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* Eroglu: Turkey Carry Water to One Million People in Africa

Turkish Forestry & Water Works Minister Veysel Eroglu has said that Turkey provided water for one million people in Africa.

We have, so far, provided water for one million people in Somalia, Burkina Faso, Niger and Ethiopia thanks to Turkish International Cooperation and Development Agency (TIKA) and State Hydraulic Works (DSI), said Eroglu who visited Editor's Desk at Anadolu Agency.

Noting that Turkey signed cooperation protocols with several African countries, Eroglu said that Turkish teams were working in Africa.

They have some demands such as drilling wells and building ponds or providing water for national parks, he said.

We have sent expert teams to Tunisia which is inundated by flood waters, said Eroglu, adding that dams should be built, erosion should be controlled and rivers should be rehabilitated in that country.

"Eroglu: Turkey Carry Water to One Million People in Africa", 11/05/2012, online at: <u>http://www.turkishweekly.net/news/135987/eroglu-turkey-carry-water-to-one-million-people-in-africa.html</u>

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Institutional Development and Multidisciplinary Perspectives in the Euphrates-Tigris Basin Were Talked During The International Conference Held In Istanbul

The International Conference entitled, "Advancing Cooperation in the Euphrates Tigris Region: Institutional Development and Multidisciplinary Perspectives" was held in Okan University in Istanbul between the dates 2-4 May 2012. This conference was carried out with the cooperation of ETIC -Euphrates Tigris Initiative for Co-operation, Max Planck Institute for Comparative Public Law and International Law, and Okan University. During the conference, in which many academicians and bureaucrats from Syria, Iraq, Lebanon, Turkey and many other countries participated, the place of institutes, developments and the effects of multidisciplinary perspectives were discussed in cooperation with the riparians in the Euphrates-Tigris basin.

While the history of cooperation on water between the riparians in the Euphrates-Tigris basin was primarily mentioned during the conference; the hydrology and climate of the basin and the environmental problems were addressed afterwards. The issue of using transboundary waters in the basin started to come to the forefront after Turkey, Syria and Iraq launched great water projects in 1960's. The Keban, Tabka, Karakaya and Haditha Dams started to be constructed in this period. The first crisis in the basin broke out as a crisis with Syria in 1975 with the concern that the lower riparian Iraq would go through water shortage during the filling period of the Keban Dam in Turkey and the Tabka Dam in Syria. The second crisis in the basin took place in 1990, when Turkey filled the Atatürk Dam, and the third crisis took place in 1996, when the Birecik Dam was started to be constructed. Particularly Iraq has been mentioning the allegation claiming that the dams constructed in the spring would decrease the flow in the Euphrates and Tigris rivers for many years. A Joint Technical Committee was established on the basin waters, where firstly Turkey and Iraq participated in 1980, and Syria participated in 1983. In 1987, Turkey signed two protocol agreements with Syria. One of the protocols signed between the two countries is related to security, and it is about Syria's ending its support for PKK. In accordance with the other protocol, Turkey agreed to release to Syria a yearly average of 500m3/sec water across the border between Turkey and Syria.

Later on in 1990, Syria let the 58 per cent of the yearly average of 500 cubic meters/sec water, which was allocated by Iraq and Turkey, to the use of Iraq. Within the following 10-year period of the protocol signed in 1987, Syria did not withdraw its support from PKK. The tense situation related to the usage of water resources continued until the Adana Security Protocol signed in 1998. The agreement between Turkey and Syria under the new security arrangements in accordance with the 1998 Adana Protocol paved the way for the large-scale cooperation ranging from trade to tourism. Concerning the water resources, a cooperation protocol was signed in 2001 between GAP Regional Development Organization and Syria-GOLD (General Organization for Land Resources).

As a result of the changing Middle Eastern balances upon the US intervention in Iraq in 2003, Syria established closer relations with Turkey. The relations became stronger with the cooperations until March 2011.

During the conference, where water law and development of the three riparian countries were talked, the EU Water Law was also discussed. Issues such as; the cooperations made in the Central Asia (Amu Darya – Sry Darya Basin), Jordan Basin, Orontes Basin and Rhine Basin, the commissions established, and the assessments including the consequences were also addressed in the conference.



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The Institutes making studies on the Euphrates-Tigris basin, the steps taken and the results reached were the other subjects discussed in the conference. The ETIC (Euphrates Tigris Initiative for Cooperation), which assumed role in the organization of the conference, was established in the Kent State University on 20 May 2005. It has been organizing conferences, workshops related to the Euphrates-Tigris Basin. Striving to built trust among the riparians within the frame of its current goals, ETIC is an epistemic committee which has been carrying out interdisciplinary studies in order to become an important instrument within hydro-solidarity.

The evaluations concluded at the end of the conference are listed as follows;

- While transboundary waters create a complex dependence among the riparian countries, this situation affects the concerns of the countries about the water and food safety. Floods, drought, the operation of dams, water allocation, increasing demand for water (increase in population, urbanization) and mismanagement of water resources lead to problems in basins.
- The basins are affected by the cooperations of riparian countries with water, by the conflicts, the relations between the countries, and by the political balances in the region, the internal politics and by the world agenda.
- The problem of distrust among the riparians that has been continuing for many years influences the cooperations on water.
- Syria's current situation has directly affected the protocols, cooperations which have been made since the Adana Agreement signed between Turkey and Syria in 1998.
- While the role of epistemic committees, NGO's and Institutes in developing the management of basin waters were touched, it was stated that the Institutes could not work very well in the current situation of Syria and the ten-year situation of Iraq.
- There is no triple agreement, in which three riparians participate, in the basin; and there is no any bilateral agreement signed between the riparians either.
- The agreements cannot always guarantee that there would be an absolute cooperation in the basin or that it would be continuous. Sometimes, it could be a part of the problem.
- The fact that there are conflicting provisions within the same document, the lack of sanctions, and the fact that the characteristics changing depending on the basins are not grounded on might lead to weak and inefficient agreements.
- In basins, where there are more than two riparians, the appropriation of water is strived to be organized in line with bilateral agreements and protocols, and this situation prevents the continuance in the basin.
- The requirement that green water, soilwater and virtual water potentials should be added to the water budget account of the countries.
- The role and importance of asymmetry of power in appropriation of water resources in basins and in cooperation was mentioned.
- In the process of appropriation of water resource, it is also necessary to consider the population, geography, social structure, water resources, land resources, economy, climate change, current water projects and plans of the riparian states particularly in transboundary water basins.



- Political, and geographical position of riparian countries in the region, the asymmetry of power in the region, the relations between the riparians, and the concern of states on food and energy safety define the usage of basin waters.
- The common traditional legal arrangements of the riparians might facilitate to cooperate.
- In the Euphrates-Tigris basin, JTC (Joint Technical Committee) is required to be redesigned. The data exchange should be in a common perspective and definition.
- The agreements including appropriation of water should be redesigned over proportion, not over a certain figure; and it should be rearranged.
- The characteristics of basins, their geographical and political features, problems, internal and foreign policies of the riparians are different from one another, therefore different models should be created for each basi

"Institutional Development and Multidisciplinary Perspectives in the Euphrates-Tigris Basin Were Talked During The International Conference Held In Istanbul", Tuğba Evrim Maden, ORSAM, 07/05/2012,online at: http://www.orsam.org.tr/en/WaterResources/showAnalysisAgenda.aspx?ID=1722

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Syria Friendship Dam Project Still Under Way

Turkey's forestry and water works minister said on Friday that Syria Friendship Dam project was still under way.

Veysel Eroglu said the foundation of the dam had been laid, and construction had begun, and noted that he did not know if a problem would emerge because the memorandum of understanding was signed.

"We are giving water to Syria, i.e. we are fulfilling our commitments," Eroglu told AA's editors at AA's headquarters in Ankara.

Eroglu said Syrian executives should also fulfil their commitments.

Moreover, Eroglu said Libya was willing to buy Manavgat Brook water, but the project was shelved due to turmoil in that country.

"Manavgat's water has not been sold yet, but Libya still demands it. The project is under assessment," Eroglu also said.

"Syria Friendship Dam Project Still Under Way", 11/05/2012, online at: http://www.turkishweekly.net/news/135989/syria-friendship-dam-project-still-under-way.html

ВАСК ТО ТОР



✤ Iraqi bloc demands summoning Turkish ambassador over dam construction

ERBIL, May 12 (AKnews) - The White bloc in the Iraqi parliament today demanded the summoning of the Turkish ambassador to Baghdad Yunus Dmirer because of Turkey's ongoing construction of Ilisu Dam on the the common border between the two countries on Tigris River.

The bloc said in a statement that its secretary general Jamal al-Battikh accused the Turkish government of "provocation" because it did not stop the construction of the dam.

"Turkey must give Iraq its share of water according to international standards," Battikh said.

"We've been asking the Iraqi government for seven years to demand the need to halt the construction of the Turkish dam because it affects the interests of the country, but to no avail."

Iraq accuses its neighbors, particularly Turkey and Syria, of affecting the level of the Euphrates River by building dams on the river to generate electricity. Iraq says this damages its agriculture sector.

"Iraqi bloc demands summoning Turkish ambassador over dam construction", 12/05/2012, online at: <u>http://www.aknews.com/en/aknews/3/306599/</u>

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* Darbandikhan Dam water level almost full

ERBIL, May 7 (AKnews) - The highest water level in three years has been recorded in Darbandikhan Dam, only five meters short of its maximum capacity.

Director of Darbandikhan Dam Rahman Khani said the water level in the dam has reached 480.40m above sea level. The water level was 473.82m at the same time last year.

Khani added that the volume of water storage is now 2.0944bn cubic meters, compared to 1.5798bn last year.

The water level increased by 37cm per day at the same time last year, but now it is increasing by only 9cm per day.

Darbandikhan Dam is a multi-purpose embankment dam on Diyala River in the northern governorate of Sulaimaniah, Kurdistan Region.

"Darbandikhan Dam water level almost full", 07/05/2012, online at: http://www.aknews.com/en/aknews/3/305713/

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Erbil crop fields expected to produce 50% this year

ERBIL, May 6 (AKnews) - Fields in Erbil province are expected to produce only 50 percent of crops in comparison with last season after a lack of rainfall caused drought in some areas.

Head of plant protection at the Ministry of Agriculture and Water Resources Abdul Rahim Omer Mustafa said drought has been declared in some areas such as Erbil plains (Dasht), Qaraj, Kandinawa and Makhmour.

Mustafa added: "If rain doesn't fall twice a week this month, the Erbil fields will get fewer crops than predicted earlier this year.

"This year's drought has no affect on barley fields, but it does on wheat. Wheat needs more rain and longer time."

Mustafa explained that this year the fields that do not have a sprinkler system, such as wheat and lentil fields in Erbil province, will likely have a lower production probably than predicted before because of drought.

"Erbil crop fields expected to produce 50% this year", 06/05/2012, online at: http://www.aknews.com/en/aknews/2/305447/

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Even more dust this year

ERBIL, May 9 (AKnews) – There will be more dust and wind across the region this year because of drought and low rainfall, predicted the director of the Meteorological Department.

Hassan Wahab told AKnews he expected "dusts from the Arabian Peninsula and North Africa to Kurdistan to increase this season and this will affect the region's weather in a negative way."

But, he added, "Kurdistan region will be sunny in the next few days".

According to the measurements from Ministry Agriculture and Water Resources there would be a drought this year, said the ministry's Director of Plant Protection.

"Even more dust this year", 09/05/2012, online at: http://www.aknews.com/en/aknews/3/306121/

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Al-Hamdani: Iraq needs to six signatures to complete {Convention waters} and most Arabic countries did not sign

Baghdad: Euphrates news} parliamentary Foreign Relations Committee demanded complete signatures for the Water Convention, stating that "Iraq needs now to six signatures for the purpose of completing this Convention.

Water Convention stipulates the obligation of the Iranian side of Iraqi control over agricultural drainage water disposal in the vicinity of the border, and to prevent their diversion towards Iraq.

As stipulated in the agreement on the joint use of the border rivers, and label representatives standing Joint Technical Committee of the two countries ' border rivers within 20 days from the signing of this memorandum.

Member of the parliamentary Foreign Relations Committee for good shoird Al-Hamadani agency {Euphrates news} today that "the majority of States had signed the Convention on Arabic water so that Iraq could be under water conventions that protect consumer interests and headwaters."

He explained that "this Convention works on Iraq to its natural access", noting that "this is not one we would prefer, not from headwaters in States which pass through the Tigris and Euphrates and Diyala River and the rivers that flow from Iran and Turkey".

Ambassador University called Al-Hamadani in Baghdad Arabic Naji Ahmed Shalghem b "pressure on University Arabic to activate their role in water Convention", calling on the Iraqi Foreign Ministry to "activate this demand through Arabic League until we reach this achievement, because the next war is" water war.

Government spokesman Ali al-Dabbagh told a press conference that the continuing refusal of Turkey to sign any agreement with Iraq on water and climate problem suffered by all countries of the world, Turkey is one of them, but these States using modern methods in the treatment, while Iraq still uses the old ways." ended

"Al-Hamdani: Iraq needs to six signatures to complete {Convention waters} and most Arabic countries did not sign", 06/05/2012, online at: <u>http://www.investorsiraq.com/showthread.php?174011-Iraq-needs-to-6-signatures-to-complete-waters-Convention-waters-most-Arabic-countries-did-not-sign</u>

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Arab Spring Refugees Put Strain on Jordan

At an aid center in Ramtha on the northern Jordanian frontier, just across from Daraa, where the 14month Syrian uprising began, Syrian refugees line up for boxes of rice, sugar and tea. Mohammed Ahmed Iyad of the aid group Kitab and Sunna, said the group is struggling to provide accommodation.

"Frankly, Ramtha is full to capacity," he said. "There are very few available apartments now, so we must house three families together in one."

Housing isn't the only problem. Jordan and the UNHCR, the United Nations refugee agency, are loathe to open up a new camp, even though one has already been set up. Jordan doesn't want to further damage already strained ties with Syria, and the UN has said it's hard to get people to move home once a camp has been opened.

So for the moment, Jordan has opened its public schools to educate refugee children and its state hospitals to care for wounded and ill refugees.

But for one of the world's ten driest countries, the real challenge is getting everyone enough precious water. The infrastructure can't keep up with the need. Jordan can only pipe out water once a week to fill storage tanks on people's roofs. If the power goes out or pumps are damaged, then not a drop flows. Also, if you use up all the water in the tank before it's refilled, you pay for a water truck to fill it back up. That's something neither refugees nor poor Jordanians can afford to do.

Riyadh Farid runs a gas station and car wash in Amman. He said he never has enough water at work or at home.

"I always have to buy extra water from the water tankers. Water that comes from the government supplies is never enough. Of course with Syrian and Iraqi refugees flooding in and Gulf Arabs coming for their summer vacations, this only puts more pressure on our system," Farid complained.

And there's another problem linked to refugees. The annual summer influx of tourists.

"Already there are huge traffic jams. We're being invaded by Gulf Arabs even more so now with the problems in Syria, Egypt and Libya," said taxi driver Hussein Nour Al-Abed.

Al-Abed spends his day driving the hilly streets of Amman and normally he likes nothing better. But he's dreading this summer.

"They're not going to those hot spots," he said. "Our streets are clogged and rents are going through the roof. Just wait, food, drink and transportation prices are going to be hiked too."

Hotel clerk Ahmed Najjar said it's tough to see Arabs from the Gulf flinging money around when Arab refugees and impoverished Jordanians are suffering.



The UN refugee agency representative to Jordan Andrew Harper said the international community must do a lot more to help Jordan and its people bear the burden.

"It's easy for the international community to be talking big about Syria," Harper said, "but what we actually need to see is a lot more support to the agencies working on the ground to provide protection and assistance to Syrians, but also to the Jordanian government and the communities."

But Harper said given the worldwide interest in the Arab democracy movements over the past year, money to help refugees hasn't materialized, especially in Jordan. The UN appeal to raise \$84 million for Syrian refugees, for example, hasn't been met in the two months since it was launched. And if money isn't forthcoming, Jordanians and the Arabs they're hosting are going to be facing a long, hot summer ahead.

"Arab Spring Refugees Put Strain on Jordan", 11/05/2012, online at: <u>http://www.theworld.org/2012/05/arab-spring-refugees-put-strain-on-jordan/</u>

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Nota Drop to Drink: The Global Water Crisis

The recent **UN alert** that drought in the Sahel threatens 15 million lives is a harbinger of things to come.

In the next twenty years, global demand for fresh water will vastly outstrip reliable supply in many parts of the world. Thanks to population growth and agricultural intensification, humanity is drawing more heavily than ever on shared river basins and underground aquifers. Meanwhile, global warming is projected to exacerbate shortages in already water-stressed regions, even as it accelerates the rapid melting of glaciers and snow cover upon which a billion people depend for their ultimate source of water.

This sobering message emerges from the first U.S. Intelligence Community Assessment of *Global Water Security*. The document predicts that by 2030 humanity's "annual global water requirements" will exceed "current sustainable water supplies" by forty percent. Absent major policy interventions, water insecurity will generate widespread social and political instability and could even contribute to state failure in regions important to U.S. national security. (Look here for a webcast from the Woodrow Wilson Center of experts and U.S. government officials discussing the findings.) The simultaneous ubiquity and scarcity of water is one of Earth's little ironies. Globally, 97.5 percent of H2O is contained in world's oceans. Of the planet's "fresh" water (the residual 2.5%), more than two-thirds is encased in ice packs and glaciers, particularly in Antarctica and Greenland, another thirty percent in groundwater, and almost one percent in high latitude permafrost. That leaves us with about 0.4 percent of global fresh water to account for: about two-thirds of that is contained in freshwater lakes, with the rest distributed among soil moisture (12 percent), the atmosphere (9.5 percent), wetlands (8.5 percent), rivers (1.5 percent) and vegetation (1 percent).

The need for reliable sources of fresh water is as old as our species, of course. What is new today is the combustible combination of surging global demand for increasingly scarce fresh water in certain volatile regions of poor governance. Several factors are driving this trend.

Demographic pressure: By 2025, the world's population will swell from seven to nearly eight billion. The vast majority of this increase will occur in the developing world, particularly Africa. In rapidly expanding urban centers, demand for fresh water will rise for personal consumption, sanitation, industry, and hydroelectric use.



Declining Fresh H2O supplies: According to *Global Water Security*, "one third of the world's population will live near water basins where the water deficit will be larger than 50 percent by 2030." Many regions that are already experiencing water stress will become "extremely more stressed" or even "exceptionally more stressed." In some areas, rapid depletion of underground aquifers will be the culprit. In others it will be reductions in meltwater as glaciers recede. In the Andes, hundreds of glaciers will simply disappear in coming decades, eliminating dry season water supplies. Similar, though more gradual, dynamics will be at play in the Himalayas, sometimes referred to as the world's "third pole".

• **Changing dietary preferences**: Meanwhile, the global middle class **will surge** from 1.8 to 4.9 billion by 2030. Wealthier populations will **consume more meat**, requiring a shift to more energy and water-intensive agriculture focusing on the raising of livestock and feed grain. Already today, some 93 percent of fresh water consumed is devoted to agriculture (from a combination of riverine, lake, and groundwater sources). Without massive behavioral changes, changing land use and food consumption patterns will place even greater pressures on fresh water resources.

Poor Water Management: Adapting to a new era of water scarcity will require enormous investments in integrated water management, particularly in the developing world. This would include improving agricultural efficiency through new irrigation systems and drought-resistant crops; renovating infrastructure to reduce urban "water leakage" (which averages 30-50 percent in many cities); clarifying rights to the use of subterranean, riverine, and lacustrine water resources; and introducing pricing mechanisms that reflect the true economic value of water—admittedly a politically volatile step in societies where free (or cheap) access to water is viewed as an inherent, longstanding right.

Significantly, the intelligence community does not predict that increased competition for waterresources will, by itself, be a source of violent conflict—a finding borne out by a rich**body ofresearch**. And yet the same document warns that water stress may well "contribute to the risk of instability and state failure," particularly "when combined with poverty, social tensions, environmental degradation, ineffectual leadership, and weak political institutions." The accompanying map makes clear that many of the countries likely to be hardest hit are fragile and/or authoritarian states located within the broad arc of instability encompassing North Africa, the



Horn, the Arabian Peninsula, and southwest, central, and south Asia. In other words, states least able to cope.

Regional tensions over shared river basins will also rise. States will use diplomatic and other leverage to preserve their water interests, and "upstream" states will be tempted to use water as a diplomatic weapon, including by threatening to impede flow. Nonstate actors, notably terrorists and other extremists, may also seek to sabotage dams and other infrastructure.

