage system," he said.

Local officials in Furn al-Shubbak said last month that contamination of the Beirut River takes place regularly.

Eyewitnesses in the area reported seeing various colors of liquid flowing from a sewage pipe there into the Beirut River every few months. One man who runs a car rental shop in the area who declined to be identified told The Daily Star that industries wait for winter to dump waste into the running water.

Dismissing reports of the presence of dangerous chemicals in the red dye, Khoury cited the laboratory tests, which ruled out the presence of chemical compounds such as cyanide and chromium (VI) in the samples retrieved from the river.

Chromium (VI) is known for its carcinogenic effects, and the presence of cyanide in the river could have hurt a number of marine organisms in the Mediterranean. Although the practice is illegal, some still gather live fish by spraying sodium cyanide into the sea to stun and bring them to aquariums.

According to Ahmad Houry, a Professor of Natural Sciences at the Lebanese American University, the phenomenon of discharging such waste into the river is extremely dangerous.

"I am glad they didn't find Chromium (VI) and Cyanide in the samples this time," he said.

Houry also said that the ministry should also make sure the contamination has not added any harmful bacteria into the river.

"Tests show dye in Beirut River not dangerous", Daily Star, 02/03/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=4516

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❖ Report: "120 Palestinians To Be displaced Due To Military Orders"

The "Land Research Center" issued a press release, on Friday, stating that 120 Palestinians will be displaced and prevented access to their farmlands due to an Israeli military plan, and a military training drill being conducted in the Jordan Valley.

The center stated that eighteen Palestinian families received military orders, issued by the Israeli Army, ordering them to stop the construction in Khirbit Ibzeeq area, north east of Tubas.

The families were ordered to stop all agricultural and civil constructions in the area under the pretext that it falls under "Area C" as classified by the Oslo Peace Agreement, therefore, they need to obtain construction permits from the so-called Israeli Civil Administration, and not from the Palestinian Authority.

The Center further stated that, besides displacing the families, including at least 66 children, the new military order was issued amidst extensive military trainings in the area, an issue that had a direct impact on the produce of agricultural lands that belong to the residents of the Tubas district.

The area has already been impacting by Israel's illegal policies, especially by preventing agricultural produce from being transported to other parts of the occupied West Bank; the Plaines Area in the Jordan Valley is known as the "Fruit Basket of Palestine".

It is worth mentioning that military drills in the area have already led to the destruction of more than 400 Dunams (98.84 Acres) of Palestinian farmlands.
Head of the Ibzeeq Projects Committee, Ali Turkman Sawafta, member of the Al-Hroub family, one of the families that is heavily impacted by the Israeli violations, has been living in Khirbit Ibzeeq since 1961, six years before the 1967 six-day war in which Israel occupied the rest of Palestine, and that the residents have official documents proving they are leasing the lands from their Palestinian owners.

Sawafta added that the Israeli occupation insists that the lands in question are "state lands", an issue that violates International Law as those lands belong to residents displaced during the war.

Khirbit Ibzeeq is only 8 kilometers away from Tubas; it is considered one of the Bedouin areas in the Jordan Valley where the residents live in extreme poverty, without access basic services including health care, running water and electricity. They bring their water from Tubas by tanks driven by agricultural tractors.

The Land Research Center said that displacing the residents, and stealing their lands, is a direct violation to all international treaties and regulations, as they call for upholding the rights of the civilian population living under occupation, and during the time of war, in addition to ensuring they lead a safe and dignified life.

-- This is a segment of a report by the UNITED NATIONS Office for the Coordination of Humanitarian Affairs in the occupied Palestinian territory - Humanitarian Factsheet on Area C of the West Bank - JULY 2011.

- Over 60 percent of the West Bank is considered Area C, where Israel retains extensive control, including over security, planning and zoning.

- An estimated 150,000 Palestinians live in Area C, including 27,500 Bedouin and other herders.

- More than 20% of communities in Area C have extremely limited access to health services.

- Water consumption dips to 20 liters/capita/day (l/c/d) in communities without water infrastructure, one fifth of the World Health Organisation's recommendation.

- Communities depending on tankered water pay up to 400% more for every liter than those connected to the water network.

- 70% of Area C is off-limits to Palestinian construction; 29% is heavily restricted.

- Less than 1% of Area C has been planned for Palestinian development by the Israeli Civil Administration.

- 560 Palestinian-owned structures, including 200 residential structures and 46 rainwater collection cisterns and pools, were demolished by the Israeli authorities in 2011.

- 1,006 people, including 565 children, lost their homes in 2011, over twice as many in 2010.

- Over 3,000 demolition orders are outstanding, including 18 targeting schools.

- The planned expansion area of the around 135 Israeli settlements in Area C is 9 times larger than their built-up area. (B'Tselem).

- Approximately 300,000 settlers currently live in Area C.

"Report: "120 Palestinians To Be displaced Due To Military Orders"", 02/03/2012, online at: http://www.imemc.org/article/63098

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❖ Kinneret rises 20 centimeters after Israel's stormy weekend

Increase comes after heavy snowfall in northern Israel and Jerusalem, and as rains inundate Tel Aviv.

A weekend of heavy rains and snowstorms throughout the country contributed to a 20 centimeter rise in the level of Lake Kinneret, one of Israel's primary sources of drinking water.

The Kinneret's water level has risen 30 centimeters since the beginning of the current round of storms last week. Since the beginning of the current storm system, Jerusalem has seen 168 millimeters of rain, Ariel 93, and Tel Aviv 58 millimeters.

The weekend saw heavy snows in northern Israel, the Golan Heights and the West Bank. In Jerusalem, snow accumulated on the ground for the first time in four years.

In Tel Aviv, the sun briefly broke through the clouds on Sunday morning after a rainy weekend, before disappearing again behind heavy storm clouds.

In Modi'in Ilit, seven-year-old Yael Sheffer died after being swept away by the Modi'in stream on Friday. Police are investigating whether possible negligence on the part of the girl's father or city officials was involved in the incident.

"Kinneret rises 20 centimeters after Israel's stormy weekend", Eli Ashkenazi, 04/03/2012, online at: http://www.haaretz.com/news/national/kinneret-rises-20-centimeters-after-israel-s-stormy-weekend-1.416339

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❖ The current of climate change

Christiana Figueres, the UN climate chief, discusses the state of the climate change debate.

It is barely detectable by the naked eye, but it is here – you just have to look hard enough: Climate change.

Emissions from factories, cars and other sources are causing the global average temperature to rise according to the majority of scientists.

But for years, claims have been met by counter-claims, meetings, conventions, industry lobbying and now voices from scientists and politicians who disagree with efforts to reduce emissions.

Many people are left wondering: What is really happening, what can I believe and is anyone making a difference?

Christiana Figueres heads the UN's attempts to tackle climate change.

She explains: "I don't look at the waves as much as I look at the current. We have waves and we have spikes up and down. But the important thing is: Are we moving in the right direction? Yes. Are we moving in the right direction at the right pace? No."

On this episode of Talk to Al Jazeera, the UN's climate chief discusses the state of the climate change debate.

for video see

http://www.aljazeera.com/programmes/talktojazeera/2012/02/20122251316343238.html

"The current of climate change" , Al Jazeera, 26/02/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=4477

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❖ Blue Gold: Will Investing in Water Be The Next Big Trend?

The world's population is growing, and developing areas are demanding more clean water. Since 2001 the water sector has beaten the S&P 500 by 11% annually, according to Business Insider. (STAY AHEAD OF THE CURVE: Follow Kapitall on Twitter)
But how do you invest in the elusive concept of water? Business Insider gives 13 different ways on how to invest in blue gold, sourced from Jefferies:

1. Municipalities: "Key factors influencing municipal demand for water treatment equipment include population growth, consumption of potable water per capita, and the need to fix or replace aging infrastructure…Leading companies in municipal water include Pall Corporation."

2. Water Treatment Chemicals: "Water treatment chemical companies include those who produce coagulants, flocculants, corrosion, and scale inhibitors, biocides, antifoaming agents, adsorbents, fluoridation agents to name a few…Ashland and Ecolab are two leading companies."

3. Industrial: "The industrial segment of the water industry is expected to grow 10 – 20 percent in developing countries. But expect political constraints to limit price hikes for utilities that provide fresh water and wastewater disposal."

4. Pumps: "Leading companies include Flowserve, which manufactures pumps, seals and valves for water management end-markets, and Gorman-Rupp, a $300 million manufacturer of pumps, pumping stations, castings and control equipment."

5. Pipes: "The U.S. faces significant infrastructure investment requirements over the coming decades and Jefferies recommends long-term plays on infrastructure companies. Stock picks include Northwest Pipe."

6. Residential: "A.O. Smith is the leading manufacturer of water heaters in the residential and commercial space in the U.S. The residential water heater business is largely replacement. Pentair's principal products include residential and light commercial water pumps, filters, and filtration systems."

7. Filtration: "Leading companies include Pall, which supplies filtration, separation and purification technologies to the energy and water markets."

8. Distribution: "Investors will likely look for opportunities created by regulations that impact water distribution systems. The distribution segment of the water industry is expected to grow 10 – 15 percent in developing countries."

9. Irrigation: "Micro or drip-irrigation is the most promising market, making companies like Monsanto a good bet. Irrigation projects have the most impact in the Middle East and Northern

Africa, which account for more than 53 percent of all water demand. South Asia is second with 36 percent of all water demand."