Regional stability and peace, therefore, increasingly depend on effective management of the world's 263 shared international water basins. "Today, water basin agreements often do not exist or are inadequate." Analyzing the current capacity to manage seven major water basins, *Global Water Security* assesses mechanisms to govern the Brahmaputra and Amu Darya to be "inadequate," and those governing the Tigris-Euphrates, the Nile, and the Mekong as "limited." (The Indus and the Jordan rivers earn a higher, "moderate" score.)

By revealing the scale and consequences of global water crisis, the intelligence community has performed a great service. But the policy response to date has been just a drop in the bucket.

"NotaDtoptoDinkTheGlobalWaterCisis",08/05/2012,onlineat.<u>http://blogs.cfr.org/patrick/2012/05/08/not-a-drop-to-drink-the-global-water-crisis/</u>

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Fresh Water Scarcity Brings out Worst and Best in Nations

Steven Solomon, an investigative reporter specializing in environmental issues, is author of the best selling book "Water: The Epic Struggle for Wealth, Power and Civilization" (Harper, 2010). He was interviewed by Sharon Kleyne, founder of Bio Logic Aqua Research and host of the Sharon Kleyne Hour, on April 23, 2012.

"Fresh water scarcity is the world's most explosive humanitarian and political crisis," says author Steven Solomon. Speaking on the Sharon Kleyne Hour Power of Water syndicated radio talk show, Mr. Solomon described several countries where fresh water scarcity is critical or could become critical. He also cited examples of countries that have managed their water responsibly.

On the show, Solomon and Kleyne discussed the impact of fresh water scarcity in Iraq, Yemen, Somalia, Syria, Tibet, China, India, Pakistan, the Netherlands and the United States.

Mr. Solomon discussed the struggles in each region:

In the rebellion following the Gulf War, Saddam Hussein punished the Iraq's Shiite Muslims, who belonged to an ancient group called "Marsh Arabs," by draining the marshes where the Tigris-Euphrates River empties into the Persian Gulf. Thousands of Marsh Arabs either died or were forced to flee. Since the Iraq War, the United States has restored 75 to 90 percent of the marshes.

In Yemen, Al Qaida is extremely powerful, in part because they finance well-drilling projects for local tribes. Because of extreme drought, according to Solomon, many people are moving to the cities, which also have severe fresh water problems.

Solomon says that the situation in Somalia is similar to Yemen in that out-of-control fresh water shortages have rendered the government powerless.

Recent anti-government protests in Syria were motivated in part by a spike in food prices caused by extended drought, according to Solomon. Most Syrian rivers (including the Euphrates) begin in Turkey, which, because of the same drought, has been removing water before it reaches Syria.

In the high Himalayas, Tibet is the "water tower" of Asia and the source of the Yellow, Yangtze and Mekong Rivers. To control this fresh water, according to Solomon, China not only continues to occupy Tibet, it encourages Chinese citizens. One of India's major rivers, the Brahmaputra, also begins in Tibet. China has proposed a huge hydroelectric dam on their side of the river, to which India objects, fearing that China will withhold water. With its massive population, highly polluted rivers and dozens of mega-cities, China is always looking for fresh water. The densely populated and north is particularly water poor.

Most of Pakistan, an arid, desert nation, is comprised of the Indus River Valley, which rises in India, Pakistan's traditional enemy.



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Because of the Netherlands' low elevation (some of it below sea level), floods have been a recurring problem. In the 1500's, local cities and provinces began forming Water Boards to build canals and dikes for flood control, and to reclaim land. This was the direct precursor to the Dutch Parliament, one of the world's first democracies, and ultimately led to the Dutch Golden Age in the 1600's.

The United States is experiencing increasing long-term drought, not only in Western desert areas (with its rapidly growing cities) but in regions once considered fresh water rich, such as Georgia and Alabama. Most Western water comes from Colorado, Washington and Canada and is coveted by California, Nevada and Arizona. Allocation of fresh water for cities versus agriculture are major issues. On balance, the United States is relatively fresh water rich and in a position to produce food for both itself and the rest of the world.

"Fresh Water Scarcity Brings out Worst and Best in Nations", 08/05/2012, online at: http://www.digitaljournal.com/pr/699644

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Middle East Green Economy, Sustainable Energy Should Mean Opportunities Not Sacrifices

Misconceptions surrounding sustainable energy and consequential inaction will lead to a 'train wreck' - and greater efforts are needed to transition towards a Middle East green economy, according to experts from the United Nations Development Programme (UNDP), ahead of the UN's Rio+20 sustainable development conference in June.

Sustainable Arabia: Clean Energy, held in Dubai, provided a platform for UNDP representatives and regional experts to discuss ideas and encourage policy dialogue. Amidst a series of sessions on green developments and energy challenges in the Arab region, a rousing call to action was heralded from several corners.

UN Resident Coordinator Robert D. Watkins told AMEinfo.com that most Middle East residents are not waking up to the environmental 'destruction', or the economic opportunities that a sustainable green economy would offer:

"In this region I don't think people are waking up [to the issues]. There's a small percentage of the population who are acutely aware and actively involved in advocating for political reforms to address some of the issues, but I don't think that is the vast majority of the population.

"It's a very consumerist society and so long as the wealth is there, there's a contentment to continue with the status quo. There's a train wreck approaching and people don't want to see it."

Middle East lags behind in policy-making and per capita consumption.

Watkins uses a broad brush to label the Middle East as 'one of the worst' in terms of effective energy and land use policies, excessive water consumption and faltering agriculture, but acknowledges that no administrations are idle. The deepening issue is based on resource demands outpacing existing solutions.

"The wheels have actually been turning quite quickly," says Watkins. "There has been a lot of progress, but the problem is that the speed of progress is short of the growth of population. The burgeoning population and sustained environmental deterioration has meant that there's a gap between the progress made and the rate of destruction.

"It's not like we've just stayed still and things have gotten worse, there is a lot of forward movement - but the other changes, particularly population growth, have just outstripped that progress and I don't think we've come to terms with how we can adjust the two so that progress is greater than the destruction."

Employment lies at the heart of the problem - and the solution

A responsibility lies with the private sector to provide a long-term vision for the public sector; to provide clarity on the rules of the game and to assume them they will not keep shifting.

"You can't separate these issues from politics. We've seen social revolutions take place in a number of countries in the region and I don't think they're taking place by coincidence - concerns are heightened by unemployment.

"The fact is some parts of the Middle East region are seeing 30% unemployment of youth - this is not totally unrelated to the demonstrations we've seen. The effects of unemployment have contributed greatly to



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instability in the region."

The concern that a transition to a green economy means sacrificing economic growth may not be unique to the Middle East, but UNDP delegates are advocating ahead of Rio+20 that it is more key to focus on the opportunities presenting from renewable energy, efficiency and other green developments.

"I think there's a fear amongst many countries that this transition towards a more environmentally sensitive economy means economic sacrifice. We're trying to explain how that is not the case. In fact, you can create a whole economy on the basis of this transition."

Gulf oil producers must realise shift to full energy mix, cooperation.

"The region seems to be in the middle of a paradigm shift," says Yannick Glemarec, UNDP Executive Coordinator and Director of Environmental Finance, who also sat down with AMEinfo.com to discuss energy challenges:

"[The Middle East] is shifting from seeing itself as supplying oil to the rest of the world, to supplying energy. A lot of the sovereign funds are increasingly interested in financing large scale renewable energy installations. The region could definitely be a large part of the solution for mitigation."

The current global spend for long-lasting infrastructure for water, transport and energy, tallies up to \$6 trillion a year - around 10% of global GDP. Glemarec cites estimates that this will increase to \$10 trillion by 2020. If it was feasible to ensure that these investments were low emission and climate resilient, it would completely change business models worldwide:

"There are pressure points in the global economy which could enable us to dramatically accelerate towards a green society. If 20% of the infrastructure spend is from the Arab region, that is a \$2 trillion spend by 2020, designed to foster a rapid transition toward a green society.

One of the problems with renewable energy is intermittency; the wind does not always blow and the sun does not always shine. "But if you take a quadrant large enough," says Glemarec. "Let's say from Dublin to Moscow, from Oslo to Cairo - from there in that quadrant, the sun always shines and the winds always blow."

The necessary steps will obviously vary between countries, but a green economy transition calls for a host of big investments in infrastructure and renewable sources of energy and energy saving technologies and economic development which is job oriented. Then it's the policy which will define environmental impact, shaped by an improved awareness of the issues - and a greater sense of urgency.

"Middle East Green Economy, Sustainable Energy Should Mean Opportunities Not Sacrifices", 08/05/2012, online at: <u>http://www.turkishweekly.net/news/135740/middle-east-green-economy-sustainable-energy-should-mean-opportunities-not-sacrifices-.html</u>

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* Project to provide Litani River water to south

BEIRUT: Qabalan Qabalan, the head of the Council of the South, launched a project to channel the Litani River water to the south Thursday, describing the move as important as the liberation of the south from Israeli occupation.

The project will see the provision of potable water to around 100 towns and the irrigation of 14,700 hectares of agricultural land by channeling around 110 million cubic meters of water annually from Lake Qaroun in the Bekaa.

Speaking during the ceremony to celebrate the launch of the project in Ain al-Zarqa in Mashghara, he described the project as "the largest battle to liberate water resources ... by putting an end to the enemy's designs for our resources."

"After the projects of Wazzani and Ain al-Zarqa, this project is just like liberating land from occupation because our land was and is still a target for the enemy's designs."

"Project to provide Litani River water to South", 07/05/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=4946

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✤ Arab region could face severe water crisis by 2015 — report

AMMAN — Arab countries are expected to face severe water scarcity as early as 2015, when the annual per capita water share in the region will fall to less than 500 cubic metres, a recent report warned.

The situation of water resources is nearing a crisis in most Arab countries, the report said, attributing the degradation to misguided short-term outlooks and political inertia when it comes to introducing reforms in the water sector.

The Green Economy in a Changing Arab World Report, recently launched by the Arab Forum for Environment and Development (AFED), said that by 2015, the region's projected annual per capita water share will be less than one-tenth of the global average of over 6,000 cubic metres.

"An annual per capita water share below 1,000 cubic metres is considered to pose a significant constraint to economic development, health and well-being; below 500 cubic metres, water scarcity becomes a threat to life," indicated the report, which was launched on Thursday at the University of Jordan.

AFED Secretary General Najib Saab said that one of the main drivers of the Arab Spring uprisings was unemployment — a challenge he said could be met with a focus on environment-friendly development.

"Turning to a green economy in the Arab world will help create millions of decent and sustainable job opportunities," Saab said at the launch event.

The report indicated that more than 45 million people in the Arab world, or 10 per cent of the population, lack access to clean water and safe sanitation.

"In addition, water pollution is a serious challenge in the region, attributed to the use of high levels of chemicals in agriculture as well as increasing inflows of inadequately treated domestic and industrial waste into water bodies," the report said.

It also indicated that the lack of sanitation for large segments of the population contributed to water becoming polluted with raw sewage.

Introducing institutional, legal and policy reforms that affect water use, regulation and governance are among the keys to addressing the challenges of the water sector in Arab countries, the report suggested.

"Arab states need to shift the focus from large-scale investments in supply-side projects and instead concentrate on demand-side policies that control and regulate water access, promote irrigation and water use efficiency, and prevent water pollution," the report said.

The report said that a green development agenda for Arab countries would generate economic dividends, while improving environmental and social conditions.



"In addition to meeting the demand for change, an Arab green economy will address the shortfalls of past Arab economic performance, from poverty and unemployment to food and water security threats," the survey indicated.

In agriculture, the report said that most water irrigation systems in Arab countries were inefficient and that agriculture was already using over 85 per cent of available natural freshwater resources, with an efficiency of less than 50 per cent on average and as low as 30 per cent in many Arab countries.

It proposed applying a more sustainable approach to the use of limited land and water resources, introducing subsidies and land reforms, and empowering farmers and agricultural workers.

The report also criticised solid waste management in Arab states.

"The waste management sector in the Arab countries is characterised by underdevelopment, underinvestment and high-risk 'waste dumping' practices," the study said.

It indicated that although the volume of waste generated was increasing alarmingly, many Arab countries lacked national strategies or integrated plans for municipal solid waste management.

President of the Jordan Environment Society Mohammad Masalha said that the report showed the Arab region's potential for shifting to a green economy in order to achieve sustainable growth.

"This report represents a clear action plan for Arab countries to identify loopholes and follow proposed measures that can help improve the environment and push economic growth," Masalha said.

The report analysed the shortcomings in vital sectors in the Arab world, including agriculture, water, industry, transportation, cities and buildings, solid waste management, energy and tourism, and proposed reform measures.

"Arab region could face severe water crisis by 2015", Hana Namrouqai, 12/05/2012, online at: http://jordantimes.com/arab-region-could-face-severe-water-crisis-by-2015----report

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✤ GREEN ECONOMY: A GOLDEN OPPORTUNITY FOR A NEW ARAB AWAKENING

Twenty years after the last earth summit in Rio, the nations will again be on the road to the same city by next June, trying to solve the same environmental problems in a more complex context.

Among the topics on the agenda, the nations will discuss the "Green Economy" initiative, an economic approach boosted by the United Nations Environmental Program (UNEP) for the last few years.

According to the UNEP documents, Green Economy is one that results in improved human wellbeing and social equity, while significantly reducing environmental risks and ecological scarcities. It is also seen as an economic development model that is based on sustainable development and the knowledge of ecological economics.

In a short interview, UNEP Chief of Economics and Trade Branch Dr. Steve Stones said Green Economy put different sets of approaches by adopting investments in renewable energy resources versus fossil fuel and promoting initiatives like green buildings, clean transportations, and more efficient and sustainable techniques for water, waste and land management.

"We need to replace the GDP with a more efficient indicator that takes into account other values that are not measured like the human and natural capitals of the countries," he explained. So far, entities like the World Bank have suggested ways to measure and value nature. However, none of them has been approved globally as scientists and economists are still debating on valuing natural resources like air quality or forests.

Nevertheless, Dr. Stones believes that before reaching a consensus among countries on applying green economy measures, local communities and pressure groups should play a crucial role in educating people and explaining the benefits of implementing them in urban areas and villages and small businesses like farming and fisheries. "If people understand the importance of sustainability, they would adopt the green economy measures and even ask policy makers to take further actions in support of Green Economy," he added.

Switching Over Fears

Though the green economy was implemented in small scale projects in several developed and developing countries, many developing states fear switching over to such an economy or proceeding with a binding international agreement in this field. This fear was clearly expressed by the G77 sessions during the 12th special session of the Governing Council and Global Ministerial Environment Forum in Nairobi last February. While some countries were on the defensive, saying that there was no clear common definition on Green Economy and the monetary value of natural capital, other states were worried that it might be used to impose trade barriers or on how the states should deal with their local natural resources.



According to Najib Saab, secretary general of the Arab Forum for Environment and Development (AFED), the aim of Green Economy is not at resorting to isolationism, but in establishing a strong green growth knowledge platform and the true transfer of technology.

On the regional level, the AFED launched a detailed study, Green Economy in a Changing Arab World. The report recently produced focuses on how green economy can help navigate a sustainable transition in the Arab countries.

"One major demand which drove people to the streets was the plight for decent jobs," Saab explained. On this topic, a main finding of the AFED report is that transitioning to a green economy helps generate decent and lasting job opportunities. When people whose lives are most impacted have a greater say in shaping policy decisions, this will result in better management of natural resources.

Arab development strategies continue to be dominated by investments in extractive commodity products earmarked for export markets. These industries require high initial investments but generate low levels of employment. Despite generating high GDP growth, this model leaves Arab economies more vulnerable to global market volatilities, while failing to significantly create jobs. One of the main findings of the study is that the lack of income diversification is a primary cause of the structural weakness of Arab economies.

Over the last 50 years, population of the Arab countries increased from 100 million to about 400 million in 2012. Among them, 65 million are poor and 45 million lack access to clean water and sanitation services. Youth unemployment rate averages at over 25 percent. Unemployed youth accounted for more than 70 percent of the total unemployment in Egypt, Jordan and Yemen. These constitute the bulk of demonstrators on Arab streets.

More jobs

Through the AFED report, researchers found that by implementing Green Economy measures there would be more job opportunities and better allocation to the national budget. Estimates are that Arab countries will need to allocate at least 1.5 percent of their GDP annually to investments in clean sanitation, water infrastructure, innovative water efficiency, and recycling technologies to meet the expected rise in water demand. Such green investments will create jobs in both rural and urban regions.

Over the last 50 years, population of the Arab countries increased from 100 million to about 400 million in 2012. Among them, 65 million are poor and 45 million lack access to clean water and sanitation services. Unemployed youth accounted for more than 70 percent of the total unemployment in Egypt, Jordan and Yemen. These constitute the bulk of demonstrators on Arab streets.

In the agriculture field, there is also a need to shift to sustainable agricultural practices to save six percent of the GDP to Arab countries as a result of increased water productivity and protected environmental resources. An investment of USD 100 billion annually in renewable energy is expected to create about 565,000 new jobs. A reduction in average per capita consumption of



electricity in Arab countries to the world average, through energy efficiency measures, would generate savings of USD 73 billion annually.

In the transportation sector, public transit systems and vehicle fuel efficiency standards have to be established. Fifty percent greening of the Arab transport sector generates savings of USD 23 billion annually.

In the buildings sector, the AFED report estimates that spending USD 100 billion in greening only 20 percent of the existing building stock in the Arab countries over the next 10 years, mainly for retrofitting, is expected to create four million jobs.

If Arab governments commit to greening the construction sector, spending will have to increase by about 20 percent, resulting in additional investments of about USD 30 billion and the creation of 10 percent more jobs.

In conclusion, Saab stated that the willingness to pursue a green economy agenda provided a window of opportunity to initiate fundamental re-examination of current public policies in Arab countries.

"GREEN ECONOMY: A GOLDEN OPPORTUNITY FOR A NEW ARAB AWAKENING", AFED, 10/05/2012, online at: <u>http://mideastenvironment.apps01.yorku.ca/?p=4974</u>

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Water network violations on the rise'

AMMAN – More than 16 violations against water networks were recorded during the first quarter of this year, a government official said on Wednesday, warning that the practice is on the rise.

The Ministry of Water and Irrigation is suffering from recurring violations related to water resources across the country, which is disrupting the distribution programme, the ministry's spokesperson and assistant secretary general, Adnan Zu'bi, said.

"Violations on water resources are rising every year; the ministry registered 18 cases in 2009, 52 in 2010 and 59 last year. During the first three months of this year, we recorded over 16 violations, which is a negative indicator," Zu'bi said.

Theft of electricity cables and generators, as well as pumps, is a violation of people's water rights, depriving them from their share, the official said, noting that disruptions in supply for one or two days means that some subscribers will miss their turn in the distribution programme.

Under the water distribution programme, households in Jordan receive water once during a set period, usually a week to 10 days, on a rotating basis. Scarce water resources in the country compelled the Kingdom to initiate the programme in the early 1980s to ensure a sustainable water supply for subscribers.

"If violations on water resources continue, the distribution programme during summer will be disrupted. Resuming operation of a water resource that has been robbed of its equipment takes two to three weeks," Zu'bi said.

Households that miss their turn in the distribution programme, are forced to purchase water from tanks which can be costly, he noted.

"In addition, the Water Authority of Jordan and water companies incur losses due to the theft of equipment. For instance, violations last year cost us more than JD350,000," Zu'bi underscored.

He highlighted that the ministry, in cooperation with the Rangers, carries out regular and unannounced inspection visits to water resources across the Kingdom to prevent violations.

"Perpetrators are jailed for two years and fined in accordance with the Penal Code," Zu'bi noted.

The ministry called on the public to cooperate in protecting water resources, by reporting t any infringements.

'Water network violations on the rise', Jordan Times, 10/05/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=4958

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Old Gas Stations Still Polluting Israel's Soil and Water

Israel's Ministry of the Environment is struggling to rectify the nationwide soil and <u>groundwater</u> <u>pollution</u>from <u>gas stations</u> discovered over a decade ago. Meanwhile <u>new reports</u> show that the leaks are still causing pollution today. The original reports revealed that <u>almost half of Israeli gas</u> <u>stations</u> were leaking fuel. According to more recent reports, only 38% of gas stations were clean of contamination. The reports said that around 200 gas stations across Israel, out of a total of around <u>1</u>,500, are still leaking.

Data was either unobtainable or unavailable from the rest of the surveyed gas stations, due to lack of testing over the past five years. The Ministry believes that gas companies are still systematically hiding underground tanks and pipes and not conducting proper tests, as <u>they were accused of doing</u> in 2010.

Sonol and Delek Israel released statements asserting that they have addressed the leaks, are continuing to invest in cleanup efforts, and adhere to the directives of the Ministry of Environmental Protection. Representatives from the company Paz declined to comment.

A report from the Water Authority's department for the prevention of water pollution concluded that the contamination is toxic, "carcinogenic and potentially harmful to the central nervous system, immune system and might reduce fertility."

"Old Gas Stations Still Polluting Israel's Soil and Water", Leigh Cuen, 06/05/2012, online at: http://www.greenprophet.com/2012/05/gas-stations-polluting-israel/

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Islamic Gardens – They Could Build A Green Muslim Movement

There's nothing like being with <u>nature to help clear your mind</u> and when the weather is as lovely as it has been recently, who can resist spending a couple of hours in the garden? But the humble garden should not be overlooked. According to <u>researcher in the uk</u>, the garden can be a powerful tool in inspiring more climate-aware behaviours.

Following my trip to <u>Andalucia and introduction to some stunning Islamic gardens</u>, I looked into the role gardens can play in promoting environmentally-friendly behaviour. I instantly stumbled across a little piece of research by Mark Bryant and Sophie Gilliat-Ray based in the UK who state that "Gardens built reflecting Islamic traditions have been shown to have the potential to educate and inform people about environmental issues." I caught up with Mark Bryant to find out more about this research and the green Muslim community.

Aburawa: Why do gardens play an important role in Islam and Muslim culture?

Bryant: There are some 166 references to gardens in the Qur'an. These include references to *earthly gardens* which resemble an oasis or palm gardens found in the Middle East today. Both Eden and Paradise are described in terms of a garden and 'jannah' means both garden and paradise in Arabic. This love for the garden is reflected in the traditions of Muslim poetry, literature and carpet design. And much of what is described as Arabesque design incorporates both realistic and stylised plant forms. In terms of the environment, in addition to respecting nature as part of creation many Muslims regard themselves as having been entrusted with the task of acting as khalifah, or vice-regents, of earth. 'Later We made you their successors in the land, to see how you would behave' (Surah 10.14).

Aburawa: The research that you carried out on Islamic gardens in the UK showed that Islamic gardens didn't generally deal with environmental issues and sustainability. Do you think that this could change in the future?

Bryant: I feel it is important to draw a distinction here between the traditional formal Islamic gardens and gardens *reflecting* Islamic traditions. The traditional Islamic garden is a specific form consisting of specific formal elements. On the other hand gardens reflecting Islamic traditions can include gardens which incorporate Islamic influences outside of those found in the traditional form such as good Islamic environmental ethical practice.

Whilst it is true that traditional Islamic gardens were not necessarily concerned with issues such as biodiversity, conservation and sustainability it can be argued that they demonstrated the importance of the natural world in Islam. If we use the definition of gardens *reflecting* Islamic traditions we find examples of gardens being built using Islamically inspired environmentally-friendly practice. For example the community garden run by Wapping Woman's Centre in Tower Hamlets has had a huge impact on changing people's behaviour around recycling, composting and a general respect for the environment.

As well as research into Islamic gardens, you have looked into the scale of environmental concern British Muslims have. What kind of state did you find the environmental movement amongst British Muslims in the UK?

I think the following quote from the conclusion of the paper we wrote for the Journal for the Study of Religion, Nature and Culture (Are British Muslims 'Green'? An Overview of Environmental Activism among Muslims in Britain.) best answers this question..



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So, are British Muslims 'green'? The answer is both 'yes' and 'no'. Visit nearly any inner-city area in Britain with a large Muslim population and it is evident that the messages of conservation and environmental stewardship that Muslim environmentalists derive from the Qur'an and Hadith are not reflected in the actual behaviour of many British Muslims. Unkempt urban areas often reflect socioeconomic deprivation and a lack of engagement in activities that promote environmental conservation. On the other hand, the findings of our research also demonstrate the emergence of a new generation of British Muslim environmental activists who are using their energy and knowledge to argue that being a 'good Muslim' must involve environmental responsibility.

In the Middle East, there are real concerns about the <u>growing scarcity of water</u>. As such, do you think it is justifiable to be building gardens which rely heavily on water?

Whilst I am aware of plans for gardens in the Middle East that are environmentally irresponsible this need not be the case. In fact, within the area of water management, Islamically inspired gardens have the potential to stand as examples of traditional and current good practice in water management. Traditional Islamic gardens have historically served as showcases for effective water management in water poor areas – this was particularly the case in gardens in Iran. The palmerals of Elche in Spain are fed by an 800year old water management system developed by the Moors. These systems were in turn studied by French and British engineers to be used in their colonies in Africa.

In September 2011, the tenth International Permaculture Conference and Convergence, IPC10, which was held in Jordan around the theme of water. During the conference, projects in the Jordan Valley and around the Dead Sea using permaculture and Islamic environmentally inspired designs were highlighted as a positive response to the growing water crisis in the region. So the Islamic environmental ethic works very well with the currently growing Permaculture movement. In addition many of the traditional methods of water management used in the Middle East represent good examples of effective Permaculture design. Finally, I think there is potential for palm gardens to be used as an alternative to less sustainable green spaces currently being built in the region.

: The Islamic gardens research was commissioned by <u>BGCI</u> and was supported by the <u>Islam UK</u> <u>Centre at Cardiff University</u>.

"Islamic Gardens – They Could Build A Green Muslim Movement", Arwa Aburawa, 06/05/2012, online at: http://www.greenprophet.com/2012/05/islamic-gardens-movement/

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✤ Israel's barrier to cut off ancient irrigation system

BATTIR, West Bank — One of the last Palestinian farming villages that still uses irrigation systems from Roman times says its ancient way of life is in danger as Israel prepares to lay down its West Bank separation barrier.

With construction possibly beginning in the coming weeks, the people of Battir hope a legal battle, backed by recent U.N. recognition of the village's agricultural practices, will help change Israel's mind.

Battir's 6,000 inhabitants live in limestone-faced houses built into a hillside southwest of Jerusalem. On the lands around the homes, stone retaining walls have transformed scrubby hills into orderly terraces of olive trees and vegetable gardens.

Terraces are a common Palestinian farming technique in the hilly West Bank terrain. But in Battir, they are unique for their extent — stretching uninterrupted over nearly 2,000 hectares (800 acres) — and for the centuries-old network of irrigation canals that direct springwater over the stepped hills.

This combination prompted the U.N.'s cultural agency, UNESCO, to award the village last year with a \$15,000 prize for "Safeguarding and Management of Cultural Landscapes."

The canal network has been in place for 2,000 years, with residents continually keeping up the system, said Giovanni Fontana-Antonelli, a local UNESCO official. Because the area is largely untouched by construction, it is still possible to see "the form and the shape of the past generations' work," he said. "In other places you have terraces, but you also have urban sprawl, roads and settlements."

"The wall as projected so far will interfere with this ancient irrigation system by cutting part of the irrigation network," he said of the planned path for Israel's barrier. The integrity of the terraces "will be totally dismantled."

Israel began building the barrier in 2002 in response to a wave of deadly suicide bombings carried out by Palestinians who had entered from the West Bank. Set to stretch 815 kilometers (500 miles), it is about two-thirds complete, according to Shaul Arieli, a retired military officer who now advises the Supreme Court on the barrier.

Israelis say the structure is a main reason for the halt in suicide bombings in recent years. But Palestinians argue it is a pretext for Israel to steal their land.

Nearly 10 percent of the West Bank, which the Palestinians claim for a future state, will lie on the "Israeli" side of the barrier when it is complete. For this reason, construction on several stretches of the barrier have been delayed due to legal appeals.

Battir presents a particular challenge because the village's homes are in the West Bank while the fields are partially in Israel. This anomaly was enshrined in the 1949 cease-fire that ended Israel's war of independence.



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According to current plans, the barrier will run close to the 1949 boundary and leave about 64 hectares (160 acres) of village lands on the Israeli side, according to the Israeli Defense Ministry.

Village council head Akram Bader estimates more than twice that amount of land will end up on the Israeli side. Bader, an architect, used Google Earth and land confiscation orders to calculate the higher figure. He said the Defense Ministry estimate fails to account for the West Bank land that will be gobbled up.

In 2007, Battir sued the state and Defense Ministry, demanding it change the route of the fence to protect the unique farming area.

In the legal documents, Israel claimed Battir is a tempting area for Palestinian attackers to penetrate Israel. The state also insisted on keeping control of a nearby rail line running from Jerusalem to Tel Aviv, built before Israel's independence.

A Defense Ministry official said the barrier's planners have met with Battir's residents and tried to take their concerns into account. He said the barrier will not disrupt farming because an access gate will be open to Battir's farmers three times a day. He spoke on condition of anonymity because of ongoing legal proceedings.

Early this year, Battir suspended a challenge in Israel's Supreme Court so a separate advisory commission, under the Finance Ministry, could consider their request to cancel the expropriation of their farmland and reroute the barrier onto Israeli lands. The committee has not ruled.

In the meantime, defense officials say they plan to begin construction in the coming weeks. Battir's lawyer, Ghiath Nasser, said the village will seek a court order to block construction until the legal process is exhausted.

Palestinians have had mixed results in past court challenges.

Bilin, a village west of Ramallah, initially lost half its land to the barrier. But in 2007, the high court ordered the Israeli government to move Bilin's barrier westward toward Israel. It took three years before the government did so.

Many other villages have failed to change the barrier's path, such as Battir's neighbor Walajeh, where Israel is currently surrounding the village with a wall and fence on all sides.

In Battir, council head Bader said the planned fence will rise a few steps from the walls of the boys' school and slice across the soccer pitch. Besides that, the fence will likely devastate the ancient terracing and irrigation system, Bader said. He said he loses sleep at night with worry.

In early May, Battir inhabitants enjoyed the bounty of a wet winter as water rushed through the irrigation canals.

A man in a white traditional headdress washed his face in a gushing fountain at the village edge.



Boys jumped into a hillside reservoir. Older men and women worked in the fields with antiquated tools.

Retired teacher Elayan Shami, 62, knelt in the soil planting the famous local eggplant, a mottled pink and white variety that ripens in July. Shami tended a small patch on a terrace where a maze of furrows directed the springwater.

"The fence will be a disaster for the water and the plants," Shami said. "It will cut the lands from the people and make us dependent on Israeli and outside markets. This is something no farmer can accept."

"Israel's barrier to cut off ancient irrigation system", 11/05/2012, online at: http://www.telegram.com/article/20120511/NEWS/120519878/1052

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* Water jihads and Moe Howard haircuts

Almost from the dawn of time, water cataclysm has been based on too much of a good thing. Throw that archetype out the window and prepare for historical change — the barren age is upon us. Water wars are coming and even if only a portion of dire predictions pan out regarding pending shortages, the outlook is alarming.

When Noah spread out the first bits of gopher wood for his ark's keel, he was building a monument to cataclysm. (I've no idea if the ark really had a keel.) Every 10 years, without fail, someone claims to have found the ark in the mountains of Turkey — book deals and 15 minutes in the sun. Two years ago, some Korean opportunists "found" the ark and released a series of photos from inside the vessel. The public went wild with anticipation. But the jig was up when one of the photos showed the presence of intact straw, remarkably fresh after thousands of years. The Koreans went into a denial mode that would have made P.T. Barnum and Baghdad Bob proud: "We faked the straw, but not the ark." No word on whatever happened to those Koreans, but safe money says they're preparing for an expedition to Loch Ness.

(For more, see We've found Noah's Ark...)

The flood story, in some form, ranges across religions and cultures. Trek into the bowels of the Amazon and find the latest undiscovered tribe. They may not have clothes or be able to count past three. They may have no alphabet and hunt with sticks. They may hold no concept of hygiene and may be sporting Moe Howard haircuts — but they'll sure have a whopping good flood story.

Almost from the dawn of time, water cataclysm has been based on too much of a good thing. Throw that archetype out the window and prepare for historical change — the barren age is upon us. For 20 years, watchdog groups and government organizations have warned that the glass is half-empty and water wars are coming. Even if only a portion of their statistics pan out regarding pending shortages, the outlook is alarming.

A 2011 National Intelligence Estimate report on water security, requested by the U.S. Department of State, said that the use of water as a weapon of war, or a means of terrorism will be increasingly likely beyond 2022. And what locations did the report specify? You guessed it: North Africa, the Middle East, and South Asia. (Arabian dictators are scrambling to update "Reasons to attack neighbor" lists: border disputes, jihad, Jews, oil ... and now water.)

The UN projects that 30 countries will be "water scarce" by 2025. Eighteen of the 30 are located in the Middle East or North Africa, including the usual suspects: Egypt, Israel, Somalia, Libya and Yemen. Piling on, the UN also predicts that over the next 20 years, the world's per capita water supply will drop by a depressing third — with the worst strain in the above regions.



PLoS ONE, in a recent report, found that water scarcity affects 2.7 billion people for at least one month per year. The numbers are alarming — and climbing. Skeptics may scoff, but very soon at a minimum, water scarcity will be threatening the failure of failing states.

Water concerns are no longer theoretical — even in the U.S. Once viewed as infinite, the U.S. water supply is tightly wound around politics, agriculture and energy. California has become the poster-child for American water conflicts, with drought, water storage issues and environmental lawsuits ensuring that the problem will be around for decades to come. California farmers, despite bringing in \$40 billion for the state's economy each year, face increasing cutbacks and uncertainty.

In the Southwest, an area ravaged by historical drought, tempers have flared over an International Boundary and Water Commission plan releasing Rio Grande water to Mexico earlier than usual. Texas and New Mexico are desperate for every drop of water in the barrel.

Even in the Mississippi Delta, water change is coming. The Mississippi River may move at 100,000 cubic feet per second, but that copious flow masks a growing problem: The Delta's water supply is no longer sustainable. Agricultural producers pump out 1.5 million acre feet from the aquifer yearly; through natural means, the aquifer is replenished with 1.2 million acre feet per year. The days of a limitless aquifer are no more.

There's a brave new water world just around the bend, and it pays to be a nation sitting upstream. Water is the new oil — and the jihadis will soon be lining up to try and dump your portion on the ground.

"Water jihads and Moe Howard haircuts", Chris Bennett, 08/05/2012, online at: <u>http://westernfarmpress.com/blog/water-jihads-and-moe-howard-haircuts</u>

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* India Seeks Israeli Technology to Clean Ganges River

NEW DELHI, India, May 7, 2012 (ENS) - India is considering integrating Israeli water technologies into a national initiative to clean up the polluted Ganges River, which provides water for 40 percent of India's population in 11 states through which it flows.

Indian engineers, scientists and officials from water technology companies visited Israel late last month to explore the possibilities.

The cooperative effort to clean India's holiest river has its source in a water technology cooperation agreement signed by officials of the two countries during the visit of India's Minister of Urban Planning Kamal Nath to Israel in February.

Minister Nath's visit came at the invitation of Israel's Minister of Industry, Trade and Labour Shalom Simhon. The water technology agreement was signed between D. Diptivilasa, India's deputy minister of urban planning and Boaz Hirsch, deputy director of Israel's Ministry of Industry, Trade and Labour.

Under the Joint Declaration, an India-Israel Working Group will be created with the objective of long-term planning, development, improvement and sharing of technology related to water, waste water and sewage management.

The Working Group will discuss the possibility of a demonstration project, a pilot study and the establishment of commercial demonstration centers for clean water technologies, solid waste management and the treatmen industrial effluents treatment

The centers would serve as platforms for presenting innovative technologies addressing the clean water India faces, such as a water quality standard for drinking water, the treatment of wastewater and the re-use of treated wastewater.

"In India there is a great need for extensive solutions in a variety of fields - from desalination to wastewater treatment, from water efficiency to water creation. Israel's innovative water industry is able to offer solutions to many of these needs," said Oded Distel, head of Israel NewTech, a national program led by the Ministry of Industry, Trade and Labour.

One of the NewTech's goals is increasing Israeli exports in the water and alternative energy sectors.

Distel said, "The agreement that was signed will open the door for more in depth cooperation, including joint pilot projects and more."

India is urbanizing rapidly, which increases the need for water solutions, and also increases the resources available to create solutions.



Minister Nath said Israeli companies already have completed successful water projects in India, such as India's largest desalination plant constructed in Jamnagar, Gujarat by IDE Technologies.

Earlier this year, the Israeli water purification company Aqwise won a huge project to purify water the Yamuna River to serve the more than two million inhabitants of the city of Agra, where the Taj Mahal is located, with clean drinking water.

The visit of Indian water experts to Israel follows months of planning by India's Environment and Forest Ministry to establish a large-scale integrated program to clean up the polluted Ganges.

Visiting Tel Aviv in March, Indian Institute of Technology Kanpur's Professor Vinod Tare told the "Jerusalem Post" that the Ganges cleanup project is expected to take from 25 to 30 years and cost some US\$20 billion.

In partnership with India's Environment and Forest Ministry, teams from seven institutes, including Professor Tare's, are creating a plan for the river's environmental management.

They hope to ensure the continuous flow of unpolluted waters with zero discharge and recycling of wastewater from its headwaters at the Gangotri Glacier in the Himalayas to the Bay of Bengal.

The livelihoods of an estimated 500 million people in India are dependent upon the river, and one-third of India's population lives within the Ganges Basin.

Concerned about the deteriorating condition of the Ganges, religious and environmental leaders have been campaigning for a comprehensive cleanup of the river for years, using hunger strikes and public meetings to influence the government.

On May 4, environmentalist Swami Gyan Swarup Sanand, 80, who has been fasting without water to press for his demand for Ganges conservation, was again admitted to hospital in Varanasi. The activist taken to hospital by police after his medical report showed deteriorating health.

The environmentalist, formerly known as Dr. G.D. Agrawal, began his third fast without water on May 2, demanding the shut down of hydroelectric dam projects on the river.

The Indian Council for Enviro-Legal Action, or ICELA, says the Ganges is in danger from dams proposed for the stretch of river between Gangotri and Tehri.

"These dams will not only severely impede the flow of the Ganga, but will also have cascading effects on the livelihoods of the adjacent human communities and the biodiversity and stability of the surrounding natural ecosystems," warns the group, which is headed by prominent environmental scientists and attorneys.

"The submergence of land surrounding the Ganges will contribute lost habitat, hunting, and agricultural grounds. There is also danger posed to downstream communities from sudden high water levels when water is released from the dam, causing flash-flood like situations," said ICELA. "In



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addition to these detriments, the loss of the Ganga will cause significant harm to the culture and identity of communities near the Ganges and India as a whole."

As the climate warms and Himalayan glaciers retreat, the Ganges will receive less and less glacial runoff, ICELA warns, citing a United Nations 2007 Climate Change Report suggesting that glacial flow may stop by 2030. At that point the Ganges would be reduced to a seasonal river that flows only during the monsoon season.

All along the Ganges, industries are dumping massive amounts of pollutants directly into the river, says ICELA, and wastewater from riverside communities runs into the water untreated.

"Though the Ganges is known for its self-purifying properties," ICELA says, the sheer volume of pollutants released into the river every day is causing "irreparable damage to the ecosystem."

"India Seeks Israeli Technology to Clean Ganges River", 07/05/2012, online at: <u>http://www.ens-newswire.com/ens/may2012/2012-05-07-02.html</u>

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Mullaperiyar dam: it's our science versus your science now

Two Kerala ministers, PJ Joseph and KM Mani, will not believe anybody but themselves on the safety of the <u>Mullaperiyar dam</u> and seem to be extremely sure of their knowledge on the issue, its engineering and the scientific studies commissioned by the state government.

It is not surprising that they don't care much for the report of the empowered committee which was asked to study the safety of the dam by the Supreme Court. Neither do they care much for the call for restraint by the Congress leaders in the state.

They, along with many others, think the report is one-sided and favours Tamil Nadu and the state should push ahead with a new dam although the issue is still pending in the Supreme Court and supporting the Kerala Congress ministers is the opportunistic opposition.

The mullaperiyar dam.Image from Jayeshj at ml.wikipedia

Opposition leader VS Achuthanandan slammed the report for being one-sided while former water resources minister MK Premachandran said the report appeared tailor-made for Tamil Nadu, and had inaccuracies – factual, legal and technical.

Joseph was the first to react to the report and part of his intemperate charges were aimed at former Supreme Court judge, Justice KT Thomas, who was Kerala's representative in the five-member empowered committee.

Joseph, who is known more for his dramatic statements on the dam than the performance of his water resources ministry, criticised Thomas for not standing by Kerala, despite being its nominee, and the reports of the IITs in Rourkee and Delhi.

Although they didn't say this in as many words, the stand by Joseph and Premachandran appeared to be that Thomas, as a nominee of the state, should have got a report that favoured Kerala.

Joseph's remarks were followed by dam-protestors headed by a Christian priest leading a march to the the residence of Thomas. Thomas was upset and said he would complain to the Supreme Court against Joseph.

If the Supreme Court thought that an expert committee, headed by former Chief Justice AS Anand, competent technical experts and members of the two states would be an impartial and scientific approach to settle the nagging issue legally; the aftermath of the report shows that politics doesn't see reason or science.

Unless the state gets a report that supports the dominant opinion in Kerala and that of the Kerala Congress, the issue cannot be laid to rest. And Tamil Nadu will never let it happen. (Kerala Congress, for the uninitiated, is not the Kerala unit of the Indian National Congress, but a highly influential local outfit dominated by the Syrian Christian community of the hill belt.)