10. Valves: "The repair and replacement of water infrastructure in the developed world has provided an opportunity for water investors. The EPA expects 45 percent of existing infrastructure to be replaced by 2020 and this is expected to benefit companies involved in supplying valves. This could make Flowserve Corp, which manufactures valves for the water management market, a good long-term play."

11. Bottled Water: "Bottled water represents a high-profile market, with an estimated $96-$100 billion in sales in 2010. In the U.S. there is more demand for bottled water than there is for alcohol and coffee. Consumer and regulatory backlash.however, is a perpetual risk."

12. Desalination: "Improved cost effectiveness and booming demand for water in a number of arid regions are driving growth in desalination demand to rates well above the overall water sector. Desalination equipment companies that would make good stock picks include Pentair, Energy Recovery, and Flowserve."

13. Disinfection/Purification: "Emerging purification systems which can lessen energy costs and increase throughput have an extremely receptive audience in an energy constrained world. Growth rates in the disinfection/purification subsector are expected to be amongst the highest in the industry."

Business Section: Investing Ideas

Interested in getting involved in water investment? To dig deeper into the options, we list below the companies mentioned in this article.

Do you think increasing demand for water is inevitable? If so, which companies do you think are poised to benefit?

"Blue Gold: Will Investing in Water Be The Next Big Trend?", 27/02/2012, online at:
http://wire.kapitall.com/investment-idea/blue-gold-will-investing-in-water-be-the-next-big-trend/

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❖ Farming and energy: lessons from collapsed civilisations

Renewable energy technologies and agro-ecological farming represent opportunities to avoid the mistakes of the past

Patterns in the way that societies, even whole civilisations, collapse are visible throughout history. It could be the people of Easter Island transgressing ecological boundaries, the failure to adapt to a changing climate in the case of the Greenland Norse, or the imperial overreach of the western Roman Empire, which responded by developing a complex, inward looking and fractious over-blown bureaucracy. We should learn lessons from all of these.

An almost universally common element in such downfalls is what the archeo-anthropologist Joseph Tainter calls "declining marginal returns". It's what it sounds like. A society hits an optimum level, conquests or good harvests provide the resources for it to grow, but being bigger it needs more. Sooner or later, to get the same amount out of the system, to keep the good times rolling, ever more resources are needed. When that happens, the end can come suddenly and catastrophically.

At around the same time, late in the first millennium, two highly evolved societies collapsed in this way, brought down by the law of diminishing returns. The Mayan civilisation in Central America, and the kingdom of Mesopotamia – a cultural and technological cradle of the Western world – that ranged across parts of modern day Turkey, Syria, Iran and Iraq.

In both cases the climate supported productive, sophisticated farmingsystems that in turn fed growing, competitive cities. But to support the growth, farming moved on to more marginal land, stressing available soil and water resources and creating a more vulnerable system. The response was further intensification. They brought everything they knew about irrigation and agricultural technology to bear to keep the system going. In Mesopotamia the soil salinised and the fragile ecology caused output to vary wildly, a kind of reverse ecological leverage kicked-in. The Mayans, writes Tainter, ended up with "high-density, stressed population, practicing intensive agriculture, living largely in political centres, supporting both an elite class and major public works programmes, and competing for scarce resources."
In both cases, in around a century, things fell apart. In Mesopotamia the area of land under human habitation fell to just 6% of what it had been 500 years previously.

The advantage we have is forms of scientific analysis, monitoring equipment and communications technology to be able to spot and convey the signs of diminishing returns. Soil erosion, biodiversity loss and climate change are the currency of our own, global diminishing returns. Yet our own response, reaching for the crutches of technological fixes and intensification in both agriculture and energy, ways to keep our existing lifestyles and patterns of consumption going, rather than seeking out social innovations and different ways to live, seem to repeat the mistakes of the past. Ultimately what did for the medieval Greenland Norse was their failure to learn from the other local civilisation that did survive the little ice age. The Christian, dairy farming Norse saw the Inuit as pagan and inferior. So, when the grasses and their cattle failed, they refused even to copy elements of the Inuit's successful survival strategies, such as fishing, merely trying to make what they already knew work.

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It's dangerous to look into the past for exact parallels, they almost never exist. But equally it's foolish not to learn from the mistakes of others. And it is hard not to see in George Osborne's now infamous, renewable energy industry-killing conference speech, a clinging to the past from which there can only be diminishing returns.

If the signal sent from one speech can take the wind from the blades of one renewable energy industry and flick off the switch for solar, we are living the old curse of those who fail to learn from the mistakes of the past being doomed to repeat them in some other form.

Similarly, in agriculture, two very different visions for farming globally presents another such choice. On one hand there is Sir John Beddington's Foresight report, which foresees a future of farming intensification, based on hi-tech and reliance on markets.

Or there is the option of rolling-out more agro-ecological techniques (technology but of a different sort) and giving support to smaller farmers, as advocated by the government scientific adviser Bob Watson and theInternational Assessment of Agricultural Science & Technology for Development. The trick we need to learn is how to solve several problems at the same time. How do you revive economies, create mass employment and maintain the environment simultaneously? The technologies you choose matter, each carries with it a different DNA for the economy and society that surrounds it. The ones you pick can lock in a way of being for decades. We need to choose technologies for which low carbon and lots of jobs are part of that DNA. Step forward both multiscale renewable energy technologies and agro-ecological farming. As Jared Diamond put it in his book Collapse, societies choose to fail or survive. We are more aware now of the likely consequences of our choices than any society in history. Wouldn't it be embarrassing if we continued to make the wrong ones.

"Farming and energy: lessons from collapsed civilisations", Andrew Simms, 01/03/2012, online at: http://www.guardian.co.uk/environment/2012/mar/01/lessons-history-collapsed-civilisations?newsfeed=true

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❖ New Technology Turns Air Into Drinking Water For Troops

Military troops around the world, no matter where they are instated, know that even with the best training, personnel and arms, they cannot survive battle if they are lacking one vital thing: water. Military leaders' greatest concerns are often to ensure water sources are always available, even in the most arid of places.

One Israeli company took up the challenge to ensure water can be readily available, anywhere and at any time, by extracting it from the most common of things: **air.**

Water-Gen, based in Rishon LeZion, Israel, specializes in water generation and water treatment technologies integrated with tactical military vehicles and ground units. Their technology extracts water from the ambient air humidity, and turns it into drinking water.

First, the system filters the air so that water can be extracted and accommodated in containers. Then, it is cooled and purified into drinking water. This water can be served from a tap within the system or inside the cabin.

Chairmen and co-CEO, Arye Kohavi, says that "water transportation is one of the most common reasons for the departure of convoys across Afghanistan. These convoys are attacked and have casualties." He adds that "if we can produce the water to the exact point where it is consumed, we spare the need to transport water and reduce the risk and expenses."

According to the Water-Gen, the device, which can be fitted onto vehicles, produces 10-20 gallons (40-80 liters) of pure drinking water a day, even in harsh weather and field conditions. The system, which is operated by solar or electric energy, is designed to meet military needs and standards, the company adds.

The company has wide-scale pending patents for the systems and technology. In 2011, it completed a three-week experiment with US Army ground units (Army Expeditionary Warrior Experiment), in which its systems provided the soldiers drinking water throughout the drills.

Eventually, Water-Gen hopes the technology can be implemented not just in the military, but in water-scarce regions around the world too. The United States, India, The UK, Spain and the UN Refugee Agency (UNHCR) have already shown interest in the company's products.

"New Technology Turns Air Into Drinking Water For Troops", 29/02/2012, online at:
http://www.triplepundit.com/2012/02/new-technology-turns-air-drinking-water-troops/

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❖ Ecologists against the Jews

Op-ed: Environmentalists launch primitive diatribe against Israel that smacks of anti-Semitism

"The desert is groaning", declares Cornerstone magazine, the Palestinian Sabeel Theology Center's publication. "The Israeli army and settlers have polluted the Palestinian areas," writes Reverend Naim Ateek, who heads the notorious anti-Jewish Christian center.

Despite the fact that Israel is the only country to enter the 21st century with a net gain in forest growth, Green activists today are among the most virulently anti-Jewish. The Green Party mayor of Aachen, Hilde Scheidt, has just waged a media campaign against Israel. Prominent German author Henryk Broder called her a "Green anti-Semite," after she defended a cartoon depicting a man sporting a Star of David on his bib as he devours a young Palestinian boy with a fork draped in an American flag and a knife with the word "Gaza" written on it.

Back in 1991, German Green Party's spokesman Hans Christian Stroebele defended Saddam Hussein's rockets on Tel Aviv because "Iraq's attacks are the logical, almost compelling, consequence of Israel's politics vis-à-vis the Palestinians and the Arab states,"

The Green lies about "the ecology of occupation" are now spreading at the highest European levels. The French parliament's Foreign Affairs Committee recently published an unprecedented report accusing Israel of implementing "apartheid" in its allocation of water in Judea and Samaria.

Meanwhile, environmentalists accuse Israel's army of being a major cause of cancer in Palestinian children. This blood libel began in 1999, when Suha Arafat declared that Israeli gas is poisoning Arab children: "Our people have been subjected to the daily and extensive use of poisonous gas by the Israeli forces, which has led to an increase in cancer cases among women and children." She also said that Israel has "chemically contaminated about 80% of water sources used by Palestinians."