Despite the political compulsions and pressure from the Kerala Congress, the Congress exercised considerable restraint and asked people not to stoke passion afresh. The dam had created a lot of bad blood between the people of the neighbouring states, which even led to attacks, counter-attacks and an economic blockade.

The Congress appeared to have consciously taken a stand, at least for now, not to give in to the Kerala Congress, which is a frequent source of political blackmail for the party. Those who spoke for the party stood by KT Thomas and called for restraint.

The president of the Kerala Pradesh Congress Committee (KPCC) Ramesh Chennithala said the state should argue its case in the Supreme Court and look for favourable points within the expert committee report. Kerala can, in fact, argue for a new dam based on the report.

State electricity minister Arayadan Mohammed, another senior Congress leader, although disagreed with the report, supported the stand taken by Justice Thomas. Chief Minister Oomen Chandy refused to comment. It's clear that the Congress is not with the Kerala Congress on the report.

Tamil Nadu, on the other hand, didn't have any major comments except a sense of vindication.

<u>Mullaperiyar</u> is the most sensitive political issue that pits people and politicians in Kerala and Tamil Nadu against each other. The dam is 116 years old and the spat on its safety, fueled by provincial nationalism in both the states has been raging for more than 30 years.

The present spate of judicial interventions started in 2006 when the Supreme Court ordered raising of the level of the water in the dam from 136ft to 142ft; but Kerala, through a legislation in the assembly blocked it.

Tamil Nadu went to court against it, and in 2010, the Supreme Court left it to an empowered committee to conduct various safety studies and apprise the court. The committee has now said that the dam is safe, which the Kerala Congress and the opposition say is against its interest of the state and is unacceptable.

In two months, the Supreme Court will take a call on the issue after examining the report and hearing the arguments of both the states. Kerala can make all its arguments in the court and try to win its case.

Will it settle the issue?

Not likely. Kerala will not back out unless it gets the decision it wants – they want to hear that the dam is unsafe and they can build a new dam.

And Tamil Nadu wants to hear that the dam is absolutely safe and that there is no need for a new dam.



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Interestingly, the empowered committee's report is based on scientific studies by national institutions. But Kerala doesn't buy the committee's science because it has its own science – studies conducted by IITs in Rourkee and Delhi.

When politics, statecraft and law couldn't solve the issue, many thought science might. But that has now led to an argument between "our science" vs "your science".

Obviously, one appears bad and slanted while the other is too good.

Perhaps the only way for both the states is to agree, rather philosophically, is that there is more than one right answer.

"Mullaperiyar dam: it's our science versus your science now", 08/05/2012, online at: http://www.firstpost.com/politics/mullaperiyar-dam-its-our-science-versus-your-science-now-302391.html

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Pakistan's Climate Change Challenge

Last month, an avalanche on the Siachen glacier in Kashmir killed 124 Pakistani soldiers and 11 civilians. The tragedy has intensified debate about the logic of stationing Pakistani and Indian troops on such inhospitable terrain. And it has also brought attention to Pakistan's environmental insecurity.

Siachen is rife with glacial melt; one study concludes the icy peak has retreated nearly two kilometers in less than 20 years. It has also been described as "the world's highest waste dump." Much of this waste-generated from soldiers' food, fuel, and equipment-eventually finds its way to the Indus River Basin, Pakistan's chief water source.

Siachen, in fact, serves as a microcosm of Pakistan's environmental troubles. The nation experiencesrecord-breaking temperatures, torrential rains (nearly 60 percent of Pakistan's annual rainfall comes from monsoons), drought, and glacial melt (Pakistan's United Nations representative, Hussain Haroon, contends that glacial recession on Pakistani mountains has increased by 23 percent over the past decade). Experts estimate that about a quarter of Pakistan's land area and half of its population are vulnerable to climate change-related disasters, and several weeks ago Sindh's environment minister said that millions of people across the province face "acute environmental threats."

The last two years have provided ample proof of Pakistan's climate-change vulnerability. According to climatologists, the devastating floods of 2010-which submerged a fifth of the country and displaced millions-constituted "the worst natural disaster to date attributable to climate change" (a judgment rendered in 2010). They argued that a combination of high temperatures in the Atlantic Ocean and lower ones in the Pacific "created the perfect conditions" for the deluge. The floods' destructiveness was exacerbated by Pakistan's rampant deforestation. UN data and Pakistani media reports paint an alarming picture of this emissions-releasing scourge: Pakistan suffers from the highest annual rate of deforestation in Asia (the nation lost 33 percent of its forest cover between 1990 and 2010), with barely 2 percent of the country's total area remaining forested today. One of the prime perpetrators is the Pakistani Taliban, which has long recognized the revenue-generating potential of logging. During its rule over Swat in northern Pakistan, the Taliban's timber sales eliminated up to 15 percent of the picturesque region's forest cover. Separately, back in the 1990s, wealthy landowners in Sindh ordered laborers to clear forestland for crop cultivation; one small village alone lost 10,000 acres of forest. In both Swat and Sindh, the loss of forestland has facilitated riverbank erosion and deprived the country of a natural bulwark against raging floodwaters.

The next year brought another climate-related disaster: record-setting monsoon rains. Though they produced less destruction and garnered less media attention than the preceding year's floods, <u>nearly</u> <u>nine million people were affected</u> and <u>more than a million homes damaged or destroyed</u>. September 2011 <u>witnessed the most rain ever recorded in southern Pakistan</u>, with monsoon amounts 1,170 percent above normal. Deforestation once again made matters worse. Torrential rains



swept away illegally cut logs, with the timber eventually coming to rest under small bridges, blocking the flow of rainwater and diverting it toward populated areas.

Pakistan's environmental insecurity is not merely a matter of nasty weather. In three specific ways, it also threatens the country's fragile stability.

First, climate change vulnerability risks inflaming relations with India. Some Pakistani hardliners<u>accuse</u> their upper riparian neighbor of contributing to the flooding that has ravaged their country in recent years. India, they allege, manipulates Indus Basin river flows so that water gushes downstream into lower riparian Pakistan. "Liberating" India-held Jammu and Kashmir, they argue, is the only way to stop India's hydro machinations. Given the warming trend in Pakistan-India ties over the last year, such rhetoric-produced by an admittedly small minority-is not presently a major concern. However, with flood-exacerbating glacial melt well underway, and with anti-India sentiment becoming more vociferous thanks to the emergence of the Difa-e-Pakistan Council, or DPC (a new political movement of militant organizations and conservative religious parties), the relationship could in time be put to the test.

This scenario becomes even more likely if Pakistan's next national election brings to power a more conservative governing coalition that is willing to trumpet the DPC's aggressive views on water-which accuse India not only of flooding Pakistan with the resource, but also of withholding it. At a DPC rally in February, one of the movement's most notorious spokespersons, Hafiz Saeed (leader of the extremist outfit Lashkar-e-Taiba), **thundered** that India was preventing water from flowing into Pakistan.

Second, environmental stress could deepen Pakistan's urban violence. Karachi is often convulsed by such strife, and much of it arises from fierce competition over precious land. Yet Karachi-a coastal, low-lying metropolis-is vulnerable to flooding, cyclones, and other climate-related phenomena that could easily wipe out vast swaths of the city's heavily contested real estate. This means the land that remains could become even more precious, thereby raising the stakes for the city's fighting factions and likely increasing violence. Additionally, many impoverished farmers and fishermen, their livelihoods shattered by water shortages, **have migrated to cities**. Pakistan's government is **woefully unprepared** to meet the soaring demand for basic services and natural resources sparked by this influx of migrants. Such privation, over time, could increase poverty and joblessness, breed anger, and spark more urban unrest.

Third, and perhaps most troubling, Pakistan's environmental insecurity imperils nuclear security. The fear here is not of militants seizing nuclear weapons, but rather of the nation experiencing the type of disaster that befell Japan's Fukushima nuclear plant last year. The Karachi Nuclear Power Plant (KANUPP) sits not only in a flood- and storm-prone area, but also in one of the most densely populated parts of the country. In fact, a <u>study</u> released by the journal *Nature* and Columbia University this spring concludes that more than eight million people live within 30 kilometers of KANUPP-the largest such figure for any nuclear facility in the world. Nuclear physicist Pervez



Hoodbhoy <u>describes</u> the 40-year-old KANUUP as a "chronically incontinent" reactor that frequently leaks heavy water. Given the combination of a dysfunctional plant, a large surrounding population, and Pakistan's poor emergency-response capabilities, the consequences of a tsunami or cyclone strike on or near KANUUP could be truly catastrophic. Hoodbhoy <u>predicts</u> not only the release of deadly radioactivity, but also clogged roads, a collapse of vital services, and Karachi-Pakistan's financial capital-taken over by "looters and criminals."

To its credit, Islamabad does not ignore the country's environmental threats. Back in 2002, the Global Change Impact Study Center was formed to undertake climate change research and to advise policymakers and planners on climate issues. In 2005, the government established a Committee on Climate Change (overseen by the prime minister). And in 2010, a task force set up by the Planning Commission issued a report on climate change impacts in Pakistan, which prompted the Ministry of National Disaster Management to fashion a National Climate Change Policy and Action Plan. This strategy was **approved in principle** by Pakistan's cabinet in March.

Pakistanis have also implemented adaptation and resource-conservation measures. For instance, a new Aga Khan University building in Karachi **plans** to use stormwater harvesting for plant-watering and wastewater re-use for fountains, fire control, and toilets. Meanwhile, to commemorate Earth Day last month, Karachi officials **announced** a project to plant 5,000 trees.

Pakistan must do much more to address its climate challenges, which are daunting. Still, while the country is powerless to stop glacial melt or fend off tsunamis, it can nonetheless blunt some of their effects. This can be done by passing more stringent laws on deforestation, repairing leaky and dilapidated dams and canals, and establishing more robust disaster risk reduction mechanisms.

A former Pakistani environment minister has **projected** that climate change effects could cost Pakistan's economy up to \$14 billion per year. Given the inevitability of global warming, Pakistan will undoubtedly be saddled with some of these debts. Yet by taking steps to manage, and reduce, the impacts of climate change, Pakistan can be spared some of these costs-not to mention some of the death and destruction visited on the country by an angry and abused environment.

"Pakistan's Climate Change Challenge", *Michael Kugelman, AfPak Channel*, 11/05/2012, online at: http://afpak.foreignpolicy.com/posts/2012/05/09/pakistans_climate_change_challenge

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* No study 'conclusive' on dam effects in NE: govt

No conclusive study on the non-suitability of construction of large dams in the Northeast region has come to the notice of the ministry, Jayanthi Natarajan, minister of state in the environment and forests ministry told the Rajya Sabha in response to a question by Kumar Deepak Das, member of Parliament.

In the last three years, the ministry had given the environmental go-ahead to 165 power projects in the northeast region while 143 power projects were given forest clearance, the minister added.

"Representations against construction of hydro power projects in the Northeast region have been received by the government. These relate to safety of dams and downstream impact," Natarajan added.

Hydropower projects are increasingly becoming an emotive issue in Assam and Arunachal Pradesh with locals protesting against a network of about 168 dams being planned across rivers in Arunachal aiming at generation of more than 63,300 MW of power.

Reportedly, the network is being built in brazen disregard for environmental, seismic, socioeconomic and cultural issues.

"Till date, no cumulative impact study has been done even as dam building continues in the most seismically volatile region on earth. Till a seismic, environmental, socio-economic cost benefit analysis is done, our opposition will continue," said Akhil Gogoi, leader of the Krishak Mukti Sangram Samiti, which is leading the anti-dam movement in Assam.

In seismic terms, Arunachal Pradesh lies in the Very High Damage Risk Zone, having seen 87 major and minor quakes in 67 years (1929-1993).

The hilly state, with a population of about 14 lakh, is commonly seen as one of the last pristine zones of the country with a population density of just 17 persons per square km.

"These are traditional lands, the public has to be consulted first. If there is no conclusive study why are you giving clearances?" asked Jaaddik Tali, president, Voluntary Arunachal Sennaa, a leading anti-dam group in the hilly state.

HT had earlier reported how from 2005 to January 2012, the Arunachal Pradesh government had already collected Rs. 1,333 crore as upfront premium and processing fees for the hydropower projects

"No study 'conclusive' on dam effects in NE: govt", 08/05/2012, online at: <u>http://www.hindustantimes.com/India-news/NewDelhi/No-study-conclusive-on-dam-effects-in-NE-govt/Article1-852715.aspx</u>

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***** With dwindling resources, experts say Egypt must look beyond the Nile

As Nile resources dwindle and Egypt's population rises, groundwater could form an important part of a strategy to cope with an expected sharp increase in demand for water, experts say.

With an estimated 55 million more people by 2050, and continuous challenges from countries upriver to Egypt's Nile use rights, experts say the vast underground aquifers in the Western Desert and other regions could buffer against future water stress, as well as alleviate effects of climate change in the coming years.

"Groundwater has been an invisible resource, with many uncertainties in the parameters and factors affecting its ability to be used," said Amr Abdel-Megeed, the regional water specialist at the Center for Environment and Development for the Arab Region and Europe (CEDARE).

As Egypt faces further water stress, Abdel-Megeed says, the government will have to diversify its water sources beyond the Nile.

"Groundwater is already part of the plan, but there's also treated wastewater and desalination that will have to be utilized," he said.

Egypt shares access to one of the world's largest fossil water reserves. The vast Nubian Sandstone Aquifer system spans across Sudan, Chad, Libya and Egypt, and reaches Sinai and southern Israel to the northeast.

A non-renewable resource, the aquifer is composed of fossil water that was accumulated over thousands of years and has received no recharge water for the last 4,000 years. Its resources feed the New Valley agriculture projects at Kharga, Dakhla, Farafra and Bahareya.

Egypt also has other aquifers in the Eastern Desert and Sinai, the Nile Basin, the Mediterranean coastal zones and Wadi al-Natrun.

While some experts estimate that the aquifer could support current usage for hundreds of years, Abdel-Megeed urges caution.

"This sources aquifer is non-renewable, so any exploitation, over-exploitation or mis-utilization affects the reserves," he said, adding that there must be "rational utilization" that avoids using the water for agriculture, unless it is for high-value, low water-consuming crops.

In the last 50 years, various government programs have resettled millions of Delta and Nile Valley farmers, university graduates and state employees whose companies have been privatized into the reclaimed desert farming communities in the Sahara.

Such desert plots now account for about 25 percent of the country's agricultural land, according to the American University in Cairo's Desert Development Center. These settlements rely on groundwater to irrigate their fields.



The resource is already dwindling. Wells that relied on natural springs have now installed pumps to help bring the water to surface.

"The big projects started in the 1960s in Egypt and in the 1970s in Libya affected the water that had been naturally flowing in the surrounding oases," said Abdel-Megeed, adding that "with big projects that started, the level of groundwater has been drawn down so that now people use pumps over the springs to draw water up."

Facing growing pressure from Nile Basin countries to renegotiate the 1959 colonial-era treaty that gave Egypt rights to most of the Nile's resources, some experts warn that similar allocation issues could occur over the Nubian Sandstone Aquifer in the future.

According to Sameh S. Ahmed, a professor of environmental engineering at King Saud University in Saudi Arabia, it's likely in the next two decades that Egypt, Chad, Libya and Sudan will have to create an agreement over usage rights of the aquifer.

"There is a need for an agreement in form of convention [or] treaty between the four countries similar to what is used in distribution of the Nile," he said.

The governments are already cooperating on research. The Joint Authority for the Study and Development of the Nubian Sandstone is working to create cooperation strategies and raise money for research projects.

The authority, which consists of government representatives from each country, is working with CEDARE to develop a regional strategy on groundwater.

Last month, researchers from the British Geological Survey and University College London published an article in the journal Environmental Research Letters that mapped, for the first time, the aquifers across the continent and the amount they hold.

"The largest groundwater volumes are found in the large sedimentary aquifers in the North African countries Libya, Algeria, Egypt and Sudan," the scientists said in their paper.

They estimate that reserves of groundwater across the continent are 100 times the amount found on its surface, or 0.66 million cubic kilometers.

But Stephen Foster, a groundwater expert at the Global Water Partnership who sat on the steering committee for the paper, said that groundwater is no cure-all for the continent's water needs.

"Utilizing groundwater is more a question of investing and good planning than an absolute resource," he said, adding that "small sources available at moderate depths, or small supplies in urban areas [should be considered] ... but if you jump onto big demands of large-scale agriculture, it will requires both high-yielding wells and good replenishment, otherwise the storage won't last many years."

The study makes no claim toward the quality of the water available, and instead urges that the information be used as tool at a national and regional level to create "more realistic assessments of



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water security and water stress," as well as to promote further quantitative research into the mapping of groundwater resources.

According to Foster, there needs to be better awareness among decision makers and development groups regarding the potential value of groundwater across the continent.

Abdel-Megeed agrees.

"Awareness is needed in some government offices, agriculture and investment sectors as well as housing sectors need to understand the limitations," he said.

"With dwindling resources, experts say Egypt must look beyond the Nile", Egypt Independent, 10/05/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=4960

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Solution Egypt will need almost 50 per cent more Nile water by 2050: Experts

A future Egyptian population of 150 million will need a greater share of Africa's longest river to meet their needs, claim planning experts

Egypt will need nearly 50 per cent more Nile water by 2050 to cater for an estimated population of 150 million people, according to experts at Egypt's National Planning Institute. Speaking to the state-run Al-Ahram newspaper, the institute's director said Egypt will require an extra 21 billion cubic metres (bcm) of water per year from Africa's longest river to meet the needs of industry, agriculture and households in 40 years' time.

Egypt is currently entitled to 55 bcm of the Nile's total annual flow of around 84 bmc under a treaty with the eight other countries which share the river basin.

Fadya Abdel-Salam, director of the NPI, said that if Egypt's current share of the Nile remains the same, by 2050 each Egyptian will have a Nile "stake" of 400 cubic metres in the river's waters -- well below the global water poverty index of 1,000 cubic metres.

Should the Nile's total flow remain constant, Egypt will eventually need some 92 per cent of the 6,695 kilometre-long river's waters, according to NPI's estimate.

Official statistics last week showed that Egypt's population is 82 million, with eight million other citizens living abroad.

NPI's research estimates that Egypt's industrial and agricultural needs will rise by 2050 to 10.5 bcm and 10.4 bcm, respectively.

According to the UN's Food and Agriculture Organization, Egypt's water resources are limited to the Nile River, deep ground water in the Delta, the Western Deserts and Sinai, sporadic rainfall and flash floods.

Agriculture accounts for 85 per cent of water demand, while domestic and industrial use makes up 8 and 6 per cent respectively. The remaining one per cent is used in navigation and hydropower.

In March 2011, Ethiopia said it planned to build a dam on the Nile despite a long-running row with Egypt over use of the river.

Egypt is a member in the Nile Basin Initiative (NBI), a partnership among Nile states aimed at sharing the river's socio-economic benefits and promoting regional security.

Nine countries are involved in the initiative: Egypt, Sudan, Ethiopia, Uganda, Kenya, Tanzania, Burundi, Rwanda and the Democratic Republic of Congo

"Egypt will need almost 50 per cent more Nile water by 2050: Experts", 07/05/2012, online at: http://english.ahram.org.eg/NewsContent/3/12/41114/Business/Economy/Egypt-will-need-almost--per-cent-more-Nilewater-b.aspx?utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=db0134c8ee-RSS_EMAIL_CAMPAIGN&utm_medium=email

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* 'Kenya: Saved by Borehole 11

Northern Kenya is generally hot and dry. The people of Northern Kenya are mostly pastoralists and living in dry harsh terrains. Our network member **Mary Mwendwa** has been there. She now takes us on an exploratory journey of the dry and dusty drought-ridden plains of North Eastern Kenya in search of water.

Women and children carrying jerry cans on their backs, donkeys with water on their backs, flocks of cattle, goats and camels are just some of the regular images one sees along the dusty and dry roads of a village town – Elwak, located in the North Eastern province of Kenya, Mandera Central District.

No tarmac road exists here; it's a rough terrain with dust and bushy thorny plantations which are drought resistant,

A community known for its nomadic lifestyle and pastoralism, the harsh climatic conditions here of scotching heat and no rainfall has left many residents in need of water.

This precious commodity is shared amongst the people and their livestock which is part of them. People here belong to the Garre community who speak both Somali and Borana language and are Muslims by religion.

Drought and famine here are so severe to a level that people and livestock lose life and children get malnourished as the situation worsens.

Last year's drought was a bad one; they lost lots of livestock, having no place to take their livestock as their neighbor Somalia was in the same situation.

Claudio Siotum, the livestock officer in the District, shortage of water and pasture is the main problem facing people here, it gets worse when there is drought and people start feeding their cows on cotton paper mixed with sugar and some water.

"Rainfall here is never our vocabulary, two years can pass without a single drop of rainfall", says Halima Boru, a mother of four aged 32 who has lived here her entire life.

A region close to the porous Somalia border seven kilometers away from Somalia. Life here is never a bed of roses. People walk for so many kilometers to get access to clean water. Amaney Fatuma, a teenage girl here walks for seven kilometers every day to get to a borehole that serves the entire community.

Borehole 11 –As they call it, is just a savior to the people here, the wells they have dug in their villages produce saline water and only borehole 11 has clean and sweet water." Maji Tamu" loosely translated in English "sweet water". This borehole was constructed with the help of Kenya Red Cross Society.

"Kenya: Saved by Borehole 11", Mary Mwendwa, 08/05/2012, online at: http://waterjournalistsafrica.wordpress.com/2012/05/08/kenya-saved-by-borehole-11/

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Uganda: Researchers Use Fruit Seeds to Purify Water

Researchers at Makerere University – Uganda's oldest university are studying how to use fruit seeds to purify water.

Robert Natumanya, from Makerere University College of Agricultural and Environmental Sciences (MUCASES) is at the forefront of a research to enhance water purification by embracing green technology of using moringa, jackfruit and java plum (jambula) seeds.

He says Makerere University funded this two year water purification research to the tune of US\$ 5, 000.

The research aims at addressing the problem of lack of access to clean and safe drinking water.

According to Natumanya, after the final phase of the findings, they will disseminate the results.

He says there are plans to develop a kit from these findings so that it can be used at household levels, especially in rural areas where it can be cheap and easily available.

"We are trying to package the research findings so that we can make it available to people," he adds.

Natumanya says "moringa seeds powder can remove 80-90% of dirtiness in water."

He stresses that jackfruit seeds are better because of their medicinal property.

Natumanya says already Java plum seeds are used traditionally in Sudan to purify water, adding that all seeds have the ability to do so but this depends on protein content they have.

He explains that mature seeds are harvested, dried well to maintain their chemical nature, grounded to powder level and then extractions are made.

Solvents like distilled water and saline (salt solution) are mixed with the powder, filtered and a seed extract is gotten.

Natumanya further says that this green technology is easy because "plant materials are available in our homes."

According to the College's website, the technology is to be tested for another year to ensure its safety after which researchers will come up with recommendations on the usage and packaging.

Uganda's water body, the National Water and Sewerage Corporation covers only 60%, living the 40% of the population without access to piped water.

"Uganda: Researchers Use Fruit Seeds to Purify Water", 08/05/2012, online at: <u>http://waterjournalistsafrica.wordpress.com/2012/05/08/uganda-researchers-use-fruit-seeds-to-purify-water/</u>

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* Focus on energy efficiency at Oman Power and Water Summit

MUSCAT — Oman Power and Water Summit, the signature annual forum of the Sultanate's rapidly expanding utility sector, began on Sunday, featuring case studies and discussions on strategies and policies implemented in Oman, Ireland, United Arab Emirates and Jordan to improve energy efficiency and enhance power and water assets operational performance.

Chairing the focus day dedicated to energy efficiency, Qais al Zakwani, Deputy Executive Director, Authority for Electricity Regulation — Oman, opened the session by outlining the regulator's policy and objectives in promoting energy efficiency initiatives in the Sultanate.

Now in its second year, the Summit has been endorsed by all of the major authorities in the industry, including the Public Authority for Electricity and Water, Ministry of Regional Municipalities and Water Resources, Authority for Electricity Regulation — Oman, Electricity Holding Company, Oman Power and Water Procurement Company and Rural Areas Electricity Company. More than 350 delegates from Oman and abroad are attending the 4-day summit at the Grand Hyatt Muscat. Key issues in the power and water sector such as energy efficiency, sustainable power generation and water desalination capacity, renewable energy, optimization of asset performance, cost reduction, rationalisation of energy consumption, and the security and quality of the electricity and water system are being discussed by regional and international experts and Oman power and water sector's stakeholders.

Inaugurating the main conference on May 7, Mohammed bin Abdullah al Mahrouqi, Chairman, Public Authority for Electricity and Water delivered the keynote address outlining the Authority's strategies and objectives to support the growth of the power and water industry. Al Mahrouqi stated: "Improving energy efficiency is one of PAEW's key objectives, we hope that the second edition of the Oman Power and Water Summit will allow even more local and international industry experts to share their ideas on optimising the use of electricity and water resources and enhancing energy efficiency. We look forward to hearing about policies and strategies implemented abroad that we can learn from and use to adapt best practices to respond to our country's needs."

"With an increasing turnout from across the power and water industry, this forum provides year-onyear an unrivalled setting for the industry's authorities to engage with all the public and private stakeholders and explore new possibilities to improve the performance and efficiency of the Sultanate's power and water sector," added Rozenn Cornec, Divisional Director — Oman at IQPC Middle East.

Commenting on the conference opening, C J Paul, General Manager of Global Exhibitions and Conferences LLC (GEC), said: "As the premier platform for the power and water sector, this industry forum plays a vital role in setting the agenda for this sector's sustainable growth at a time of unprecedented demand growth.

By enlisting the best industry minds to present on cutting-edge issues, such forum is indispensable to the goal of finding the right solutions to the sector's increasingly formidable challenges."



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A number of prominent local and international solutions and service providers are participating in the Summit as sponsors and exhibitors, including Wartsila, Towell Engineering, Siemens, International Power GDF-Suez, STOMO, UTICO, ACWA, Abener Abengoa, Power Economy Middle East, Oman Cables Industry, Modern Water, TERRA NEX Financial Engineering, TORAY, Sogex Oman, Future Pipe Industries, Larsen & Toubro Oman, Saint Gobain, Al Dastoor Trading & Contracting, Giza Systems and Al Wasail Industrial Company.

"Focus on energy efficiency at Oman Power and Water Summit", 08/05/2012, online at: <u>http://main.omanobserver.om/node/94101</u>

ВАСК ТО ТОР



* Xayaburi dam may have the Mekong boiling over

The Mekong could become a river of conflict if countries, notably those in the lower basin, fail to find an effective mechanism to balance demand with the resources available.

Laos's controversial plan to build a hydropower dam in the mainstream of the mighty river has ignited a new dispute among riparian states as countries downstream are worried about the consequence it would have on the environment and people's livelihood.

The Xayaburi Dam will be built in mainstream Mekong, approximately 150 kilometres downstream of Luang Prabang, and will have an installed capacity of 1,280MW, most of which would be exported to Thailand. This 810-metre long, 32m-high concrete structure is one of the many dams in mainstream Mekong that Laos plans to build and some will be done as joint ventures with Thailand.

Cambodian Resource and Meteorology Minister Lim Kean Hor sent a letter to Vientiane late last month asking for the project to be delayed until a comprehensive study of the environmental impact is completed.

If Laos goes ahead with the construction, he said it would violate the trust and goodwill of Mekong countries.

People who live along the Mekong River's right bank in eight Thai provinces are strongly opposed to the dam and are calling on Laos to pay heed to their concerns.

Thailand, Laos, Cambodia and Vietnam - the four countries in the Lower Mekong Basin - signed a pact in April 1995 to work together for the sustainable development of the region. It was under this agreement that the Mekong River Commission (MRC) was created to help coordinate and oversee the correct utilisation of the river.

Articles 5, 6 and 26 of the 1995 agreement have clear rules about the utilisation of water in the mainstream body of the river during the wet and dry seasons, as well as the diversion of water from the Mekong.

If the huge Xayaburi dam is built to block the river, it will first need to comply with paragraph B of Article 5, which requires Laos - as a user of the Mekong River - to have "prior consultation which aims at arriving at an agreement by the joint committee". In other words, Laos needs permission from other members of the MRC to build the dam.

According to Laos Vice Minister of Energy and Mines Viraphonh Viravong, however, Vientiane did consult the joint committee last year and, therefore, has the right to continue with the project. He added that Laos had not breached the 1995 pact and had complied with all the regulations.

However, downstream MRC members are not satisfied with the project assessment because they believe the dam will pose a threat to fish migration, navigation and the sedimentation of the Mekong River.



Fish means food for riparian communities, while sedimentation is badly needed in downstream countries to fertilise their crops.

Yet, Viravong insists the Xayaburi is an environmentally friendly dam, offering ladders for migrating fish, gates for the passage of boats and a flushing system to release sediment downstream.

However, these features are not enough to make downstream countries feel confident about the dam, and they are calling on the MRC to conduct detailed studies on the environmental impact. The MRC has said it will conduct the study this year, but it may not have specific answers for this particular dam.

Viravong, meanwhile, insists that Laos has already conducted detailed studies on the dam's environmental impact and is ready to redesign it so it has a minimum impact on downstream countries, yet locals down the river are still saying no.

"Xayaburi dam may have the Mekong boiling over", 09/05/2012, online at: <u>http://www.nationmultimedia.com/politics/Xayaburi-dam-may-have-the-Mekong-boiling-over-30181542.html</u>

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* Vietnam scientists ask PM to stop Lao dam Project

Scientists at the Vietnam Rivers Network (VRN) on Tuesday asked Prime Minister Nguyen Tan Dung and Vietnam's National Mekong Committee to prevent the Xayaburi Dam from being built on the Mekong River's mainstream in Laos.

Dao Trong Tu, a consultant at VRN, told *Sai Gon Tiep Thi* newspaper that experts recently sent letters asking the PM and the committee to voice their opposition to the Lao government.

Last year, officials from Cambodia, Thailand and Vietnam – the other three members of the Mekong River Commission – insisted that the government of Laos defer work on the US\$3.8 billion Xayaburi dam.

However, recent efforts by Thai power companies, investors and banks have once again raised concerns over the construction of the dam, which was designed to generate power for export.

On April 17, the CH. Karnchang Public Company Limited (one of Thailand's leading general contractors) informed the Stock Exchange of Thailand that its subsidiary, Ch Karnchang (Lao) Co, had signed a US\$711 million contract to build the dam in Laos.

The *Bangkok Post* recently reported that 3,000 residents living around the construction site have already been relocated.

"It is unacceptable to resume construction on the Xayaburi dam," Vietnamese scientists wrote in the joint letter addressed to PM Dung.

The team of experts insisted that construction of the dam – the first of 11 proposed on the Lower Mekong mainstream – will directly threaten the livelihoods of around 20 million residents in the Mekong Delta as well as Vietnam's national and regional food security.

"Vietnam scientists ask PM to stop Lao dam Project", 10/05/2012, online at:

http://www.thanhniennews.com/index/pages/20120510-vietnamese-experts-seek-pm-intervention-to-stop-mekong-dam-project.aspx

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Bangladesh fights for survival against climate change

Rebecca Sultan's life has been shattered twice in a few years. First, the 140mph winds of Cyclone Sidr ripped through her village, Gazipara, flattening houses, killing 6,000 people and devastating the lives of millions as it slammed into southern Bangladesh in 2007.

Then, 18 months later, as Sultan was recovering, Cyclone Aila tore in from the Bay of Bengal with torrential rains, breaching the coastal embankments and flooding her fields with salt water.

Storms of this intensity historically happen in Bangladesh once every 20 to 30 years. But two "supercyclones" in two years, followed by a narrow escape when super-cyclone Nargis killed 100,000 people in nearby Burma a year later, convinced Sultan and her village, as well as many sceptics in government, that climate change was happening and Bangladesh's very survival was at stake.

Gazipara, like thousands of other villages in coastal Bangladesh, is now racing to adapt to the increased flooding, erosion and salt-water intrusion.

Sultan and 30 other women have raised their small houses and toilets several feet up on to earth plinths. Others are growing more salt-tolerant crops and fruit trees, and most families are trying different ways to grow vegetables. "We know we must live with climate change and are trying to adapt," said Sultan.

Elsewhere in Bangladesh, hundreds of communities are strengthening embankments, planting protective shelter belts, digging new ponds and wells and collecting fresh water. Some want to build bunkers to store their valuables, others want cyclone shelters.

"I am quite amazed at how people are grappling with climate change and are adapting," said <u>Saleemul Huq</u>, a Bangladeshi scientist who is head of the climate change group at the International Institute for Environment and Development in London and an adviser to the Bangladesh government on how to adapt to climate change.

"It's by far the most aware society on climate change in the world," Huq said. "It has seen the enemy and is arming itself to deal with it. The country is now on a war footing against climate change. They are grappling with solutions. They don't have them all yet but they will. I see Bangladesh as a pioneer. It has adapted more than any other country to the extremes of weather that climate change is expected to bring."

With the latest research showing more droughts in the country's north and rising sea levels, more than 30 million Bangladeshis are liable to lose everything from climate change in the next 30 to 50 years, said Atiq Rahman, director of the <u>Bangladesh Centre for Advanced Studies</u> and a lead author of the Intergovernmental Panel on Climate Change's fourth assessment report.

"It's extreme events, like super-cyclones and the droughts, that will dominate in future, not the mean [average]," Rahman said. "It's the extra days of heat or cold or the intensity of the cyclones that will affect life most. Poor people cannot wait for global leadership on climate change – they are acting



now. They are paying with their own lives, their own resources, their own efforts. They cannot wait. It is not a question of choice."

The trouble, Rahman told a conference on community adaptation last week in Dhaka, is that traditional knowledge about when to plant which crops, or to harvest, may not be sufficient. "Government recognises it is a very real threat. But what happens in the future will not be indicated by what has happened in the past. There is a new knowledge challenge," he says.

"Many know to plant more tolerant crops in hard years, but lack the drought-tolerant or salt-resistant seeds now needed to deal with worsening conditions. We need new technologies, funds and knowledge."

But, said the foreign minister, Dipu Moni, rich countries had not given the money they had pledged to help Bangladesh and other vulnerable countries adapt. "Climate change is real and happening," Moni said. "A 1C rise in temperatures for Bangladesh equates to a 10% loss of GDP. One event like Sidr can take 10 to 20 years to recover from and cost us billions of dollars. But we don't see the money coming.

"The people being affected are not the big banks but the poor. Our plight goes quite unnoticed. It does not make the rich countries produce trillions of dollars overnight. It's a shame, but we keep trying."

According to her ministry, Bangladesh has received \$125m (£78m) so far, including \$75mfrom the Department for International Development (DfID). "But [countries] have refused to [say] if the climate change money is taken out of [the existing] aid basket," said a senior civil servant. "We want clear guarantees that this money will be on top of official development assistance money. DfID has not clarified this is additional to ODA."

On the coast, Sultan pondered the changes. "The difference we've all seen in the weather in just a few years is great. Now we are getting sudden rains, we don't know when to expect them; the water levels rise faster, the erosion is greater and we are getting more salinity. We used to know when the seasons would change; now they are temperamental. We are resilient and determined to adapt to whatever happens, but it is hard."

"Bangladesh fights for survival against climate change", 09/05/2012, online at: <u>http://www.rawstory.com/rs/2012/05/09/bangladesh-fights-for-survival-against-climate-change/</u>

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* Peru Environment Ministry Confronts Water Crisis with Focus on Investment in Nature

A new government office will value ecosystem services as the foundation for watershed management, supporting policies and programs to ensure the sustainable provisioning of clean water.

LIMA, Peru, May 08, 2012 (BUSINESS WIRE) -- The Peruvian Ministry of Environment (MINAM), working with Forest Trends and with the support of the Swiss Agency for Development and Cooperation (SDC), today launched the Watershed Services Incubator -- an incubator for projects and an institutional commitment to the sustainable management of water through investing in nature and compensating the communities who are stewards of healthy watershed ecosystems.

"The incubator of projects for watershed services is an opportunity for Peru to take a more comprehensive and systematic approach to the protection and management of watersheds, with the objectives of ensuring the provision of the environmental services watersheds provide, ensuring the conservation of watersheds and rewarding the good practices that conserve and manage watersheds," said Manuel Pulgar-Vidal, Minister of the Environment of Peru.

The Incubator will foster a new wave of policies and projects that will provide incentives to upstream communities to preserve and protect the natural systems that are essential to watershed health and human well-being. These innovative financing mechanisms are designed to maximize the contribution of natural ecosystem processes in the provisioning of water-- sustaining healthy watersheds while lowering the long-term costs and stresses associated with ever-increasing demands for freshwater.

The Incubator is the product of a partnership between MINAM and Forest Trends, an international environmental non-profit organization. Forest Trends, supported by SDC, is leading a global effort to scale up the use of economic incentives -- investments, payments, or compensation for watershed services -- to maintain clean abundant water for people and nature. MINAM's Incubator will contribute to, and benefit from, global efforts to use innovative financing mechanisms to advance ecosystem-based solutions to the global water crisis.

"Today, Peru has said that it will set an example for the world by committing to a national policy of taking on natural infrastructure approaches to address their water crisis," said Michael Jenkins, president of Forest Trends. "The Incubator is designed to show how support at the national level can leverage ingenuity from local initiatives to create real solutions for one of the biggest challenges we face today--the protection of our natural water resources."

The Swiss Agency for Development and Cooperation of the Federal Department of Forest Affairs of the Swiss Government has a long history of pioneering innovation in water management and policy, including leading initiatives that address critical topics such as water conflict and diplomacy, sanitation needs, access to water, and poverty alleviation. SDC's emphasis on sustainability, particularly with regards to sustainable water resource management, is reflected in the support for Forest Trends' work with MINAM on "compensation for watershed services." Compensating, or providing incentives for those whose actions serve to preserve the quantity and quality of water,



changes the way in which water is valued and provides income for the rural communities who are managing the upper watersheds and clean water for urban centers downstream.

"The Swiss Government is pleased to support the Government of Peru in their efforts towards the efficient integrated management of water resources as part of their national policy efforts and wishes MINAM the greatest success in the implementation of this important project," said the Ambassador of the Switzerland Confederation in Peru, Madam Anne-Pascale Krauer Muller.

The Incubator will build on experiences in Peru and internationally in using relevant innovative financing tools to value nature's benefits -- efforts such as those in Moyobamba, where the drinking water tariff was modified to incorporate the costs of protecting the watershed to assure a sustainable supply of clean water to the community.

"These experiences highlight the importance of involving water users in managing watersheds, whether they are domestic, agricultural or industrial users," says Marta Echavarria, an expert on innovative finance for conservation who is leading Forest Trends' efforts in Peru. "With their commitment, land-uses practices are improved to insure water quality and flow."

"Peru Environment Ministry Confronts Water Crisis with Focus on Investment in Nature", 08/05/2012, online at: <u>http://www.marketwatch.com/story/peru-environment-ministry-confronts-water-crisis-with-focus-on-investment-in-nature-2012-05-08</u>

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***** Water shortages could cripple areas of US, China, and India

Major economies at risk of running out of water for agriculture and industry, posing problems for global supply chains

Extreme water stress in areas of the US, China, and India could undermine economic growth by constraining business activities and hampering agriculture, a new report warns today.

Research by risk analysts Maplecroft finds all three economic superpowers have vast geographical regions and industrial sectors where unsustainable water use is outstripping supply.

Of the 168 countries covered by the newly released *Water Stress Index*, India, China and the US rank 34, 50 and 61 respectively in the list, while Middle-Eastern and North African nations make up the top 10.

The report warns that the pressure building on available water sources in key economies from agriculture, industry, and the domestic sector may have far-reaching effects on global supply chains and food prices.

Although rated as medium risk overall, the US has large areas already suffering from the depletion of ground water supplies, with states including Arizona, California, Kansas, Nebraska, New Mexico, and Texas classified as being at "high" and "extreme risk" of water shortages.

Maplecroft says the Ogallala Aquifer in the high plains region of the US, which supplies many of the most at risk states and supports 15 per cent of national corn and wheat production, as well as a quarter of the cotton crop, is being depleted faster than it can be recharged and it is uncertain how much longer fresh water will be available. It also warns the resulting effects on US agricultural outputs could cause significant inflation on the global commodities markets.

A similar problem can be seen in India, where large swathes of its most important agricultural land are listed as areas facing an "extreme" level of water stress. Farming is the main cause of unsustainable water practices in India, such as over-extraction of ground water, which can dry up wells, cause land subsidence and draw salt water into supplies, making it unusable by businesses, agriculture, or consumers.

Closer to home, the UK is rated 99 on the list despite drought being declared in almost half the country in recent months, although this status was <u>lifted in 19 counties today</u>. However, although the UK is categorised as low risk overall, the South East and Midlands contain areas of high and medium risk with the report warning agriculture could face disruption if water risks increase.

Alyson Warhurst, chief executive of Maplecroft, advised businesses to come up with a plan to deal with water shortages across their operations or risk running up losses.



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"Businesses should undertake impact assessment and monitoring of water stress and water security and other areas of risk that conflate with such pressures including food security, conflict and energy availability," she said.

"Supply chain risk, if not managed strategically, can lead to business discontinuity and unforeseen costs that undermine the profitability of projects."