Nazi-style rhetoric

The pollution myth spread through the literary milieu as well. British dramatist David Hare wrote that the Jews have "polluted" the Promised Land and "do not belong here." According to this racist belief, "native species" originate in a certain place and that is where they "belong." Hence, Israel's "colonization" threatens the "original" Arab environment.

Green NGOs accuse Israel of "warfare ecology," "deforestation," "erosion of agricultural lands," and "expropriation" of Arab land for Israel's national park. European geographers denounce settler "cementification" and the "architecture of occupation" in a growing topography of hatred.

Elsewhere, Architects and Planners for Justice in Palestine," led by the British Richard Rogers, has called for a boycott of architects, planners and companies involved in building the security fence, which stopped the suicide bombers. Eyal Weizman, an Israeli architect living in London, calls it a "war crime."

Elements within the Green movement have adopted Nazi-style rhetoric to blast Israeli businesses. Literature distributed by the boycotters outrageously describes Judea and Samaria citizens as "parasites." Products from the Golan Heights, such as wines, mineral water and milk are targeted. Flowers are targeted by the BDS movement, because since Israel entered the flower export market in the 1970s this business has been blooming.

The Ahava cosmetics company is also targeted by Green activists. In the last three years, thousands of Western women in bikinis, belonging to the feminist association Code Pink, protested outside Ahava shops in the US and in European capitals. They are usually streaked with mud, some featuring the words "Ahava is a dirty business." The slogan of the campaign is fashionable and catchy: "Stolen Beauty."

Dutch government promoted an investigation to determine whether Ahava should enjoy tax privileges granted to foreign goods. Elsewhere, Sex and the City actress Kristin Davis was suspended by humanitarian group Oxfam International after joining an Ahava advertisement campaign.

In the final analysis, environmentalists have launched a primitive diatribe against Israel that smacks of classic, medieval-style anti-Semitic blood libels. It demonizes the Jews for "dispossessing" and "polluting" a fabricated, "archetypical Palestine." Yet this campaign has proven, again, that anti-Semitism is the most dangerous pollutant.

"Ecologists against the Jews", Giulio Meotti, 27/02/2012, online at: http://www.ynetnews.com/articles/0,7340,L-4195413,00.html

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❖ Myanmar's Leaders face a New Environmental Dilemma

Protesters want to shut down the Shwe gas pipeline, the potential source of vast revenues

Having successfully persuaded the Myanmar government to stop construction of the Myitsone Dam on the Irrawaddy River and close down a planned coal-fired energy plant at Dawei on the southern coast, protesters have set their sights on the controversial Shwe pipeline, designed to stretch all the way across Burma to Yunnan in China.

The protests present a dilemma for the government, which must now learn to balance the antipathy of its citizens to exploitation of its natural resources against the vast amount of revenues that would be lost if the Shwe project were to follow the other two into oblivion. Under decades of military rule, protests against construction projects have been met with heavy-handed force. Now, if the government wants to speed up the democratization process, it must contend with what has become known as NIMBY – "not in my backyard" – in the west.

More than 125 organizations in 20 countries held demonstrations on March 1 and submitted a letter calling on President Thein Sein to postpone the trans-Burma oil and gas pipelines project, expressing serious concerns over human rights abuses as well as the social, economic and environmental impact on the Burmese people. Nearly 300 people participated in a demonstration in Yangon, wearing T-shirts with slogans like "Our Gas, Our Future." At least nine activists were detained and interrogated by police for a brief period, but were freed. Another demonstration took place in the northern city of Chiang Mai in front of the Chinese consulate.

In their letter the protesting groups called attention to what they called "serious social, economic and environmental impacts of this project, including human rights abuses."

"Thousands of acres of farm lands have been confiscated in Arakan and Shan States and Magwe and Mandalay divisions to clear the way for the pipeline corridor and related infrastructure," the letter said, with the livelihoods of local fishing families in Arakan State destroyed due to development of offshore infrastructure for the pipeline project. The letter also called attention to militarization along the pipeline as protest from local residents has required suppression by the military.

If the government buckled under to the demands of its citizens to close down the dam and the coal-fired plant, the Shwe pipeline complex is something else entirely. Shutting it down in the face of public opposition would cost billions. The income to the government from the pipeline would dwarf what it expected to receive from the Myitsone Dam project.

Cancellation would probably also put the newly responsive government headed by Thein Sein on a direct confrontation path with **hardliners in the government**, said to be led by Vice President Tin Aung Myint Oo and Htay Oo, general secretary of the Union Solidarity and Development Party, who have been described as intent on derailing the reform process despite the cautious approval of governments across the world for the year-old government. Originally installed in what was universally viewed as a rigged election, the government has dramatically expanded freedoms, freed democracy icon Aung San Suu Kyi from house arrest and allowed her to stand in an upcoming by-election.

The US$2.5 billion pipeline, being built by the Korean construction firm Daewoo International, is actually a spiderweb of lines designed to deliver 12 million metric tons of oil and 12 billion cubic meters of natural gas from Burma's offshore Shwe field annually 771 kilometers across Myanmar to Kunming in China. The natural gas pipeline will extend another 2,100 km into China. It is being built under the auspices of the China National Petroleum Corp. and and Myanma Oil and Gas Enterprise. CNPC will hold a 50.9 percent of the project and manage it, MOGE owning the other 49.1 percent.

Major controversy has developed over the project, not least because of its environmental implications but also because it is regarded by a major segment of the country's citizenry to be delivering Myanmar's precious natural resources to China. The Myitsone Dam, with generating capacity of 7,600 megawatts, was expected to deliver 80 percent of its power to China despite the fact that70 percent of Myanmar itself is without electricity.

"China has colonized Burma without shooting a gun and has sucked the life of the people of Burma with the help of the Burmese regime and its cronies," exiled democracy advocate U Aung Din told reporters recently as quoted in an earlier Asia Sentinel story. "Now, they are killing the Irrawaddy River as well."

With a population similar in size to Thailand's but with less than 8 percent of its neighbor's electricity generating capacity, Myanmar has only about 2,000 megawatts (MW) of generating capacity against Thailand's 26,000 MW. Rural, poverty-stricken Laos, with a population of only 6 million, has generating capacity equal to Burma's. The coal-fired plant at Dawei in southern Myanmar would have delivered another 4,000 MW.

An anti-pipeline group called the Shwe Gas Movement estimates that as many as 15,000 residents of 20 townships will be forced to move to make way for the construction. Rebels of the minority Shan state, through which the pipeline runs, have sought to stop it, with troops attempting to drive out the rebels. Heavy fighting erupted last March over the construction. "Resentment of these pipelines is growing day by day. Thein Sein should listen to the will of the people," Shwe Gas Movement's Wong Aung told reporters at the Chiang Mai rally. "Under the current unaccountable structure, gas monies from the project will only feed corruption and not benefit the people."

If the decision to kill the Myitsone project surprised and irritated the Chinese government, stopping the Shwe pipeline would probably infuriate them. The pipeline is projected not only as a major source of income for the government, but a major source of energy for the energy-starved Chinese, whose needs are growing at about a 9 percent annual clip.

The oil portion of the pipeline would deliver crude that now must travel on supertankers from Africa and the Middle East through the Malacca Strait. The pipeline would provide a much faster method of delivery. There are strategic considerations as well, with the Strait of Malacca heavily patrolled by US Navy ships. If there were a confrontation between the US and China, that would complicate matters considerably.

"Myanmar's Leaders face a New Environmental Dilemma", 02/03/2012, online at:
http://www.asiasentinel.com/index.php?option=com_content&task=view&id=4288&Itemid=208

❖ Growing water shortages carry economic risks that are as damaging as political corruption

Water is the most critical of all natural resources on which modern economies depend. Water scarcity and rapid economic advance cannot go hand-in-hand. Yet, with its per-capita water availability falling to 1,582 cu m per year, India has become water-stressed.

In 1960, India signed a treaty indefinitely setting aside 80% of the Indus-system waters for downstream Pakistan - the most generous water-sharing pact thus far in modern world history. Its 1996 Ganges treaty with Bangladesh guarantees minimum cross-border flows in the dry season - a new principle in international water law. And now India is under pressure to reserve about half of the Teesta river waters for Bangladesh in what will be the world's first water-sharing treaty of the 21st century.

India, however, is downriver to China and gets almost one-third of all its yearly water supplies from Tibet. But Beijing, far from wanting to emulate India's Indus-style water munificence, rejects the very concept of water-sharing and is building large dams on rivers flowing to other nations, with little regard for downriver interests. An extensive Chinese water infrastructure in Tibet will have a serious impact on India.

India thus faces difficult choices on water. It must manage its water resources wisely, including by building greater storage capacity, improving quality, and raising water efficiency and productivity levels.

Its ambitious, Vajpayee-era National River Linking Programme - which has remained on paper for the last 10 years - is designed to help connect 37 Himalayan and peninsular rivers in a pan-Indian water grid to reduce water shortages. Publicly ridiculed by Rahul Gandhi as a 'disastrous idea', it has now been ordered to be implemented by the Supreme Court in 'a time-bound manner'. Will that really happen? The experience on the Supreme Court-overseen Narmada project doesn't leave much room for optimism.

The Supreme Court indeed is burdened by multiple water disputes. With water increasingly at the centre of inter-provincial feuds, the court has sought to keep peace between warring states. It has struggled for years to resolve water wrangles, only to find the parties returning to litigate again on new grounds.