"Water shortages could cripple areas of US, China, and India", 11705/2012, online at: http://www.businessgreen.com/bg/news/2174143/water-shortages-cripple-china-india

ВАСК ТО ТОР



***** US has no interest in Teesta water-sharing issue: Hillary Clinton

US Secretary of State Hillary Clinton on Monday said that water-sharing issue between India and Bangladesh should be solved amicably.

"These are certainly on the list of things I would want to talk about," Clinton told an interactive session in Kolkata when asked whether sharing of the Teesta waters with Bangladesh would be on her agenda of talks with West Bengal Chief Minister Mamata Banerjee.

Stating that the United States had no interest in how the water-sharing pact was arrived at, she said that it wanted the issue to be amicably resolved as "these will become hot issues, literally hot issues in the future."

Clinton said, "Water is an issue that will increasingly become contentious.

"The alternative will be perhaps a conflict which will lead to dislocation, refugee problems and destabilisation that we are seeing in places in North Africa. We have to work together," she said.

Sharing of Teesta waters has become a contentious issue between Bangladesh and India with West Bengal Chief Minister Mamata Banerjee expressing reservations over the quantum of water to be given to the eastern neighbour.

The West Bengal chief minister had opposed the amount of water that the central government had agreed to give to Bangladesh as part of the Teesta water pact.

Banerjee has also formed a committee to suggest the amount of water that West Bengal could give without affecting the interest of farmers.

"US has no interest in Teesta water-sharing issue: Hillary Clinton", 07/05/2012, online at: http://www.dnaindia.com/india/report_us-has-no-interest-in-teesta-water-sharing-issue-hillary-clinton_1685585

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* Efficiency in Use of Water

The studies carried out for surface water irrigation projects in India have indicated water use efficiency of about 35-40% as compared to 50-60% in developed countries. The Government has advised State Governments, interalia, to enact laws to regulate extraction of groundwater, to setup Water Regulatory Authorities for appropriate pricing and allocation of water, to set up Water Users Associations and to encourage recharge of ground water.

Revised Draft National Water Policy (2012) inter-alia states that National Water Board shall prepare a plan of action based on the National Water Policy, as approved by the National Water Resources Council, and to regularly monitor its implementation.

This information was given by the Minister of State for Water Resources & Minority Affairs Shri Vincent H. Pala in a written reply to a question in Lok Sabha today.

"Efficiency in Use of Water", 10/0572012, online at: http://pib.nic.in/newsite/erelease.aspx?relid=83515

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***** India can learn water management technology from Israel: Kamal Nath

NEW DELHI: The availability of <u>per capita</u> water resources is declining steadily in India which has a lot to learn from Israel in the field of <u>water management technology</u>, Urban Development Minister <u>Kamal Nath</u> said here Wednesday.

"Despite being located in one of the most arid places in the world, Israel is independent in terms of water resources and has demonstrated the way to manage water resources. India has a lot to earn from Israel in this sector," Nath said at an <u>Indo-Israel Water Management Seminar</u>.

Appreciating the water technology of Israel, the minister said: "The food output in Israel has increased by 9 percent over the past 16 years, using same amount of water resources available 16 years ago."

Nath expressed concern over the growing need for water in the future in view of the rapid pace of <u>urbanisation</u>in the country.

"Urban water supply has to be managed as a service due to rapid urbanisation in India. Urbanisation is a huge challenge which has lead to a rapid growth of cities in India. This is evident from the fact that in 2001 we had 560 cities and in 2016 we will have 8,000 towns," Nath said at the seminar where Israeli Ambassador Alon Ushpiz was also present.

He stressed the need for the regulation of ground water supply.

"Since problems related to water collection and treatment have compounded, we need to take a cue from Israel which is no.1 in the field of recycling water," he added.

A delegation of experts from Israel's national water company Mekorot was also present at the seminar.

"India can learn water management technology from Israel: Kamal Nath", 09/05/2012, online at:

http://articles.economictimes.indiatimes.com/2012-05-09/news/31641699_1_water-resources-water-supply-kamal-nath

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***** Half of China's tap water fails to meet national standards

BEIJING: Half of China's tap water does not meet national drinking water standards, but the problem is not so severe as to cause an immediate threat to human health, an official survey said.

A survey of the country's water quality conducted by the Ministry of Housing and Urban-Rural Development in 2009 showed that 50 per cent of tap water fails to meet standards for bacteria and heavy metals, Beijing-based Century Weekly magazine quoted officials as saying.

Song Lancheng, chief engineer of the ministry's water quality supervising body, told the magazine that of the 4,000 water treatment plants surveyed, 1,000 failed to meet national standards.

The quality of tap water has not improved since 2009, he said.

Zou Ji, a professor of the School of <u>Environment</u> and Natural Resources at Renmin University of China, told state-run <u>Global Times</u> that the public should be concerned about the quality of water in their taps.

"Tap water undergoes many different tests, and failing a single test will cause the water to be 'disqualified,'" Zou said.

The country's 4,000 water plants produce 60 million tons of tap water daily, which is used by 400 million people.

"Polluted drinking water can harm the upper respiratory tract and cause other ailments depending on what kind of pollutant it contains," Zou said, adding that rural areas face a more serious problem as much of the water in villages is untreated.

The magazine report also said that tap water can be contaminated by outdated water treatment technologies.

Wang Hong, vice president of Elan Environmental Purification Technology, agreed that tap water may be contaminated as it travels from the treatment plant to people's homes.

"It's almost impossible that treated water would fail to meet standards, the pollution is caused during transportation since most of the pipes haven't been maintained for a long time," Wang said.

Zou said that some factories do not have the financial resources to update their equipment.

New national drinking water standards, which will match <u>European Union</u> standards, are set to take effect this July.

Wang said the new standard will greatly improve people's quality of life and protect the interests of enterprises that specialise in water purification.

"We will see if the new standards are strictly followed by treatment plants and effectively supervised by local governments.



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"I'm not that optimistic tap water will immediately meet the new standard, but it is moving toward this trend in bigger cities," Zou said.

"Half of China's tap water fails to meet national standards", 09/05/2012, online at:

http://articles.economictimes.indiatimes.com/2012-05-09/news/31641842_1_water-treatment-treatment-plants-waterquality

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Restoration of Wadi Hanifa Wetlands – Al-Bia Wal-Tamnia

Based on on-site review reports by Mohammad Al-Asad and Wael Al-Samhouri

The Wadi Hanifa watershed is an oasis located in the heart of the Najd Plateau in the Kingdom of Saudi Arabia. It is a natural water drainage course for an area of over 4,000 square kilometers and a unique geographical feature in this dry region. Its basin and many tributaries form a unique 120-kilometre-long ecological zone that descends from the Tuwaiq escarpment in the northwest to the open desert southeast of Riyadh. For centuries, the Wadi Hanifa watershed system provided sustenance for communities along its length, where a balance prevailed between the wadi's resources, natural processes, and human interventions. The Wadi Hanifa is inextricably linked to Riyadh's history.

In the late 18th century, the first Saudi state strategically located its capital at Addiriyyah on the west bank of Wadi Hanifa, taking advantage of water and arable land. Subsequently, Riyadh (or in Arabic, Arriyadh), the new capital of the modern Saudi state, developed to the east of Wadi Hanifa, which was used as a sustainable source of water and food for the city. Beginning in the early 1970s, Riyadh expanded westward towards Wadi Hanifa, after which it was overexploited to satisfy the increasing demand for water and mineral

Wadi Hanifa, after which it was overexploited to satisfy the increasing demand for water and mineral resources to meet the massive construction needs arising from rapid growth.

By the 1980s, Riyadh's explosive growth towards Wadi Hanifa led to the rise of ground water, dumping, environmental degradation, and loss of natural functioning and ecosystem productivity. Illegal building, flooding, and wastewater and industrial dumping led to further deterioration exacerbated by increased urbanization and encroachment. In response, the Arriyadh Development Authority (ADA) began the implementation of a comprehensive long-term strategy in 2004 to developWadi Hanifa into an environmental, recreational, and tourist resource, restore its natural beauty, and rehabilitate and harness its water resources.

The reclamation project has included the introduction of landscaping, conservation of the natural environment, enhancement of agricultural land in the valley, managing water quality, restoring flood performance, the construction of dams to regulate water flow, and the planting of reed to further purify water from contaminants. An environmentally sensitive wastewater treatment facility was constructed, providing additional water resources for the rural and urban inhabitants of the region. The works involved the removal of almost 1.25 million cubic metres of construction waste, along with inert and non-inert waste that had been dumped in the wadi over many years. Another component of the wadi development was the restoration of the wadi channel as preparation for a 20-year flood plan. Prior to this, there had been widespread flooding due to the rubble and illegal building within the wadi.

The bio-remediation facility is one of the most impressive features of the project. The facility incorporates a series of weirs, riffles, pools, aerating pumps, bio-remediation cells, artificial periphyton and benthic substrates, and riparian planting. Together, the elements of this design have developed the appropriate aquatic and riparian conditions to assimilate contaminants and further purify the water through a community of natural organisms that aggregate to form a food web. This



has contributed to the improvement of the environmental quality of the wadi and has greatly enhanced public perception and recreational use.

Today Wadi Hanifa is a "living valley" recovered and fully integrated into the life of Riyadh. The restoration project has regenerated a clean, green, safe, and healthy environment, providing continuous parkland that connects city and wadi. Combined residential development, farming, recreation, cultural activities, and tourism inhabit an oasis that extends the full length of Riyadh and beyond, into the surrounding rural areas.

Preservation of the wetlands of the Wadi Hanifa has resulted in restoring the productive capacity of the ecosystem to provide multiple services including purifying contaminated water, restoring flood performance, providing habitat for biodiversity, and creating opportunities for recreational, educational, and aesthetic experiences. Wadi Hanifa has become a popular destination for recreational activities such as fishing and picnicking and has also become a stop for migratory birds. Use of the parks for recreation, farming, and tourism generate income and support regional employment. The Wadi Hanifa Wetlands reclamation project offers an alternative model for urban development. It demonstrates that the productive resources of an ecosystem can be balanced with the socio-economic needs of the people living around it to create a sustainable relationship.

"Restoration of Wadi Hanifa Wetlands", Al-Bia Wal-Tamnia,07/05/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=4936

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Let's Talk about Yemen

Yemen's weaknesses and strengthens are the focus of a recent report by the Carnegie Endowment. On one side, the author stresses the country's natural resources, with oil and natural gas on the frontline. On the other, the report stresses Yemen's incapability of managing these same resources (and many others) due to both its political structure and insecurity in the region more generally.

It should not all be about the oil. According to the author, the fact that Yemen's oil has enabled its economic growth over the last few decades created a dependence that will soon destabilize the country's economy: "[Oil production] has made up about a third of gross domestic product (GDP), provided about three-quarters of state revenue, and accounted for nearly all of Yemen's export revenue. Currently, Yemeni oil production is declining because the country's reserves are running out and there is little new exploration for new oil."

Natural gas is the second more important natural resource in the country. Yemen's liquefied natural gas (LNG) project is the largest investment project in its history, but according to Schmitz it will only bring about a quarter of the revenue that oil brought to the economy. Specifically, the LNG project will create about \$1 billion in wealth for the country each year for the next two decades—but the annual budget is \$6 billion.

The country has become so reliant on oil revenues that it has failed to invest in domestic labor, infrastructures or investment. Investment in these areas is required to sustain long-term growth and support the economy when it eventually transitions away from its dependence on oil and gas. In spite of this, Schmitz argues that the main challenge is political—not economic—and political legitimacy will be much more important than having resources or investment. The key for sustainable development lies within the state: "Long-term development depends on a strong Yemeni state to strengthen the domestic labor force, build a healthy investment environment, cultivate the private sector, tax citizens to fund state expenditures, and better manage resources."

Neighbors in the Gulf also play an important role, particularly because they employ migrant laborers from Yemen, who in turn increase Yemeni income through remittances. While the Gulf states seek long-term stability in Yemen, in the short term the most that can be done to aid the country is to loosen immigration restrictions on Yemeni laborers seeking work in GCC states. However, the author believes labor export is not a solution for Yemen's troubles: "Long-term sustainable economic growth will depend upon domestic labor's employment in the domestic Yemeni economy."

Even if social and living conditions in Yemen have improved, it has failed to fulfill the needs of its population. As a result, there is no trust between the people and the state. The author highlights a crucial failure in Yemen's labor market: Yemenis do not feel that their labor will be rewarded. As a result, citizens do not have the incentive to work enough to consider personal savings and investments that would further stimulate the country's economy The report finally notes that "in Yemen today, the first thing that people do when they accumulate any wealth is to transfer it outside the country."

Yemen does have two potential growth sectors that remain untapped: tourism and mining. Both sectors lack the interest and capital investment needed to promote growth. Many domestic investors left the country, and foreign investors do not feel confident due to the insecurity and instability in the region. Increasing investment is an obvious priority, but it will not be easy to achieve. Yemenis with



substantial assets to invest have tended to leave the country due to the regime of Ali Abdullah Saleh. "It was clear to these investors that Saleh wanted to control the private sector for political gains. They will return if they feel that the new government has the capacity to stabilize the country and will allow them to cultivate their businesses."

Water is a perennial issue in Yemen: per capita water supply in the country is one of the lowest in the world. Schmitz deemphasizes the problem, concluding that the water issue is "less a question of scarcity than they are a question of management, as is true for the economy at large." One main challenge will be to use water more efficiently – the author uses the agricultural sector as an example, where 90 percent of the country's water consumption produces only 10 percent of its GDP.

Crisis?

According to Schmitz, despite the political turmoil of the last eighteen mnths, "the Yemeni state is still in relatively good financial health." This is evidenced by Yemen's external debt of \$6 billion—only 23 percent of its GDP, which is low in comparison with most countries. Yemen is also a country without effective taxation, which shows its external debt in an even better perspective: if the country were able to levy taxes effectively, it would be in a very strong position financially. In order for that to happen, however, the legitimacy issue arises yet again: "Effective taxation, a cornerstone of any state, is dependent upon legitimacy and social cooperation, something the new Yemeni state will need to work hard to gain. If the state is not seen as representing society's aspirations, taxation in Yemen will be impossible."

"Let's Talk about Yemen", 08/05/2012, online at: http://www.majalla.com/eng/2012/05/article55231644

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Top scientists urge governments to solve environmental 'dilemmas'

Demand for water and energy, natural disasters and measuring carbon dioxide must be prioritised, leading institutions say

The world's leading scientific institutions have urged governments to focus on three "global dilemmas": growing demands for <u>water</u> and <u>energy</u>, natural disasters and measuring carbon dioxide.

In a series of statements, the scientists recommended that governments should "engage the international research community in developing systematic, innovative solutions" to these pressing problems.

The heads of the national science academies of 15 countries, including the UK, the US, China, Germany, Russia and India, signed the statements, which are timed to be considered by governments at the forthcoming G8 meeting of the world's biggest industrialised economies, in the US.

They recommended that governments should prioritise the three areas they had identified, and work with scientists in order to develop ways of solving the problems.

On water and energy, the scientists recommended that governments should look at both resources as being interlinked. They said the efficient use of these resources would be key, and recommended developing ways of managing demand for them, as well as investing in scientific research on energy efficiency and the sustainable use of water.

They also recommended that governments should make key data on energy and water freely available, and that the indirect costs associated with energy – which could include the relationship between greenhouse gases and <u>climate change</u> – and the costs of the degradation of water supplies should be accounted for . These costs should also be included in the development of policy.

Natural disasters have been taking an increasing toll in recent years – last year's economic losses owing to natural disasters were the highest ever.

In order to mitigate these risks, the scientists recommended that governments should undertake systematic assessments of disaster risks, and conduct research to improve our understanding of the underlying causes of such disasters.

They also urged that central governments should devolve the responsibility for preventing and dealing with natural disasters to local communities, private sector companies and civil organisations. They called for long-term planning, investment in and enforcement of measures to prevent or reduce the damage from natural disasters, which could include new regulations on land use, building codes and zoning. Better international co-operation was also needed for more rapid responses to disasters, they said.

Public health systems would also need to be improved, they said, along with the surveillance needed to judge the risks of disasters. Emergency services should play out mock disaster scenarios, and use gaming as part of the planning process.



They added: "Losses from disasters can be significantly decreased by improved standards for buildings, roads, electrical systems, water systems, and other infrastructure, and by zoning to reduce vulnerability."

Aid donors must also build disaster planning into their aid programmes for developing countries, in order to ensure that the gains from the aid are not wiped out by the ill effects of disasters from floods and heatwaves to famines and tsunamis.

Countries have been monitoring and estimating their greenhouse gas emissions for decades, though the practice varies among regions and some countries have moved on little in their methods.

The leaders of the national scientific academies identified the measurement and verification of greenhouse gas emissions as a key issue deserving international attention. The question of the "measurement, reporting and verification" (MRV) of emissions was a key sticking point holding up agreement at the Copenhagen climate change summit in 2009, and has been a major source of tension since. Some governments – such as China – have been adamant that MRV is an issue of national sovereignty, and that they should not have to submit to international oversight.

The scientists suggested that international cooperation was key to developing standards and methodologies for measuring emissions, and called for annual emissions reports from governments – offering expert assistance to help them do so.

They also called for research programmes into areas of emissions that are still poorly understood, such as the potential release of methane from thawing permafrost in the Arctic and the seabed, changes in ocean chemistry and circulation, and changes in the way rainforests absorb and release carbon.

"Top scientists urge governments to solve environmental 'dilemmas", 10/05/2012, online at: <u>http://www.guardian.co.uk/environment/2012/may/10/scientists-focus-environmental-</u> <u>dilemmas?CMP=twt_fd&utm_source=Circle+of+Blue+WaterNews+%26+Alerts&utm_campaign=e28b9518e3-</u> <u>RSS_EMAIL_CAMPAIGN&utm_medium=email</u>

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* Excessive Water Use 'Threatening Business in Major Economies'

Unsustainable water use is threatening agriculture, other business and populations in China, India and the US, according to a study by risk analysis company Maplecroft.

<u>The Water Stress Index</u> calculates the water stress of over 168 countries by evaluating renewable supplies of water from precipitation, streams and rivers against domestic, industrial and agricultural use.

The arid Middle East and North Africa region is the most at-risk region in the index, with Bahrain, Qatar, Kuwait, Libya, Djibouti, UAE, Yemen, Saudi Arabia, Oman and Egypt categorized as the 10 most water-stressed countries, listed in order of risk.

However, the widespread use of irrigation for agriculture, combined with increasing domestic and industrial water demand in India (ranked 34th in the index), China (50) and the US (61) means that those economies' water resources are coming under increasing pressure – and this may place more of an impact on the wider world, Maplecroft says.

The populous northeast Chinese provinces of Beijing, Jiangsu, Shandong and Tianjin are all considered "extreme risk" by the Water Stress Index, due to large-scale economic growth and the rapid expansion of cities.

Agriculture is a key driver of unsustainable water use in India. The country is classified as "high risk" overall, but at a subnational level the index identified "extreme" levels of water stress across large swathes of its most important agricultural land. States that are at "extreme risk" of water stress include Haryana, Uttar Pradesh, Gujarat and Rajasthan, while Delhi, Andhra Pradesh and West Bengal are rated at "high risk."

Although the USA is classified by Maplecroft as "medium risk" for water stress overall, large areas are already suffering from the depletion of ground water supplies, with states including Arizona, California, Kansas, Nebraska, New Mexico and Texas classified as being at "high" and "extreme risk."

The effects of water stress on global food inflation are illustrated by recent price hikes for soya beans, which have been pushing all-time highs, the study says.

An April 2012 study released by Maplecroft ranked GE, Alcoa, Johnson Controls, Ford and Intel as the <u>leaders in innovation of clean-tech solutions</u> and products, mitigation of climate change-related risks and management of carbon emissions. The Maplecroft Climate Innovation Indexes studied 360 large, multinational US companies and how they adapt to climate-change issues.

"Excessive Water Use 'Threatening Business in Major Economies'", 11/05/2012, online at: <u>http://www.environmentalleader.com/2012/05/11/excessive-water-use-threatening-business-in-major-economies/</u>

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The world is running out of water -- now what?

Last weekend, Jessica Yu's new water documentary "Last Call at the Oasis" took us on tour of the impacts water scarcity is creating around the globe, from the parched pastures of Australia's farmlands to the sewage-polluted banks of the Jordan River. This film shines a much-needed light on the various water challenges we all now face at a critical time. The numbers alone are eye-opening.

If current water usage trends continue, by 2025, two-thirds of the world's population -- or 5.3 billion people -- will be vulnerable to water shortages. What many here in the U.S. may not know is that we are far from immune to water stress. One need look no further than Texas, where a record-breaking drought last year created massive water shortages that significantly impacted the state's water supplies, agriculture and industry.

Although the world's water supply works in a continuous cycle of consumption and replenishment -we are currently using more at a faster pace -- and nature is not able to keep up. It's no longer enough to conserve water during droughts, or to turn off the tap while we brush our teeth. Water reuse must be part of the long-term solution.