Plans for large water projects usually run into stiff opposition from influential NGOs. Such is the power of these organisations to organise grassroots protests that it has now become virtually impossible to build a large dam, blighting the promise of hydropower. Proof of this was New Delhi's 2010 decision to abandon three dam projects on River Bhagirathi, including one project midway, resulting in the loss of several hundred million dollars of taxpayer money.

The largest dam India has built since Independence is the 2,000 mw Tehri, which pales in comparison to the giant Chinese projects, such as the 18,300 mw Three Gorges Dam and the latest dam on the Mekong, the Xiaowan, which is taller than the Eiffel Tower. China's proposed Metog

(Motuo) Dam, to be built almost on the disputed border with India, is to produce 38,000 mw of power.

At a time when industrial and food production demands are putting increasing pressure on local water resources, NGOs have also led grassroots protests against the setting up of water-intensive industries, delaying the plans of giant corporations like ArcelorMittal and Posco, for example.

Add to the picture India's labyrinthine political and bureaucratic processes, which are slow-moving and bendable to public pressures, however contrived.

In this light, the National River Linking Programme looks like a plan of the dream world: a colossal water grid to handle 178 billion cu m of inter-basin water transfers a year through the construction of 12,500 km of new canals, generating 34 GW of hydropower, creating 35 million hectares of additional irrigated land, and opening extended navigation networks.

This is the kind of programme that only a large, ruthless autocracy like China can launch and implement.

To be sure, it was the Supreme Court that prodded the government in 2002 to embark on this water-grid programme. It is also true that partisan politics has been at play, with the UPA government loath to endorse its predecessor's programme. It told Parliament in 2009 that the $120-billion programme - centred on the separate linking of the Himalayan and peninsular rivers - is cost-prohibitive.

Yet, it has not tried to put forward a cost-effective alternative to a programme that the National Water Development Agency and the National Commission for Integrated Water Resource Development vouch is essential to stem droughts and floods and to double India's annual grain production to more than 450 million tonnes to meet the demands of increasing prosperity and a growing population.

Without expanding its irrigated land and adopting new plant varieties and farming techniques, India is likely to become a net food importer in the coming years - a development that will roil the already-tight international food markets.

With the water situation worsening, the Supreme Court has rightly decided to intercede. But given that India has struggled for decades to complete the Narmada project - less than 12½ times the hydropower capacity of Three Gorges project - it is an open question whether the grand river-linking plan will be realised.

More fundamentally, the growing water shortages threaten to slow economic growth and fuel social tensions, unless the government fixes its disjointed policy approach and develops a long-term vision on managing water resources. Water must be treated as a key strategic issue.

"Growing water shortages carry economic risks that are as damaging as political corruption", Brahma Chellaney, 02/03/2012, online at: http://articles.economictimes.indiatimes.com/2012-03-02/news/31117024_1_water-resources-water-shortages-water-sharing

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❖ Don't tinker with nature

Rivers should be left alone and not linked to each other

Apart from the question of whether the judiciary can encroach into the executive domain by laying down policy, the three-judge Supreme Court Bench's green signal for the river inter-linking project has water experts concerned as it is an issue that they consider to be outside the court's purview.

Many experts have been opposing the project since it was mooted by the NDA Government, with a task force being set up in October 2002 to examine the modalities of the scheme. Advocates of the river-linking scheme such as former President APJ Abdul Kalam see it as the solution to India's water-related woes. Their logic is that inter-basin transfer of river waters would ensure that arid areas will not need to suffer the painful effects of drought while flooding would cease or reduce in water-surplus regions.

It may provide some solace to conservationists who find the proposal against all natural laws and, in fact, geared towards destruction of water systems that even Congress spokesperson Renuka Chaudhary is sceptical about it. Observing that it "is easy to join rivers on paper", she points out that the environmental impact, displacement of people, condition of farmers and other issues need to be addressed in terms of present-day parameters.

On its part, the apex court wants the Union Government and States to implement the project under a high-powered committee. It would include the Union Minister for Water Resources, the Ministry's Secretary, Union Ministry of Environment and Forests' Secretary and four expert members, appointed by the Planning Commission, Water Resources Ministry, Union Ministry of Finance and the Environment Ministry. The committee will also include representatives of the State Government, two social activists and advocate Ranjit Kumar, who has been assisting the court.

However, a much wider spectrum of specialised involvement is required to gauge the project's feasibility. Ramaswamy R Iyer, former Water Resources Secretary and acknowledged expert in the field of hydrology, has been critical of the plan since its inception. "Who gave the bureaucrats-politicians the right to redraw the geography of India?" This is the fundamental question that he raises at public fora.

To assume that water can be transferred from 'surplus' to 'deficit' basins is faulty, deriving from the notion that water abstracted from rivers is 'used' and water flowing is 'wasted'. Mr Iyer ascribes such assumptions to ignorance of flowing water dynamics and ignorance of the consequences of diversions.

Ironically, in the first half of the last century, his namesake CP Ramaswamy Iyer, then Dewan of Travancore, wanted to link the Ganga and the Cauvery to solve the water crisis in Tamil Nadu.

That the proposal is in line with the Draft National Water Policy 2012 is clear from this comment in a Press release, dated February 1, issued by South Asia Network on Dams, Rivers & People:

"Though the policy does not say a word about increasing the soil moisture content, which actually should be the first objective of all irrigation strategies, it supports and even encourages inter-basin water transfers from so called 'open basins' to 'closed basins'. This is highly inappropriate.

We need to assess the potential of sustainable options like watershed development, local water harvesting systems, rooftop and other rainwater harvesting, local ground water recharge, demand side management, including water saving methods like Sustainable Sugar Initiative, water saving cropping patterns, and also avoid non-essential water intensive activities, recycling by water intensive industries and so on.

In the absence of such concerted efforts in any basin of the country, and in the face of the high inefficiency, social and ecological impacts of large infrastructure projects, such encouragement to inter-basin transfers is unviable and unacceptable".

Yamuna Jiye Abhiyan convenor Manoj Mishra, untiring in his effort to restore the Yamuna, also condemns the scheme. He points out that while experts elsewhere are dismantling dams and embankments, here "we are hell- bent on committing mistakes". Like Mr Iyer, he sees no wisdom in "Making deserts bloom", questioning the very rationale for supplying water to arid areas, where farming is suited to the specific locale and climate. Mr Iyer avers that, if the Government is actually hoping to increase agricultural yield substantially, in view of claims that the area under irrigation will grow by 35mha, the cost for farmers needs to be factored in. And the view of the Union Ministry of Agriculture on this convoluted exercise is important.

Other objections hinge on the pollution load of a toxic river being transferred to a relatively clean river, and thereby seeping into all water systems in the course of time, endangering aqueous and other life. That is very true, given the colossal failure by State agencies to clean up our national river Ganga as much as Yamuna, despite massive funds being spent on such work. Further, how will the project help mitigate floods?

Odisha activists fear that linking Mahanadi river with the Godavari river in the south, for instance, will lead to ecological imbalance. And, when States within a river basin keep fighting over water share, will they agree to inter-basin transfer of water? Neighbouring countries such as Bhutan, Nepal and Bangladesh could object to the depletion of their share if these rivers are diverted. And, considering that the project cost is estimated to be five trillion rupees, there can be no scope for blunder.

"Don't tinker with nature", Anuradha Dutt, 02/03/2012, online at: http://www.dailypioneer.com/columnists/item/51166-don%E2%80%99t-tinker-with-nature.html

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❖ Indian river link project: a death sentence for Bangladesh

There was a time only a decade or two back when we would laugh, hearing that foreigners in the West were so fastidious that they used to buy even bottles of branded drinking water from shops. Water as a salable commodity was unthinkable to us because in the past we found pure drinking water abundantly and easily available absolutely for free in our unpolluted wells, ponds and rivers in addition to whatever quantity of water that was needed for our irrigation, agricultural and farming purposes. But now, even a poor rickshaw-puller in Bangladesh may feel a little hesitant to drink water from an open faucet on the street other than at least from a sealed sachet of drinking water for a small price, if not from a branded bottle.

With countries like China and India building dams after dams to produce electricity and reserve water and linking rivers after rivers in the up-stream to divert water to their drought-prone areas, it may just be a matter of time, you never know, when along with other products like gold, silver, petroleum, etc. bottles and drums of water, as a precious mineral or material, may also be traded on regulated commodities exchanges and in the futures markets.

The whole world is facing the scarcity of water though water is the most plentiful natural resources on our planet. The fact is, although two-thirds of the Earth is covered by water, 97 per cent of water is held by oceans that are saline water while only 3.0 per cent is sweet and freshwater. And, only 1.0 per cent of freshwater is easily accessible to humans, birds and animals as ground and surface water as the remaining 2.0 per cent is stored deep in the glaciers and icecaps. Moreover, freshwater is not evenly distributed across land surfaces. Water is a fundamental element of life whose preciousness requires diligent management.

However, the countries that are facing the acutest shortage of freshwater are the heavily populated ones like China, India and Bangladesh.

With water shortages around the world reaching real crisis levels, water may soon become the most contentious issue to trigger the next World War which may aptly be termed "Water War". Nations which would feel threatened with deprivation of their due share of river water may be tempted to resolve the problem through mutually assured destructive combats and may thus divert their resources to build up their military strength in case an existentialist "Water War" becomes inevitable. International law has already proven inadequate in defending a country's claim of equal or equitable share of water supplies in some parts of the world.

It is quite understandable that every country has every right to use water from the river that is flowing through their land and a country may also dig rivulets and canals to divert water to drier parts of their land. A country should also have a right to erect a dam on a river to harness hydropower. But, erecting a dam to divert river water to a different region depriving people of a different country in the lower riparian zone is like depriving them of their age-old birth rights. River waters, like air, should be allowed to flow in their natural courses, helping nourish the riparian habitats, vegetation, woodlands and ecosystems.

China has constructed a gigantic dam, the one and half miles wide 'Three Gorges Dam', near Yichang to help control the flooding of the Yangtze River Valley that will also be the largest electricity generating facility in the world, providing one-ninth of China's total power output. Although there is a lot of controversy surrounding the construction of the dam in terms of destroying hundreds of villages and factories, thousands of acres of agricultural lands and causing extinction of some rare species of Asian birds and animals, the construction of the colossal dam is justifiable from the perspective of China's greater interest. Plus, the dam is not directly affecting the interests and livelihood of people living in any of its neighbouring countries, such as Mongolia, Kazakhstan, India, Nepal, Burma, Vietnam and Korea.

But, we were extremely concerned when a government spokesman of the Indian state of Arunachal Pradesh just the other day expressed his apprehension that China could have diverted the water of the Brahmaputra river, which is known as Yarlong Tsangpo in Tibet, as Brahmaputra water has nearly dried in Arunachal Pradesh. India is always extremely nervous about the danger of its giant northern neighbor diverting rivers that originate in Tibet and flow into India, or disrupting their flow with hydroelectric plants.

Bangladeshis had also reasons to be worried because Yarlung Tsangpo, is a watercourse that originates at Tamlung Tso Lake in western Tibet, southeast of Mount Kailash and Lake Manasarovar. It later flows through the South Tibet Valley and YarlungTsangpo Grand Canyon, before entering India at Tuting in Arunachal, taking the name of Brahmaputra in Assam and then enters Bangladesh. The 2,900-kilometre-long river ultimately joins the Meghna River before emptying into the Bay of Bengal, along the way supplying water to hundreds of millions of farmers and residents of India and Bangladesh.

However, much to our great relief, China's foreign ministry spokesman Hong Lei, while talking to reporters on 2nd March, denied that a dam China was building on a major river in Tibet that could impact the lower reaches of the waterway. India too said that the apprehensions expressed by the Arunachal Pradesh government spokesman about a possible diversion of the Brahmaputra river by China "is not correct and is devoid of facts". "China pays attention to the impact on the lower stream regions when developing its water resources", Hong Lei said, adding that Chinese officials had briefed India on its development of the Yarlung Tsangpo.

"China pays attention to the impact on the lower stream regions when developing its water resources" -such a statement from China sounds like music not only to the ears of Indians, but also to the ears of Bangladeshis. Shouldn't Bangladesh expect that India, now poised to be a great power, also assured its neighbouring countries in the lower stream of their due shares of water in the similar tone? But the reality tells us a different story.

Last Monday, Indian Supreme Court gave a positive ruling regarding implementation of Indian River Link Project that will redirect the flow of the Brahmaputra and the Ganges rivers towards the south and western parts of India, depriving Bangladesh of its much needed share of water. Some experts believe that at a time when northern part of Bangladesh has already turned into a kind of a desert by the impact of Farakka Barrage and Bangladesh is still bearing the punishing impact of water diversion from the Ganges and Teesta, the new Indian "River Link Project" at an estimated cost of RS 5000 billion (500,000 crore) is designed to turn the whole of Bangladesh into a barren land.

While China assured that they would not build any dam that may negatively impact the riparian people on the banks of Brahmaputra, India's plan to go ahead with the River Link Project diverting the course of 30 major rivers, including Brahmaputra, will cause an apocalyptic havoc to Bangladesh which gets about two-thirds of its dry season water from the Brahmaputra River.

It is beneficial for both India and Bangladesh to maintain a lasting friendly relationship on mutual understanding. Bangladesh should allow India transit facility provided Bangladesh is benefited not only in terms of transit fees but also for building the infrastructures of roads, waterways and highways. The amount of annual savings India would make by using the transit facility through Bangladesh should not be less than 50 billion dollar. How many billions of dollars will Bangladesh get from India, not as loan, but as non-refundable grant in exchange of transit facility?

Bangladeshis in general would like to see that every deal with India, including transit, corridor and trade should be linked with fair share of common river waters.

Bangladeshis may in the near future stand poised between life and death due to an unprecedented scarcity of water in their own home that once was brimmed with sweet water nourishing their land and made it famous for floras and faunas and many other aquatic treasures and abundances.

There is a time when humans are not tired of marching a long distance or afraid of losing their life when their very survival is at stake. A dying man clutches at any straw, hoping for survival. The day as such is perhaps not far away when Bangladeshi people may become environmental refugees.

Water, the basic building block for life, is so vital that Bangladeshis, if they are trapped in a land totally robbed of water, would envy the Indians thinking how happy they are with water in abundance and may curse their own fate. Such fatalistic philosophy on the part of a people of a neighboring country may not augur well also for India.

"Indian river link project: a death sentence for Bangladesh", Maswood Alam Khan, 04/03/2012, online at: http://www.thefinancialexpress-bd.com/more.php?news_id=122143&date=2012-03-04

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❖ TA firm monitoring Barcelona water system

Blue I Water Technologies was previously active in Paris and Beijing, too.
Drinking water [illustrative] By Thinkstock/Imagebank
A Tel Aviv-based water-monitoring technology firm is currently in the process of installing 140 of its quality-inspection devices in Barcelona and 40 more in other areas of Spain.

Having completed a pilot phase of the project that began a year and a half ago, the company, Blue I Water Technologies, is now amid the commercial phase of its project to allow for the monitoring of water quality in cities throughout Spain.

The company has previously been part of water-quality monitoring partnerships with cities and companies throughout the world, including eastern suburbs of Paris, the Olympic swimming pool in Beijing, Euro Disney and the Israel Electric Corporation.

However, its newest device, called the Low Energy Analyzer (LEA), is a "smart box" that is installed in water pipes underneath Spanish streets and uses a water analyzer and data-logger to collect and transmit data about water quality to a control center, company CEO Jacob Azran told The Jerusalem Post on Sunday.

The LEA can inspect water quality and warn about problematic levels on up to eight parameters – including chlorine, poisons, gas concentrations and other contaminants – and then makes the information immediately available on the Internet or through a mobile phone. Completely independent of electricity, LEA operates on long-lasting batteries and can remain dormant between active monitoring intervals, when it automatically wakes up according to preset conditions, Azran explained.

"You can foresee and predict problems just by measuring the changes of the level of the chlorine of the water," he said.

Throughout the next year and a half, Blue I Water Technologies will also install an additional 150 systems throughout other parts of Spain.

Meanwhile, Azran said the company also intends to cooperate with one of the Israeli municipal water corporations to begin installations in a pilot city at home.

"It basically started from a [need] that came from Spain and we started working from there," he said.

"TA firm monitoring Barcelona water system", Jerusalem post, 26/02/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=4499

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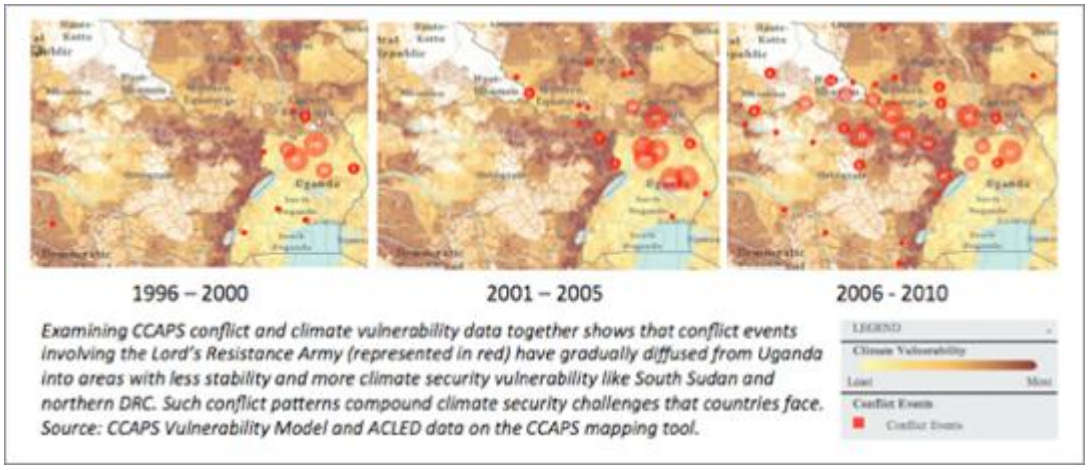
❖ Mapping Tool Analyzes How Climate Change, Conflict, and Aid Intersect

The CCAPS program released the pilot version of its **dynamic mapping tool** today. In partnership with **AidData**, CCAPS developed the online data portal to enable researchers and policymakers to visualize data on climate change vulnerability, conflict, and aid, and to analyze how these issues intersect in Africa.

"The complex pathways from climate change to security impacts have demanded new datasets to fill knowledge gaps, but also new ways of presenting the data to be of most use in policy planning," said **Francis J. Gavin**, Director of the Strauss Center. "This mapping tool allows policymakers to analyze data from multiple sources at once, providing integrated analysis of the drivers and responses related to security risks stemming from climate change."