The time has come to look past the "yuck factor" that some associate with treating and reusing "used" water, rather than drawing from our shrinking fresh supplies. The water used in today's morning shower shouldn't disappear down the drain, but rather find new life to feed crops or produce electricity.

By recycling and reusing water, governments and businesses will be able to better insulate themselves against the impacts of climate change, as reclaimed water can be used to irrigate fields, sustain industrial activity and even create drinking water. Looking ahead, our community and business leaders must take steps to advance water recycling and reuse in order to secure a sustainable water future.

Many forward thinking governments across the country are already taking steps to adapt to this new reality. A panel discussion I recently moderated at the American Bar Association's Water Law Conference uncovered ways that local, state and federal agencies are adapting to the changing water landscape.

For example, New York City, which currently gets about 50 percent of its daily water supply from the 330 mile long Delaware River, is constructing a filtration plant to produce water to meet up to 30 percent of demand from its eight million residents. The city predicts that the water supply will shrink from reduced snowpack and decrease in quality from more frequent storms.

Industry is also waking up to the critical role it can play to turn this crisis around. More than 20 percent of the world's freshwater is currently used in industrial applications. Water-intensive industries, such as the high-tech or pharmaceutical sectors, can recycle water to shield themselves against higher costs or a diminished supply that could disrupt operations and impact profitability.



Companies like AB InBev, who recently made a commitment to drastically reduce the amount of water used per liter of beer, and Levi's, currently marketing "water-less jeans," are two examples among a growing number of corporations tackling this issue.

However, water scarcity is too important and the resource too precious to allow the burden to hang on the shoulders of a few cities or industries. The solution lies in a combination of factors that include government policy, technological innovation and collaboration.

Governments can take steps to promote reuse, such as raising awareness of the realities of water scarcity, making reuse requirements easier to meet, offering incentives through subsidies or pricing, and expanding regulations requiring reuse.

A number of countries around the world have enacted incentives to encourage more reuse. Singapore, for example, has created a Water Efficiency Fund that provides up to 50 percent of the capital cost of water recycling facilities. To the extent that incentives exist in the US, they tend to be at the local level. So we are working with several members of Congress on creating a legislative measure that would provide a federal incentive.

One of the largest hurdles to the implementation of water reuse on any scale is cost. It is imperative that companies in the water treatment and processing industry -- like GE and others -- are committed to developing economically viable and energy efficient technologies to help cities, companies and communities address water challenges related to availability, quality and productivity.

Finally, this issue is far too large for any government, company or non-governmental entity to tackle alone. We all need to work together to assess the water-related risks the world faces as we grow and help identify solutions.

A great example of this type of collaboration is the <u>Aqueduct Alliance</u>, a consortium of private and public sectors, non-profits and academia, which has developed an online tool to help measure and map geographically explicit water risks, which will likely be exacerbated by climate change. Identifying hotspots of risk that can constrain access to water, increase costs and disrupt operations can help pinpoint where reuse is feasible and necessary.

Water is one of the fundamental building blocks of civilization -- so fundamental that we are tempted to overlook it until we reach a crisis situation. The fact is, that without a sufficient supply of water, a society cannot grow and prosper. Although the demand for clean water continues to grow while supply becomes increasingly threatened, we don't have to choose between economic progress and the protection of our natural resources. By making choices to reuse water today, we can redefine how we secure, deliver and utilize water to preserve this resource for a growing world.

"The world is running out of water -- now what?", Jon Freedman, 12/05/2012, online at: http://www.greenbiz.com/blog/2012/05/12/world-running-out-water-now-what?page=0%2C0

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Europe's water: efficient use is a must

Clean water is a natural resource vital not only for life on Earth but also for the wellbeing of our societies and economy. However, in many parts of Europe, this valuable resource is coming under increasing pressure, often seen in the form of over-exploitation and pollution.

There are many 'users' of water: agriculture, industries, energy, public supply, transport and leisure. For most uses, we extract water from a source, use it and release a part of it back to a water body such as a river or a lake. The water we return to nature often has a different quality than the water we abstracted.

Changes to a water body – adding polluted or warmer water, or extracting substantial amounts – could affect the entire basin and all the living things, including the people, who depend on that water.

It is clear that our economy and society relies on water. It is also clear that the wellbeing of our natural systems and their functioning and ability to provide us with natural services also depends on their 'access' to the right amount of water resources. We need water and nature needs water.

Parts of Europe are already faced with water scarcity or seasonal droughts. Others experience flush floods. Depending on the region, climate change is also expected to have an impact on the quality and the quantity of Europe's freshwaters. How can we make sure that both nature and the society have access to the amount of water needed, not only today but also tomorrow?

Water and resource efficiency

A sustainable management of Europe's water resources demands a wider policy perspective, addressing all major users as well as water's interactions with other resources, including land and energy. In this respect, Europe's water management needs to be seen in the much broader context of building a low-carbon, green economy.

There are close links between water, energy and food. We need water to grow our food, energy to transport and treat water, water to generate energy, and energy to desalinate water in water-scarce areas. This nexus means that to achieve efficient use of water resources, we have to redesign our energy, transport and agricultural policies as well as our cities.

Agriculture and water

Agriculture accounts for around a third of total water use in Europe. In parts of southern Europe, this share can reach up to 80%. In recent years, improving irrigation, for example by switching from furrows to drip systems, has increased water efficiency but has not always reduced the total amount of water abstracted. For example, in parts of Spain efficiency gains led to a tripling of irrigated area.

There are many measures which could be taken to improve water efficiency in agriculture. For example, crops vary considerably in terms of water requirements and drought resistance. Selecting



less water-intensive crops and changing the timing of cultivation could help reduce the need for irrigation.

In water-stressed areas, treated wastewater provides an alternative source of water for irrigated crops. In Gran Canaria, for example, 20 % of water used across all sectors comes from treated wastewater.

Reducing pesticide and fertilizer use would not only improve water quality but also reduce the amount of energy used to treat wastewater.

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Water and energy

The link between water and energy is quite complex. Hydropower provided 16 % of electricity in Europe and 67 % of all renewable electricity in 2010. Although more than 85 % of hydropower energy is produced by large plants, EU countries plan on setting up a large number of smaller hydropower installations. These can obstruct upstream and downstream migration of fish, change the water flow and sediments, and risk affecting aquatic ecosystems.

Decisions on where and how to install hydropower plants need to be taken case by case at the regional level by assessing environmental impacts. Hydropower should also be assessed against other renewable energies, such as solar and wind.

Desalination is another factor linking energy and water. Some water-scarce regions might resort to desalination to meet their fresh water needs. Europe holds around 10% of the global desalination capacity, led by Spain by a large margin and with 20 new installations planned.

Desalination requires a lot of energy to a point that it could jeopardise the energy reductions planned under the EU's climate and energy package. Moreover, the salt concentration released at the end of the desalination process also has impacts on the environment.

Policy and markets

The European Union's <u>Water Framework Directive</u>, complemented by other EU legislation including the Nitrates Directive and the Urban Waste Water Treatment Directive, provides a solid legal framework to improve the state of Europe's water bodies.

The European Union's longer-term resource-efficiency objectives are presented in a flagship initiative under the Europe 2020 strategy. More specifically, water related resource efficiency will be at the heart of the EU's policy recommendations to be presented in the context of the upcoming "Blueprint to safeguard Europe's water".

In addition to long-term goals, there are many opportunities for quick gains, first and foremost, through a better and full implementation of existing legislation, including the Water Framework Directive.



To contribute to good water governance, market and government mechanisms could help foster a pricing system that also reflects the environmental and possible social costs. A more 'appropriate' price would also drive innovation forward.

When supported by awareness campaigns, economic instruments (tariffs, taxes, subsidies, permit schemes and so on), measures against leakage and illegal abstraction, prices could send signals to users strong enough to change consumption levels and patterns.

There is much to gain from policies, efficiency measures and behavior change. To preserve this valuable resource, we have to adopt them all.

"Europe's water: efficient use is a must", 08/05/2012, online at: <u>http://www.eea.europa.eu/articles/europe2019s-water-efficient-use-is</u>

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New Report – Climate Change & International Security: The Arctic as a Bellwether

Last week, C2ES released a report

titled *ClimateChange & International Security: The Arctic as aBellwether*. The report highlights the role that climate change in the Arctic plays in shaping the geopolitics of the post-Cold War world. The authors note that climatic shifts and subsequent shifts in the geopolitics of the Arctic demonstrate the importance of the linkages between climate change, energy security and economic stability. Melting sea ice cover has opened up the Northwest Passage and expanded shipping routes as well as hopes for increased access to oil and gas exploration, fishing and tourism opportunities. Countries with shorelines bordering the Arctic or with interests in access to these resources have not failed to notice the opening of new opportunities and are positioning themselves militarily, politically and economically to respond to these climatic and geopolitical shifts.

The report also examined how governments are responding to the rapid transformation of their northern borders, and looked at recent policy statements and actions of the Arctic states, as well as other interested countries and multilateral organizations. Dr. Jay Gulledge, Senior Scientist and Director of Science & Impacts Program at C2ES, and co-author of the report, highlighted the main findings in a post on CNAS' Natural Security blog:

- 1. Since 2008, Canada, Denmark, Norway, Russia, the United States, the European Union, the Nordic countries and NATO have all made major Arctic policy announcements. So many policy announcements from major players in such a short time frame is highly unusual—not just for the Arctic but for international affairs in general.
- 2. A prevalent theme in nearly all the policy announcements was the need to protect the region's environment in the face of rapid climate change and increased economic activity.
- 3. In most statements, the states have emphasized their commitment to cooperation and to the principles of international law. As one example, the five coastal Arctic states— Canada, Denmark, Norway, Russia and the United States—agreed in the 2008 Ilulissat Declaration to settle any territorial disputes in the Arctic under the principles of the law of the sea. On the other hand, many of the Arctic states' actions and statements make it clear that they intend to develop the military capacity to act unilaterally, if necessary, to protect their national interests in the region.
- 4. Most of the Arctic states are modernizing their military forces in the Arctic. For example, the United States recently began operating its newest class of fast attack submarines in the Arctic and the Russians have begun building a new fleet of nuclear-powered submarines for both fast attack and ballistic missile launching missions. Norway announced plans to purchase 48 F-35 Joint Strike Fighters, and both Norway and Denmark have equipped their navies with Arctic combat capabilities. With countries rebuilding their Arctic military capabilities. If political cooperation in the region should sour, most will have forces that are prepared to compete in a hostile environment.



- 5. Non-Arctic states and organizations have also begun to consider Arctic security as well. Of special relevance, NATO has begun to coordinate with its Arctic members on search and rescue. Since Russia views NATO with suspicion, the alliance's role in the Arctic has the potential to create tensions.
- 6. The principal cause of renewed national interest in the Arctic is the increasing accessibility of Arctic waters. However, interests in the region vary somewhat from country to country. As new sea routes open up, Canada and Russia see their core interests as maintaining sovereignty in their territorial waters, while the United States puts greater emphasis on freedom of the seas for navigation. Russia, meanwhile, has invested tens of billions of dollars in Arctic oil projects, and its recent statements and actions suggest that it will act to safeguard its oil wealth in the region. The importance of Arctic oil will grow for all nations as oil prices continue to rise and the desire for energy security grows.

Gulledge concludes:

The widely held notion that climate change will occur gradually over the 21st century, allowing ample time for society to adapt, is belied by the unprecedented pace of both climate change and policy developments in the Arctic today. Such rapid changes will challenge governments' abilities to anticipate and diplomatically resolve international disputes within the region. If the Arctic is a bellwether for how climate change may reshape global geopolitics in the post-Cold War era, then other countries should watch closely to learn from our successes or failures in managing this new breed of security challenge in the North.

"New Report – Climate Change & International Security: The Arctic as a Bellwether", 11/05/2012, online at: <u>http://climateandsecurity.org/2012/05/11/new-report-climate-change-international-security-the-arctic-as-a-bellwether/</u>

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✤ FAO to organize ALAWUC seventh session

Tehran, May 6, IRNA - The FAO Regional Office for the Near East in Cairo will organize the Seventh Session of the Agriculture and Land and Water Use Commission for the Near East (ALAWUC) on May 8-9, 2012 in Cairo.

Members of the Commission are 23, including: Afghanistan, Bahrain, Cyprus, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tunisia, Turkey, UAE, and Yemen, a press release issued by the UN Information Center (UNIC) said here on Monday.

The Commission, established as a merger of two previous Regional Commissions (the Regional Commission on Agriculture and the Regional Land and Water Use Commission), aims at providing a forum for member states to exchanging and promoting information and experience of joint programs at regional and sub-regional levels.

In addition, the commission assists FAO and other potential donors in identifying issues, problems and future work programs in the region to overcome problems related to:

· Land & water resources inventories for their sustainable utilization and management,

- · Land use planning,
- · Maintaining and updating regional databases on natural resources in the Region;

 \cdot Promotion of programmes for food production, plant protection, animal health and livestock production,

 \cdot Development of agricultural research systems, and identification of efficient agricultural services to farmers.

The meeting of ALAWUC this year is a special event as it reviews and endorses the proposed draft statutes of this commission prepared by FAO Legal Department (LEGA) unlike previous meetings focusing on technical matters. The draft statutes include as well the financing mechanism and contribution in addition to the election of the Commission Bureau members.

In addition, the commission will review the work and achievements during the previous period. The meeting will also identify outstanding topics and issues related to the agriculture and land and water use for discussion at the next 8th session.

"FAO to organize ALAWUC seventh session", 06/05/2012, online at: <u>http://www.irna.ir/News/Economic/FAO-to-organize-ALAWUC-seventh-session/80117684</u>

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Frost and Sullivan to bring together luminaries and industry experts at 2012 Middle East Environment Industry Meet

With economic development speeding up, water consumption and solid waste generation is touching new highs on a per capita basis in the Middle East. The Middle East governments are moving aggressively towards promoting water conservation, wastewater recycle and reuse, desalination, sustainable waste management solutions in order to maintain the burgeoning growth and minimize the impact on environment.

The region holds significant potential for industry participants that are considering foraying into development of water and wastewater infrastructure, including desalination, water, and wastewater treatment as well as solid waste management. With this as the background, Frost & Sullivan, a Global Growth Partnership Company, endeavours to provide a comprehensive view of opportunities in the growing Middle East Environment Market, as well as recognise business accomplishments in the industry at its 2012 Middle East Environment Industry Meet. The meet will conclude with Frost & Sullivan Environment Excellence Awardson June 4, 2012 at Atlantis, The Palm, Dubai,UAE.

The commemorative evening will witness a confluence of luminaries and industry experts sharing their understanding and thought leadership on the Environment Industry, which is currently on a high growth trajectory in the region. The finale of the Meet will see the prestigious Awards Night held for the first time in the emerging and fast-growing Middle East market. Through these Awards, Frost & Sullivan will recognise the exemplary achievements by Middle East companies operating with the diligence, perseverance, and dedication required to develop a successful business plan and excel in the increasingly competitive global marketplace. Some Award titles include Best Company of the Year, Emerging Company of the Year, Enabling Technology, Growth Excellence, Green Project, and Niche Market Player.

Sasidhar Chidanamarri, Industry Manager, Environment and Building Technologies Practice, South Asia, Middle East and North Africa, Frost & Sullivan, states, "Fast paced urbanisation and industrialisation make it imperative for the governments to provide sustainable infrastructure to make the cities viable, liveable, and competitive; in order to attract foreign investment, increase employment and economic growth. Investments in recycle and reuse technologies, desalination, waste sorting and recycling facilities with the possibility of energy generation are expected to grow in the next five years. This challenge is propelling business opportunities and the need for innovative best practices in the increasingly competitive environment sector. Frost & Sullivan, at its 2012 Middle East Environment Industry Meet, will recognise the companies and individuals that have demonstrated such innovative best practices."

The Event promises to provide the delegates, a 'CEO 360-degree view' on the Middle East Environment Market, and an opportunity to network with industry leaders and initiate new business



WATER RESEARCH PROGRAMME -Weekly Bulletin-

alliances.

With participation expected from CXOs, Vice Presidents, Senior Directors, Business Development Executives, Research and Development Professionals, and Consultants across entities like Environment Firms, Private Equity/Venture Capitalists, Infrastructure Firms, and Environmental Consulting Firms, this surely promises to be a cutting-edge and engaging forum for the industry.

BuildGreen Magazine is the 'Sustainable Print Media Partner' and Megawhat- H2O Magazine is supporting the event as the Media Partner.

"Frost and Sullivan to bring together luminaries and industry experts at 2012 Middle East Environment Industry Meet", 10/05/2012, online at: <u>http://www.ameinfo.com/frost-sullivan-bring-luminaries-industry-experts-300050</u>

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***** Our Planet Is on the Tipping Point

Jonas Kaufmann, the world's leading tenor, was practicing in the hotel suite next to Ban Ki-moon's. The opera arias lent an upbeat note to the UN secretary-general's otherwise glum day: the UN secretary-general has Syria on his mind. In an exclusive interview, he met Metro to talk about Syria, energy and the future of humankind.

Are we getting closer to peace in Syria?

I believe so. The Syrian government should fully implement the agreement. I'm deeply concerned Syrian forces have been shelling Homs and other areas. This must stop. The United Nations is helping Kofi Annan, our special envoy, by providing political and logistical support. At the same time I'm urging opposition forces to fully cooperate. Let the political dialogue continue. The Syrian people have suffered too much, too long. More than 9,000 lives have been lost. How many more lives do we have to lose? Humanitarian support is another priority. Tens of thousands of others have fled to neighboring countries -- over 25,000 to Turkey, others to Lebanon, tens of thousands to Jordan.

Should President Assad allow humanitarian aid into Syria?

Yes. Humanitarian access should be established as soon as possible. The international community, led by the UN, is ready to mobilize. We're already providing urgent humanitarian assistance through the Syrian Red Crescent society. But that's not enough. We have to have full-scale humanitarian support. And the whole world is watching Syria with skeptical eyes. President Assad has broken promises before. I know that he's also frustrated, but the onus is on the Syrian government to make the cease-fire hold. That requires restraint.

The man on the street says, if the UN can't even stop the slaughter of thousands of civilians in Syria, what's it good for? What's your answer?

We've been monitoring this crisis since last year, and of course been paying close attention since the beginning of the Arab Spring. I've been speaking out, and I've been advising world leaders to listen to their people attentively: what are people's challenges and aspirations? Some leaders have listened, and have benefited from it. Some, like President Assad, have not. That's why we've seen such a tragic loss of human lives. I'm very concerned about it. But we've been making big efforts together with the League of Arab States, and now have an observer team on the ground. Our task now is to prevent further loss of life, and that's what we're doing. Some may say it's too late, but so far the Syrian regime hasn't heeded to international calls. And the Security Council was not united, and so wasn't able to speak with one voice.

Your predecessor Boutros Boutros-Ghali famously called himself President of the World, but you have to plead with countries to get anything done. Do you feel powerful?

The office of Secretary-General is not like the office of a president or prime minister. Its power lies in the embodiment of universal values and the agreement of all nations to pursue those values. My role is to use the power I have to bring states, the private sector, civil society and normal citizens



together to solve the world's problems. To succeed at this job you need to be able to listen, to persuade and to innovate.

We're meeting here in Brussels because you're launching a new energy partnership, which will provide energy to 500 million people in the developing world. Will that finally solve the third world's woes?

I launched the energy partnership, Energy For All, at the end of last year because I believe that lack of energy is an enormous threat to humanity. Providing energy is a way of addressing all the development problems we're facing: climate change, water scarcity, food crises and gender issues. Providing energy to developing countries is actually a way of cutting costs.

Why?

Without energy, can we solve any of our global problems? I'm very concerned about the fact that the world still has 1.4 billion people who lack electricity. And more than two billion people lack safe drinking water. Energy generates safe drinking water. So, my goal is that by 2030 we'll provide energy access to everybody around the world. And if I may be more ambitious, we'll double the share of renewable energy in the global energy mix, and double energy efficiency. Without energy, life is undignified! Without energy we can't safe people dying from preventable diseases, we can't keep medicines refrigerated and doctors can't operate patients. That's why energy access is a top priority for me.

... and in June you and other world leaders will meet in Rio for the Rio+20 summit on the environment. Can you force them to finally do something about the environment?

This is the Rio summit on sustainable development, and as far as I'm concerned, it's a once-in-ageneration opportunity for humanity. Since 1992 we have consumed resources in the name of prosperity, and our planet is now on the tipping point. Unless we address this problem wisely and decisively we'll be in trouble. We're going to leave planet Earth to our grandchildren, and if we don't act now they'll be living in very difficult conditions. The timing of this summit is crucial. I'm working very hard with world leaders to make sure we'll achieve results, and also working very closely with President Dilma Rousseff of Brazil, who is the host of the summit.