The mapping tool, which uses Esri technology, allows users to select and layer any combination of CCAPS data onto one map to assess how myriad climate change impacts and responses intersect. For example, mapping conflict data over climate vulnerability data can assess how local conflict patterns could exacerbate climate-induced insecurity in a region. It also shows how conflict dynamics are changing over time and space.

How do conflict trends and chronic climate insecurity intersect in Central Africa?



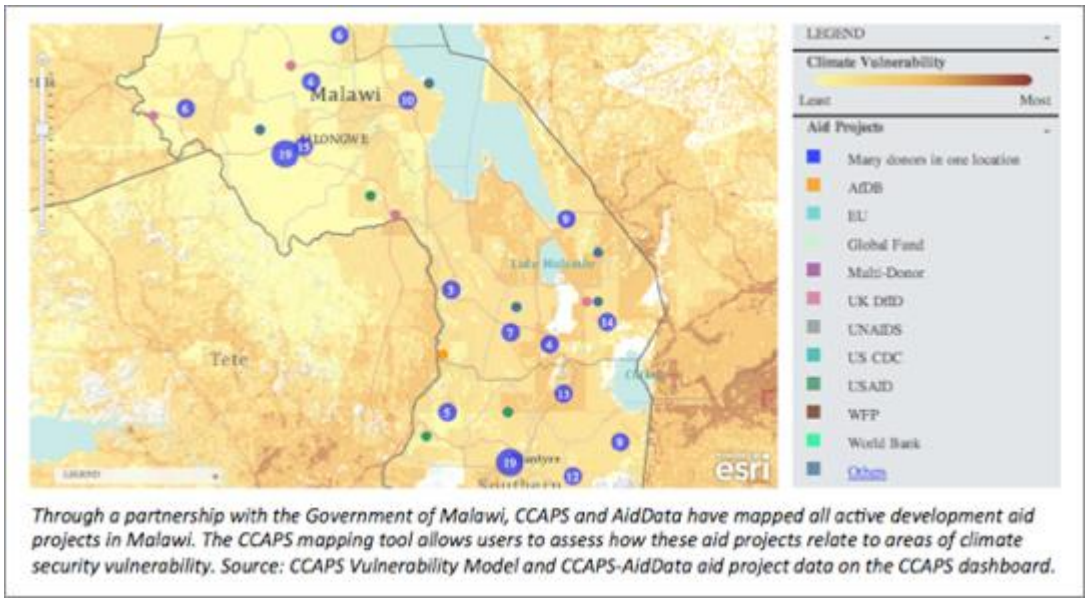
Examining CCAPS conflict and climate vulnerability data together shows that conflict events involving the Lord's Resistance Army (represented in red) have gradually diffused from Uganda into areas with less stability and more climate security vulnerability like South Sudan and northern DRC. Such conflict patterns compound climate security challenges that countries face. Source: CCAPS Vulnerability Model and ACLED data on the CCAPS mapping tool.

"Climate change poses an enormous threat to the livelihoods and safety nets of millions of Africans. However the level of risk is not evenly spread and certainly doesn't respect national boundaries," said **Jean-Louis Sarbib**, CEO of Development Gateway. "To ask critical questions about how development assistance can reduce vulnerability, you need hyper-local data on climate, and also on aid-funded interventions. This is what the new **CCAPS mapping tool** shows in a digestible, interactive way. It will no doubt be a valuable new tool not only for researchers, but also policymakers, journalists, and citizens."

To assess the interaction of climate vulnerability and international aid, users can locate aid projects funded by the 27 donors tracked in Malawi's **Aid Management Platform**, layered on top of climate change vulnerability data. Mapping

such aid flows provides a new way to discern if adaptation aid is effectively targeting the regions where climate change poses the most significant risk to the sustainable development and political stability of a country.

Is development aid targeting areas with climate security risks?



Through a partnership with the Government of Malawi, CCAPS and AidData have mapped all active development aid projects in Malawi. The CCAPS mapping tool allows users to assess how these aid projects relate to areas of climate security vulnerability. Source: CCAPS Vulnerability Model and CCAPS-AidData aid project data on the CCAPS dashboard.

"Being able to see in a map all the donor-funded activities in Malawi has transformed the way we think about development and positively helped our own planning effort," said Hon. Ken Lipenga, Minister of Finance and Development Planning in Malawi.

The **mapping tool** is also a significant innovation in the context of the global aid transparency movement. It represents the first effort of the sort envisioned by the **Open Aid Partnership**, an initiative spearheaded by the World Bank to increase the openness and effectiveness of development assistance at the subnational level.

While the mapping tool is in its first stage of development, the next stage will convey a comprehensive picture of trends in Africa through the use of thematic mapping tools. Users will be able to access raw CCAPS data and use the mapping tool to combine CCAPS datasets with other organizations' data to aggregate and disaggregate data in the way that is most useful to them. The thematic mapping tools will include data on:

- *Climate Change Vulnerability*: Users will visualize the different components of the **CCAPS Vulnerability Model**, using both historical and projected climate data for Africa.
- *Conflict*: Users will access the current **Armed Conflict Location and Event Data**, real-time ACLED conflict data updated weekly, and CCAPS' **Social Conflict and Africa Database**.
- *Adaptation Aid*: In addition to the current **development aid projects in Malawi**, the mapping tool will include climate-coded aid projects in select countries and continent-wide data on adaptation aid.

- *Governance*: Users will access the first-ever continent-wide database classifying the political institutions in Africa on a spectrum of **constitutional design**, as well as data on governance quality and disaster management.

By integrating the various lines of CCAPS research, as well as other existing datasets, the **CCAPS mapping tool** aims to provide the most comprehensive view yet of climate change and security in Africa. CCAPS and AidData will release the thematic mapping tools throughout the spring and summer of 2012.

The current mapping tool is available through a user-friendly interface at **www.strausscenter.org/ccaps/mappingtool**.

Funded by the U.S. Department of Defense's **Minerva Initiative**, the Strauss Center's program on Climate Change and African Political Stability aims to assess where and how climate change poses threats to stability in Africa, develop strategies to build government capacity to respond, and evaluate the effectiveness of foreign aid for climate change adaptation in Africa. For more information, please visit **http://ccaps.strausscenter.org**.

AidData is a collaborative initiative to make information on development assistance more transparent and accessible. The AidData team works with a range of partners to geocode development activities, create data visualizations, and explore new ways to collect and standardize information about development projects around the world. AidData is a joint program of Brigham Young University, the College of William and Mary, and Development Gateway. For more information, visit **www.aiddata.org**.

"Mapping Tool Analyzes How Climate Change, Conflict, and Aid Intersect", 29/02/2012, online at: http://ccaps.strausscenter.org/articles/mapping-tool-analyzes-how-climate-change-conflict-and-aid-intersect

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❖ Pink LEDs Grow Future Food with 90% Less Water

10,000 years after inventing agriculture, will we 7 billion take this strange next step?

A Netherlands-based company called PlantLab has devised a method for growing plants indoors using an unearthly pink-purple light made by a combination of red and blue LED lights, instead of sunlight.
Significantly, for a sustainable future anywhere on a planet with 7 billion already – and 9 billion by century's end – this means we could grow crops with 90 percent less water. Agriculture uses most of the water around the world.

Nowhere is this need for managing on less water more crucial than in the countries of the Middle East and Africa – from Saudi Arabia and Israel, to Yemen and the Sudan – that face the threat of real water scarcity already.

(Related: 7 Agricultural Solutions That Will Save the Middle East)
PlantLab has invented a way to grow plants under LED lights indoors, with all the water recycled within the indoor environment for reuse. Plants, it turns out, are not that dependent on using the sun for photosynthesis. And they certainly don't mind being separated from their pests. And they are fine with 90 percent less water, if they get it over and over again.

Importantly, in an age of peak oil, PlantLab has also found a way to grow crops that eliminates the two ways that food is dependent on oil.

They have engineered the crops to be able to be grown using fewer fertilizers – which are made from oil.

The second huge use of oil is in transporting food. But because this indoor habitat can be replicated anywhere in the world, regardless of climate or season – food would no longer rack up unsustainable carbon miles on the way to your table.

Because these eerie new farms can be many stories high, crops can be grown within cities, leaving the most possible land to work naturally as nature's utility, cleaning the air we breathe and the water we drink, instead of being used for agribusiness that pollutes our rivers with fertilizer runoff from agribusiness.

And, being indoors, away from their pests, there is no need for pesticides. You can imagine how that might ultimately begin to affect their evolution, if we change farming so much that we have have generations of plants grown separated from their natural pests in the open. We live in interesting times.

But PlantLab believes we must rethink food production to survive.

"In order to keep a planet that's worth living on, we have to change our methods," says PlantLab's Gertjan Meeuws in an interview with the Associated Press.

The methods PlantLab is suggesting are revolutionary. The company grows plants indoors, vertically stacking acres upon acres of plants. They use LED lamps to grow the plants and water them with a

slow trickle that drains through the soil and is collected and reused. The neon pink light of the lamps make the space look more like a nightclub than an indoor farm.

Computers capture over 160,000 reports per second to determine the exact amount, cycle, and color spectrum of light that's optimal for the plant, as well as water, so that no resource is wasted and the plant is neither undernourished nor overexposed.

Plants convert light from the sun into energy through the process of photosynthesis, but plants only need some parts of the sun's color spectrum. Blue and red LEDs can provide just the light a plant needs, making the process more efficient and growing a stronger, healthier plant.

LEDs and climate-controlled indoor farms not only use less energy, less water, and less space than traditional agriculture; they also reduce the unpredictability of our food supply. Indoor farms aren't at the mercy of droughts, torrential rains, unexpected frosts, and pests. They reduce the danger of food shortages and waste.

Apples from Chile, asparagus from Peru—an average of six to 12 percent of every dollar we spend on food goes to transportation costs.

Traditionally, most agriculture has been limited to large swaths of land with rich soil, controllable pests, and a predictable climate, but even under optimum conditions traditional methods of agriculture drain our water supply, require intensive resources, and produce a crop dependent on an undependable climate.

Until now, vertical greenhouses like AeroFarms Vertical Farming have seemed a little impractical, because our one and only real sun really needs to reach deep into each floor to ripen food crops, but this unearthly pink agriculture would solve that.
But are we ready for such a drastic step?

"Pink LEDs Grow Future Food with 90% Less Water", Susan Kraemer, 29/02/2012, online at: http://www.greenprophet.com/2012/02/pink-leds-grow-future-food-with-90-less-water/

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❖ Central Asia's dam debacle

Grand engineering schemes have failed to address the political problems of water management. As climate change dries up the rivers, regional tensions will escalate, warns Eelke Kraak.

The Toktogul Dam in Kyrgyzstan is an imposing structure. The dam guards the largest and only multi-annual water reservoir in central Asia. The cascade of five hydroelectric stations downstream produces 90% of Kyrgyzstan's power. Cotton fields thousands of kilometres away in Kazakhstan and Uzbekistan depend on the release of water from this dam.

The Toktogul is literally and figuratively the "valve"of the Syr Darya River. But by relying on large-scale engineering projects to control the river, these countries have ignored the fundamentally political nature of water management.

The significance of the Toktogul dam goes beyond its economic benefits. It was the centre piece of the Soviet Union's efforts to conquer nature in its drive to modernise central Asia. When it became fully operational in the late 1980s, the project to control the region's rivers seemed complete.

But the costs have been high. The Aral Sea, the terminal lake of the main sources of water in central Asia, the Syr Darya and Amu Darya rivers, has shrunk to almost nothing. Many areas surrounding what is left of the lake are heavily polluted. Moreover, the now independent Syr Darya riparian countries – Kyrgyzstan, Uzbekistan, Tajikistan and Kazakhstan – disagree on how the Toktogul should be operated.

In the summers of 2008 and 2009, mismanagement of the Toktogul Dam led to water shortages in Uzbekistan and Kazakhstan, as well as lengthy power cuts in Kyrgyzstan. Subsequent unrest in Kyrgyzstan triggered the ousting of President Kurmanbek Bakiyev in April 2010, illustrating the highly political nature of water and energy management.

Climate change will exacerbate the problems: it is predicted that rapid melting of glaciers that feed central Asian rivers will shrink water flow over time. The confluence of physical and political changes suggests that water challenges in central Asia could soon become a major flashpoint.

Today's crisis has its roots in earlier disastrous policies. It was water that first brought the Russians to central Asia in the nineteenth century. Irrigated agriculture had been present for more than 8,000 years, but the Tsarist colonisers realised that agricultural production, notably cotton, could be expanded easily and rapidly. Despite, their optimism, managing the waters of the Syr Darya and Amu Darya Rivers proved a huge challenge for the hydrologists, engineers and bureaucrats involved.

Scarcity of water was never the problem. On average, the region has enough water to grow sufficient crops to feed its own population and earn foreign currency through exports. The problem, rather, is a huge geographic, seasonal and inter-annual variability in water availability.

In response, between 1950 and 1990, the Soviet Union built hundreds of dams, canals and artificial lakes. Uzbekistan's Hunger Steppe was transformed from an uninhabited desert into a cotton factory

of 300,000 hectares. The Kara Kum Canal, when completed in 1988, transferred 12.9 cubic kilometres of water – almost 15% of the Amu Darya River – to irrigate parts of the Kara Kum Desert. The Toktogul Dam, the largest of the lot, was finished in 1973 and served to control the inter-annual variability of water resources and to ensure that there would always be sufficient water for irrigation.

For Soviet planners, dams were symbols of development and modernisation. The Soviet Union's hydraulic mission was to conquer nature by transforming free flowing rivers into an economic resource. In absence of democracy, dams were also an important source of legitimacy for the Soviet Union.

But this hydraulic mission caused the decline of the Aral Sea. Once the world's fourth largest saltwater lake, damming and diverting the Syr Darya and Amu Darya Rivers radically decreased inflow into the Aral Sea; today only 10% of its 1960 volume remains.

The consequences have been dire: polluted dust storms and a grim economic outlook for those living around the lake. Life expectancy for people in this region has dropped to 50 years and Karakalpakstan, an area south of the lake, now has one of the highest incidences of tuberculosis in the world.

The ecosystem of the lake and surrounding areas has been devastated. By taming the rivers and controlling nature, the ruling elites caused one of the worst man-made environmental disasters in history.

When the Soviet Union broke up in 1991, there was hope that the newly independent states – Kyrgyzstan, Tajikistan, Uzbekistan, Turkmenistan and Kazakhstan – would work together to address the environmental problems. Initially, a number of institutions to manage the region's water were founded, including the International Fund for Saving the Aral Sea and the Interstate Committee for Water Coordination. But, despite leaders' passionate pleas, little has been done to alleviate the water problems of central Asia over the last 20 years. As some observers acknowledge, it is all paperwork and no action.

In fact, the challenges for water management have only grown since the Amu Darya and Syr Darya rivers became cross-border resources. Tensions have escalated, notably between downstream Uzbekistan and upstream Kyrgyzstan. The operation of the mighty Toktogul has been central to this.

The Toktogul dam has multiple functions: it is both the main supplier of water for downstream irrigation, and the main source of electricity for Kyrgyzstan. The trouble is that Kyrgyzstan wants to discharge water from the reservoir in winter to generate electricity, while Uzbekistan and Kazakhstan prefer to discharge water in summer, when they need it for irrigation.

In the past, Kyrgyzstan released water from the reservoir in the summer, in return for gas and oil from Uzbekistan and Kazakhstan. But this exchange of resources collapsed when the Soviet Union broke down in 1991. Disputes over the timing of water discharge have brought the two countries to the brink of conflict. Regional institutions have set rules concerning who can use how much water, but no agreement has dealt with the question of when they should receive it.

World Bank analysis indicates all states would profit from sustainable and cooperative water management. But disagreements over the management of Toktogul and other water problems remain unresolved. There are two key reasons for this.

First, control over water resources is still tightly linked to the legitimacy of the political elites. Timothy Mitchell, an American political scientist, proposed in his book *Rule of Experts* that "large dams [offer] a way to build not just irrigation and power systems, but nation-states themselves."

Indeed, the dams and water management systems of central Asia became key to the nation-building task its countries faced after 1991. The massive irrigation network in the desert areas of Uzbekistan is a source of pride for the country. The fact that the Toktogul provides 90% of the Kyrgyzstan's electricity production is too. Unfortunately, these goals of water management contradict each other.

Second, the two countries disagree about what water is. Kyrgyzstan adopted a set of laws in 2001, classifying water as a commodity like oil and gas. This could potentially mean that downstream Uzbekistan and Kazakhstan would have to pay for the storage costs and maintenance of reservoirs, if not for the water itself.

Uzbekistan, on the other hand, officially considers water a free, public good, a view proposed by Marxist-Leninist ideology. It also argues that water comes from God, and can therefore not be traded. In reality, Uzbekistan objects to those laws because it does not want to pay Kyrgyzstan for water.

Fundamental disagreements over whether water is a tradable commodity, and the fact that regional hydro-politics is linked with domestic power struggles, have prevented sustainable cooperation. Violent conflict has only been prevented by ad hoc solutions proposed by national leaders and a relative abundance of water. Given the rapid melting of glaciers that feed central Asian rivers, however, leaders cannot count on this level of water supply indefinitely. More water is predicted to flow into the basin over the next 20 years, but to decline rapidly and unprecedentedly after that. An agreement is urgently needed.

In 2009, the presidents of Kazakhstan and Uzbekistan proposed the resurrection of an old Soviet solution to central Asia's water issues: to divert water from the Siberian Yenisei and Ob rivers to the Aral Sea and the wider region. The plan is financially unviable, and unlikely to be carried out. But if it was, it would unlikely address the real problems. Grand engineering schemes may provide legitimacy to unpopular regimes, but they fail to account for the fundamental political nature of water. Water management requires a political, not a technical solution.

"Central Asia's dam debacle",Eelke Kraak, 01/03/2012, online at:
http://www.chinadialogue.net/article/show/single/en/4790

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❖ Water project: cos shortlisted

By Conrad Prabhu - MUSCAT — Around seven international firms have been pre-qualified to participate in a competitive tender for a licence to develop a major Independent Water Project (IWP) at Ghubrah in Muscat Governorate. The seven in question were shortlisted from a total of 14 companies that sought to pre-qualify as bidders for the government's mandate to build a 42 million imperial gallons per day (MIGD) capacity desalination plant. Project costs are estimated at $350-400 million.

Yesterday, the Tender Board issued a Request for Proposals (RfP) inviting the pre-qualified parties to submit technical and commercial offers for developing the IWP. "We are in the process of sending intimations by fax to the pre-qualified parties, inviting them to collect the RfP documents. They have until June 4, 2012 to submit the RfPs for evaluation," a Tender Board official said.

The state-owned Oman Power and Water Procurement Company (OPWP), which has the mandate under the Sector Law to procure all new power and related water capacity on a competitive basis, is overseeing the procurement of the Ghubrah IWP on behalf of the Public Authority for Electricity and Water (PAEW).

The successful bidder will be granted a licence to design, construct, own, finance, operate and maintain a high-efficiency desalination plant based on seawater reverse osmosis (RO) technology. Unlike most desalination plants which are typically co-located with power generation capacity, the new Ghubrah IWP will be supplied with electricity from the grid. The project will be constructed within the complex of the existing Al Ghubrah Power Generation and Water Desalination Plant in Muscat Governorate.

The latter facility, built in phases over many years, is itself planned to be decommissioned in line with OPWP's seven-year planning process, as well as for environmental considerations. Given the need to ensure adequate desalination capacity to meet the capital region's escalating potable water demand, development of the Ghubrah IWP is proposed to be fast-tracked. The plant is expected to be fully operational by April 2014. Supply of desalinated water to the off-taker will be governed by a 20-year supply contract. Well-known professional services firm KPMG is advising OPWP on the procurement of the Ghubrah IWP.
Similar IWPs are also planned at Qurayat (Muscat Governorate) and Al Suwaiq (Batinah North Governorate). While Qurayat will be sized at around 38 MIGD, Al Suwaiq will boast a water desalination capacity of 46 MGPD.

"Water project: cos shortlisted", 04/03/2012, online at: http://main.omanobserver.om/node/85602

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❖ Bringing water efficiency innovations to the Philippines and Vietnam

A delegation of water companies and reps from the Israeli Water Authority and the Standards Institute of Israel plans to travel to the Philippines – ahead of IWA's Water Loss 2012 conference in Manila on February 26-29. The aim of their visit is to promote a better understanding of water loss reduction and smart water management – fields in which Israeli technologies lead. During their visit, company representatives will also hold meetings with the participants of the International Water Association (IWA) forum, after which they will continue on to Vietnam, bringing with them their expertise in water related issues.

The world's ever-changing climate has resulted in water becoming an even more highly prized commodity, yet a significant amount of this precious resource is lost via "pipe leakage". The average amount of water lost in this way in Europe is 25%, and in many other countries the average rises to 30%-40% and more. Israel is a world leader when it comes to leakage reduction, with an average loss of only 12%. Armed with this major advantage, Israeli water companies hope to market their leakage reduction solutions, and capitalize on their knowledge in the fields of leakage reduction standardization and smart water management.

Gilad Peled, of The Israel Export Institute, emphasizes that the importance in leakage reduction is two-fold: One, it helps reduce the amount of precious water lost, and secondly it prevents excessive energy consumption. According to Mr. Peled, water utilities are the world's biggest energy consumers, with any excess water lost during distribution using up in turn more electricity – wasting both water and energy. Additionally, Israeli companies (such as Miya and Takadu) offer technologies which enable to locate leaks before they burst, presenting a much more preventative, cost-effective approach to infrastructure management.

In the Philippines, a country with a population of close to 100 million, water infrastructure must be created from scratch. Even in the few places that have some infrastructure it needs to be significantly improved in order to prevent water loss. The delegation of Israeli companies will arrive ahead of the conference in order to showcase their capabilities in front of Manila's 2 major water companies – Maynilad and Manila Water. The country's capital area is home to some 20 million people, all of whom rely on a sole water reservoir. "In other words, whenever a malfunction occurs, the entire population in the area is left without water" explains Ophir Gore, Israel Economic attaché in the Philippines.

Providing solutions to Manila's two water companies is a perfect opportunity for Israel to make its mark in this developing Asian country at a time when, according to Mr. Gore, the Philippine government has a multi-billion dollar plan in place for building infrastructures, water based included, through privatization (PPP – Public Private Partnership).

During the event, Hezi Belik, Chief Engineer of Water Management at the Israeli Water Authority, will speak on managing urban water systems, and Dr. Yaron Ben Ari, Water Technology Program Manager at The Israeli Standards Institute will give a talk on leakage reduction standardization. Seven water companies will present their comprehensive leakage reduction solutions including Takadu, which will present their knowledge on leakage detection, ARI and Bermad will talk about

pressure control, Curapipe about efficient leak repairing solutions, EZPack about their solutions to water storage and distribution, and Plasson will present its leakage reduction products.

The delegation's meetings in Manila will run parallel to the IWA's conference on water loss. The conference attracts specialists and water companies from around the globe, providing Israeli companies with an essential platform for forging international ties. The Foreign Trade Administration of the Ministry of Industry, Trade and Labor is responsible for coordinating the meetings, via economic attachés from around the world, in cooperation with The Israel Export Institute.

Following the conference in Manila, the Israeli delegation will continue on to Vietnam, where they will participate in business seminars with WASECO and SAWACO, Water Supply and Sewerage corporations from capital city Ho Chi Minh, the largest city in the country. They will then visit the industrial province of Dong Nai.

According to Tzafrir Asaf, the economic attaché in Vietnam, despite the multitude of water sources within the country, Vietnam suffers from serious water management problem. These include maintaining water quality and managing efficient distribution to an increasing population. A number of Israeli companies are already active in Vietnam, and the Israeli delegation's visit is an excellent opportunity to learn more about potential new business ventures in the area.

"Bringing water efficiency innovations to the Philippines and Vietnam", 23/02/2012, online at: http://www.israelnewtech.com/2012/02/bringing-water-efficiency-innovations-to-the-philippines-and-vietnam/

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❖ East Africa: Minister - Nile Basin Initiative Should Be Kept Away From Points of Contention

Minister of Water Resources and Irrigation Dr. Hesham Qandil on Thursday, stressed the importance of cooperation among Nile Basin countries to implement projects that benefit peoples of the Nile Basin countries in several areas, including power generation, river basin management, agricultural development, fisheries development, databases construction and transfer of expertise.

The minister also stressed the importance of maintaining the Nile Basin Initiative away from the points of contention in the Framework Convention.

Minister Qandil stressed the need for investing the initiative as a mechanism to implement the projects that have been studied under its umbrella over the past thirteen years, stressing that Egypt did not reject the Framework Convention but there is disagreement on some pending points, including the water security and procedures of prior notification and mechanism of decision making.

"East Africa: Minister - Nile Basin Initiative Should Be Kept Away From Points of Contention", 02/03/2012, online at: http://allafrica.com/stories/201203021244.html

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❖ Brahmaputra dries up in Arunachal Pradesh town! Is China responsible?

ITANAGAR: The Siang (Brahmaputra) river originating from Tibet was suddenly found to have almost dried up at a town in Arunachal Pradesh, a state government spokesman said on Wednesday night.

People of Pasighat town in East Siang district found the water level of the river receded so much on Wednesday that it almost dried, Tako Dabi said. Dabi, also the political adviser to CM Nabam Tuki, expressed apprehension that China could have diverted the water of the river, which is known as Yarlong Tsangpo in Tibet, or there could be some artificial blockade due to which this has happened.

On June 9, 2000, the water level of Siang rose suddenly by 30 metre and inundated almost the entire township causing widespread destruction to property besides claiming seven lives following the collapse of a hydropower dam in Tibet, said Dabi, who himself inspected the dried bed of the river. Dabi suggested that the Centre and its agencies should immediately conduct a study to find the problem.

The panic of the people can't be brushed off, he said. Yarlung Tsangpo, the highest river in the world, is a water course that originates at Tamlung Tso Lake in western Tibet, southeast of Mount Kailash and Lake Manasarovar. It later forms South Tibet Valley and Yarlung Tsangpo Grand Canyon, before entering India at Tuting in Arunachal.

"Brahmaputra dries up in Arunachal Pradesh town! Is China responsible?", 01/03/2012, online at: http://articles.economictimes.indiatimes.com/2012-03-01/news/31113629_1_east-siang-district-brahmaputra-arunachal-pradesh

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❖ EGAT discharges water from major dams as planned

PRACHUAP KHIRI KHAN, March 4 – The Electricity Generating Authority of Thailand (EGAT) has discharged water from Bhumibol and Sirikit dams in line with policy of the Strategic Formulation Committee for Water Resources Management (SCWRM), said EGAT Governor Suthat Pattamasiriwat.

Under the plan, water in the two dams will be cut to 45 per cent of storage capacity on May 1, 2012 to clear space for rainfall in the upcoming rainy season, the governor said.

To achieve the target, an additional 3.4 billion cubic metres of water need to be released from the two dams, an increase in the planned discharge from 11.9 billion to 15.3 billion cubic metres.

Currently, Bhumibol dam's daily discharge is 60 million cubic metres, while Sirikit dam is releasing 41 million cubic metres per day on average.

However, the water discharge plan may have an impact on water utilization for agriculture over the next year if there is less rainfall than anticipated in this year's rainy season.

Mr Suthat said the government and relevant agencies are concerned over possible impacts due to unusual weather conditions, which are difficult to predict in the long run.

Consequently, this year's water management must be carried out carefully for the most effectiveness.

Sub-committee and working committee in charge of water management will coordinate in monitoring the situation and revise plans for appropriateness and flexibility to weather conditions and the real water situation, he added.

The Prime Minister has assigned the Royal Irrigation Department to be the main agency in assessing the situation. (MCOT online news)

"EGAT discharges water from major dams as planned", 04/03/2012, online at:
http://www.mcot.net/cfcustom/cache_page/338233.html

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