What kind of results?

First of all, climate change. And water scarcity issues. Again, there are 1.2 billion people who lack access to water, and two billion who lack access to safe drinking water. That causes so many diseases and health problems! Health issues, of course, are another area where we want to achieve results, as are urbanization and gender empowerment. And the oceans: how do we keep the world's oceans healthy? How do we prevent degradation of maritime environments? And we need to address these issues in a comprehensive way. My main vision for Rio+20 is, in fact, that we should look at the issues from a broad perspective, not one by one. I'm asking world leaders to show their political leadership and make sustainable development a priority. The Millennium Development Goals are fast approaching: we only have three years left until the 2015 deadline. Political leaders have to lend their political as well as financial support. The results of Rio+20 will have big effects on peace and



stability. Remember that sustainable development alleviates tensions. For example, lack of water and environmental degradation create tension and mistrust because people compete for access.

To relax, Pope Benedict XVI plays the piano, while European Council President Herman Van Rompuy writes haikus. How do you relax?

I've been in public service for 41 years I haven't had a lot of time to relax -- especially since becoming Secretary-General. Even five minutes is hard to find! I'm grateful to my wife and children for supporting me, since I haven't been able to do much for the family. Last year I had several weekends off, and I tried to play golf with friends. Do you know what golf stands for? Green, oxygen, light, friendship. That's what I believe in! And it gives me energy. But I'm not a good golfer.

What's your handicap?

Somewhere around 20.

"Our Planet Is on the Tipping Point", Elisabeth Braw, 09/05/2012, online at: <u>http://www.huffingtonpost.com/elisabeth-braw/ban-ki-moon-interview_b_1502531.html</u>

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✤ Filmmaker on global water issues will be a UA keynote speaker

The spring commencement speaker for the UA's College of Science studied English at Yale and makes her living as a film director.

Science, though, plays a major role in Jessica Yu's most recent documentary, "Last Call at the Oasis," which explores problems with the worldwide supply and quality of water.

Yu won an academy award in 1997 for her documentary short feature "Breathing Lessons."

Some of the scenery, the characters and the inconvenient facts of "Last Call" should be familiar to Southern Arizonans whose water lifeline is a 336-mile uphill canal that siphons the Colorado River. The film looks at that Colorado River system, contrasting the "bathtub-ring" marks on the shoreline of Lake Mead with the profligate fountains of the Las Vegas Strip and the sprawling subdivisions of the Vegas suburbs.

One of the water experts interviewed is Robert Glennon, a University of Arizona Regents' professor of law who has written two books - "Water Follies" and "Unquenchable" - on the subject.

Glennon, who recently attended the film's premiere, calls it "amazing, the best film ever done on water."

The movie explores the threats from polluting chemicals and pharmaceutical drugs in addition to supply problems throughout the world.

It is produced by Participant Media, which also made "An Inconvenient Truth," "Food, Inc." and "Waiting for Superman."

Glennon praised the "breadth, aspiration and ambition of it and, ultimately, the hopefulness." The movie eventually arrives at the Middle East, where a group of Palestinians, Israelis and Jordanians are working together to share the water of the Jordan River. It suggests that water problems, rather than driving us apart, could bring us together.

"It's not some simplistic, Pollyanna-ish, 'It's going to be all right' message, but 'If we can tackle this, we can get it done,' " said Glennon.

"The last place on Earth we thought we would see cooperation was in the Middle East," said Yu. Yu said she was most surprised, in researching the movie, by the imminence of the supply problem. California's Central Valley, she said, produces 25 percent of the nation's produce with a water supply that could run out in 60 years.

She hopes the film will get people talking about water before the problems become intractable. "It's not a question that we will adapt when we need to, but can we do better before we're forced to do it? What I'm hoping is that knowledge is more empowering than it is overwhelming. When there is too much bad news, people throw up their hands and say, "There is nothing we can do.' " With water, she said, individual actions matter and they multiply.

Yu praised the scientists in the movie for "their willingness to step up and talk about these things," rather than simply publishing scientific results and calling it a day.

That message makes Yu an appropriate commencement speaker for a group of young scientists, said Elliott Cheu, associate dean of science at the UA.

"We have an important role to play in society. We can't just be passive creators of science," Cheu said. "The resources we have, we know, are limited."

Cheu had an inside track in snagging Yu as a commencement speaker. She is his cousin. Cheu said he originally invited her to the winter commencement, but she was busy finishing the film. Waiting for spring made it possible to bring her to Tucson for commencement and to a screening of the newly released film at The Loft Cinema. It is part of the "Science on Screen" series, which



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explores scientific connections to cinema fare in partnership with the College of Science and the College of Social and Behavioral Sciences.

"Filmmaker on global water issues will be a UA keynote speaker", 09/05/2012, online at: <u>http://azstarnet.com/news/science/environment/filmmaker-on-global-water-issues-will-be-a-ua-keynote/article_0e265c16-be24-500b-a4d7-16891137dba1.html</u>

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Sewage 'Right to Know' Groundbreaking Legislation

One of the greatest scourges facing our society is overpopulation especially in densified urban centres and the associated ability of service infrastructure to meet the growing over-demand for capacity. Sewerage is one of those critical service issues, and to add to the sewage system overload, is the grave risk that high demand and incapacity place on the environment and to human health with leaks and spills. In addition, aging infrastructure does not hold well when literally weighed down.

The population explosions that have happened and urban influx were never anticipated at such an exponential growth rate when the original city infrastructure was planned and designed. An overburdened sewage system will undoubtedly collapse under the strain. Once this happens, untold health and ecological contamination ensues, affecting surface and groundwater resources, essentially our drinking water supplies.

The citizens of Connecticut, USA, led an unremitting campaign to get its House to pass a progressive law on the 'Right to Know' about sewage spills and leaks. The bill is a proactive means to issue warnings to the public related to any sewage <u>health risks</u> and will enable citizens to proactively avoid all high risk water bodies. According to the US EPA, up to 3.5 million people fall ill from swimming in waters contaminated by sewer overflows alone every year.

Besides the chemical toxins and wastewater found in sewage; dangerous life-threatening micro-life abound in our flows. These pathogens are deadly parasites, bacteria and viruses and enter our oceansbeaches and recreational inland water bodies. A release of highly toxic chemical and biological contents into the environment can create health epidemics such as cholera.

Pathogens

Some of the lethal health impacts caused by these micro-organisms are diarrhoea, stomach cramps, fevers, skin fungi, worms, hepatitis, symptoms may be either acute (short-term) or chronic (long-term). The longer lasting effects may even lead to complete immune collapse in predisposed individuals already weakened by other immune-diseases such as HIV/AIDS. It would seem that the population groups more prone to the susceptibility of the pathogens are younger children and the elderly. Pathogens can enter the body through different pathways, the most obvious skin contact, but also through nose, mouth, inhalation, drinking contaminated water, hand-to-mouth and open wounds.

Cholera epidemics have been reported throughout the globe, hotspots being areas of poverty, lack of water supply and sanitation. Not forgetting during natural disasters, pathogens also thrive.

Vibrio Cholerae, the cholera-causing bacterium, which is a "bacterial infection which is contracted by drinking contaminated water or by eating food which has been in contact with contaminated water, flies or soiled hands. The germs which cause cholera can be found in the stools of human beings (KZN DoH, 2001)."

E.coli, another one of the *scaries*, knows not class and no matter where a sewage leak arises, the risk of disease awaits. Like most pathogens, over time they become resistant to human antibiotics and are



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able to proliferate. One such stubborn bacteria, is *Escherichia coli/ E.coli*, resistant to most antibiotics. The most common pathway is through ingesting contaminated food through faeces passed onto the food. *E.coli* is highly contagious, spread by touch, causing severe abdominal cramps, blood in stools, fatigue and vomiting just to name a few symptoms.

The figure below provides a break-down of the pathogens and their effects on the human body.

Subsection and	Agent	Acute Effects	Chronic or Ultimate Effects
Bacteria	E. coli 0157:H7	Diarrhea	Death, Hemolytic Uremic syndrome
	Legionella pneumoniae	Fever, pneumonia	Elderly: death
	Helicobacter pylori	Gastritis	Ulcers and stomach cancer
	Vibrio cholerae	Diarrhea	Death
	Vibrio vulnificus	Skin and Tissue infection	Death in those with liver problems
	Campylobacter	Diarrhea	Death: Guillain-Barré syndrome
	Salmonella	Diarrhea	Reactive arthritis
	Yersinia	Diarrhea	Reactive arthritis
	Shigella	Diarrhea	Reactive arthritis
	Cyanobacteria	Diarrhea	Potential Cancer
	er 30 Df	Fever, headache, chills, muscle	Weil's Disease, kidney damage, liver failure,
	Leptospirosis	aches, vomiting	death
	Aeromonas hydrophila	Diarrhea	
			Children: Failure to develop physically and
Parasites	Giardia lamblia	Diarrhea	mentally
	Cryptosporidium	Diarrhea	Immunocompromised: death
		Newborn syndrome, hearing and	
	Toxoplasma Gondii	visual loss, mental retardation	Dementia, seizures
	Acanthamoeba	Eye infections	
	Microsporidia	Diarrhea	
	Entamoeba	Amebiasis, amoebic dysentery,	
	cayetanensis	abscess in liver or other organs	
Viruses	Hepatitis viruses	Liver infection	Liver failure
		Eye infections, diarrhea,	
	Adenoviruses	respiratory disease	
	Calicivinises	Diarrhea	
	Coxsackieviruses	Encephalitis, Aseptic meningitis	Heart disease, diabetes
	Echoviruses	Aseptic meningitis	
	Polyomaviruses	88. 2.5.2	Cancer of the colon

Necrotising fastitis Bacteria

Another scary pathogen is the *Necrotising fastitis*, it destroys skin, tissue and fat layers within a short period. It's earned the name 'flesh-eating bacteria' due to its rapid disintegration of skin and tissue. In KwaZulu-Natal, a victim was swimming in the lagoon on the south coast, injuring his foot on the rocks, he didn't realise the horror he was facing. He experienced unusual pain in the affected area and the next day rushed himself to a doctor only to discover he had contracted the deadly bacteria in the water that had entered through the small open wounds. It resulted in his limb being amputated to rid his body of the rapid infection. The victim, RW Johnston (2009), said: "Almost certainly the reason the lagoon was polluted with such a deadly organism was to do with the dumping of raw sewage by communities living upriver".

High Nutrient Content



Untreated raw sewage also contains high levels of nutrients (namely from pesticides and chemicals) leading to algal blooms, some of which are toxic to humans and can be passed on in the food chain through shellfish consumption or recreational swimming. Symptoms include abdominal pain, vomiting, diarrhoea, liver failure, and etcetera.

Ecological Risks

Besides the human health impacts, raw sewage leaking into the environmental decimates other lifeforms, destroying food sources and places for habitation.

Odours and Gases

Not only does sewage reek, it is dangerous in that passing through the system is not only organically producing decomposition gas, but household and industrial wastewater chemicals. Sewer gases may contain a range of gases from ammonia, methane, carbon dioxide; hydrogen sulphide (rotten egg smell), illegal hazardous discharges of fuels and other chemicals, all contribute to the odours, explosion risks and health risks.

Soil and Food Crop Contamination

Spillages of sewage infiltrate soil surfaces and subsoil layers, penetrating to groundwater. Whilst water is a survival resource, so is soil, we need healthy soil to grow health food. One of the medium pathways is from soil to crops to human food consumption level.

Day-to-day Preventative Measure

Basic forms of hygiene may help to alleviate sewage health risks and pathways, as follows:

In poor areas struggling for proper services, high alert is a daily lifestyle:

□ Use only clean, treated or boiled water (government also advises on the use of a chlorine bleach proportion added to water to kill of germs).

- □ Wash all raw food with clean, treated or boiled water
- □ Wash your hands before handling or eating food
- □ Wash food utensils in clean, treated or boiled water
- □ Protect food from fly contamination and prevent fly contamination in your homes
- □ Use proper toilet facilities only and wash hands after use.
- □ Do not allow children to play in dirty pools, rivulets or storm water outlets
- \Box Do not contaminate rivers or leave sewage where it can be washed into a river by rain.

Credit: (KZN DoH, 2001)

In privileged water and sanitation service areas, daily caution also applies; *JC Brown (1995)* recommends the following:



 \Box Always clean any surface that has come in contact with raw meat, before any other item is placed on that surface.

 \Box Always thoroughly wash your hands after handling raw meat, and before you handle any other utensils or other food items.

 \Box Never use the same plate, tray or utensils for the cooked meat that you use for the raw meat - unless you thoroughly wash the plate, tray or utensils in-between.

 \Box Always cook meat, especially ground meat, until the juices run absolutely clear - pink is not good enough. In fact, it is necessary for the internal temperature of a hamburger pattie to reach 160 degrees F to kill all of any contaminating *E. coli*.

□ In day-care centers, schools, etc., any small children with diarrhea should be carefully handled, and kept separate from all well children. All diapers, and any soiled clothing should be kept separate from all well children. The day-care worker, teacher, and health-care personnel should practice strict hygeine at all times, regardless of the health of the children.

The advances made by Connecticut should be a precedence-setting globally where all local governments enact similar legislation not only making the public aware (often people flush all sorts of nasties that clog up the system too) but also creating watch-dog citizens who are able to aid the government in monitoring and addressing these infrastructural failures. Certainly no government wants the disaster management costs and health epidemics that are created from raw sewage into the environment.

"Sewage 'Right to Know' Groundbreaking Legislation", 08/05/2012, online at: http://www.earthtimes.org/politics/sewage-right-to-know-legislationusa/1969/?utm_source=dlvr.it&utm_medium=facebook

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Countries Reform Their Water Laws As Pressures Mounts On Water Resources

Over 80 percent of countries have reformed their water laws in the past twenty years as a response to growing pressures on water resources from expanding populations, urbanization and climate change.

In many cases, such water reforms have produced significant impacts on development, including improvements to drinking water access, human health and water efficiency in agriculture.

At the same time, global progress has been slower where irrigation, rainwater harvesting and investment in freshwater ecosystem services are concerned.

These are among the findings of a United Nations survey of over 130 national governments on efforts to improve the sustainable management of water resources.

The survey focuses on progress towards the implementation of internationally-agreed approaches to the management and use of water, known as Integrated Water Resources Management (IWRM).

Backed by UN Member States at the 1992 Rio Earth Summit as part of an overall action plan on sustainable development (known as Agenda 21), IWRM is a way forward for efficient, equitable and sustainable development and management of the world's limited water resources.

Amid increasing and conflicting demands on the world's water supply, IWRM integrates domestic, agricultural, industrial and environmental needs into water planning, rather than considering each demand in isolation.

The latest survey is intended to inform decision-making at the Rio+20 Conference in June 2012. Twenty years after the Earth Summit, world governments will once again convene in Rio de Janeiro to take decisions on how to ensure sustainable development for the 21st century.

The survey, which was co-ordinated by the UN Environment Programme (UNEP) on behalf of UN-Water (the UN inter-agency co-ordination mechanism for freshwater issues), asked governments for their feedback on governance, infrastructure, financing, and other areas relating to water management, to gauge how successful countries have been in moving towards IWRM.

Overall, 90 percent of countries surveyed reported a range of positive impacts from integrated approaches to water management, following national reforms.

Other key findings include:

• Water-related risks and the competition for water resources are perceived by a majority of countries to have increased over the past 20 years;

• Domestic water supply is ranked by most countries as the highest priority for water resources management;

• The majority of countries reported an increasing trend in financing for water resources development, although obstacles to implementing reforms remain;



• Progress on water efficiency is lagging behind other water management reforms, with less than 50 percent of national reforms addressing water efficiency.

"The sustainable management and use of water – due to its vital role in food security, energy or supporting valuable ecosystem services – underpins the transition to a low-carbon, resource efficient green economy," said UN Under-Secretary-General and UNEP Executive Director Achim Steiner.

"As well as highlighting challenges, this new survey also shows important successes regarding integrated water resources management, where a more sustainable approach to water has resulted in tangible benefits for communities and the environment. At Rio+20, governments will have the opportunity to build on these innovations and chart the way forward for sustainable development, where the water needs of a global population set to rise to 9 billion by 2050, can be met in an equitable way," added Mr. Steiner.

The UN survey shows the major environmental changes that have taken place between 1992, when IWRM was firstly widely backed by governments, and today – and how water resources are managed in the face of such challenges.

The world population, for example, increased from 5.3 billion in 1992 to just over 7 billion today, with impacts being felt most strongly in developing countries. This has been accompanied by increased rural-to-urban migration and high refugee movements due to climatic and socio-political disasters.

Survey Recommendations

The survey includes a number of suggested targets and recommendations, which are designed to inform decision-makers at Rio+20. These are based on an assessment of the findings from the survey and include:

• By 2015, each country should develop specific targets and timeframes for preparing and implementing a programme of action and financing strategy for IWRM.

• By 2015, a global reporting mechanism on national water resources management should be established. This is to ensure a more rigorous reporting system on progress with IWRM, and improve the availability of information.

• More effort is needed to increase levels of financing and to improve the institutional framework for water resources management – especially focusing on low HDI countries.

"Countries Reform Their Water Laws As Pressures Mounts On Water Resources", 07/05/2012, online at: http://waterjournalistsafrica.wordpress.com/2012/05/08/countries-reform-their-water-laws-as-pressures-mounts-on-waterresources/

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May 6-12 is "Drinking Water Week"

SACRAMENTO, Calif. -- The week of May 6-12 has been declared "Drinking Water Week" by the American Water Works Association, an international conglomerate of more than 60,000 water utilities, agencies and policy makers dedicated to improving water supply and quality in North America.

In recognition of this week, California American Water is reminding its customers, community and local governments of the fundamental need for safe and reliable drinking water supplies and the vital role it plays in public health, fire protection, economic development and the overall quality of life we enjoy.

This year, California American Water is focusing on water efficiency and conservation as the centerpiece of its Drinking Water Week campaign.

Despite a wet spring, water supplies around the state are below normal. This combined with other factors has made efficient water use a year-round necessity throughout the state, including Northern California.

"Preserving this precious resource has to be our first priority," said Andrew Soule, general manager of California American Water's northern division. "We are investing millions on water infrastructure in our Sacramento service district from new pipes to new well and treatment plants. However, none of these investments will mean much if we don't have a reliable water supply to move through them."

Comprehensive conservation measures, Soule said, will be the single most important factor in preserving future economic growth and quality of life in the state.

"Our metered customers pay about a penny for every two gallons of water delivered to their home or business," Soule said. "By providing a reliable water supply at a reasonable price we will ensure that families and businesses will thrive here as well."

"May 6-12 is "Drinking Water Week"", 10/05/2012, online at: <u>http://www.sunherald.com/2012/05/10/3940057/may-6-12-is-drinking-water-week.html</u>

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***** Keeping the country short of water is now government – and EU – policy

Failure to fix leaks and increase reservoir capacity are behind our water problems.

When I returned last week to a grey, cold, rainswept Heathrow, after a brief visit to Australia on rather sad family business, I naturally wanted to know what had been going on while I was away. It hardly said much for our democracy that Boris Johnson should have owed his "triumphant" reelection as Mayor to the support of just 16.8 per cent of those Londoners eligible to vote – while Labour owed its "victory" in council elections to just 12 per cent of the potential voters. The Greek and French election results heralded another sharp downward lurch in the slow-motion collapse of the euro. The prospect of Britain's lights going out moved nearer with the pulling out of France's state-owned EDF as the last company that might have provided us with new nuclear power stations, while the Environment Agency's Chris Smith announced that Britain may be hoping for a glut of cheap gas from "fracking" shale, but that this could be allowed to generate electricity only on condition that all the resulting CO_2 is buried in holes in the ground, by a wishful-thinking technology that would double its price and is unlikely ever to work anyway.

As big a story as any, however, was the ongoing drama of our "wettest-ever drought" as, despite record recent rainfall, we are told that hosepipe bans are still unlikely to be lifted because we don't have enough water to go round. And here, it turns out, there is a startling twist to the tale.

The great water shambles, as we know, centres on two major failings of national policy. One is the water companies' failure to plug the leaks that are costing us nearly as much water every two years as is contained in all our reservoirs. The other is their failure to add to that reservoir capacity, which has barely increased in the 20 years since water was privatised, despite our 10 per cent growth in population.

What makes this particularly odd, however, is that only a few years back, the last government was gung-ho about the companies' plans to build five major new reservoirs in the south of England alone, where the shortage is most acute, and to extend three others. So what happened to all those plans? One after another they have all been shelved or turned down altogether by the Government, as when last year our Environment Secretary, Caroline Spelman, vetoed Thames Water's plan for a huge £1 billion new reservoir near Abingdon, saying that there was "no immediate need" for new reservoir building. This was only months after she had sent back to the drawing board another well-advanced scheme near Portsmouth.

Astonishingly, it now emerges, it has become quite deliberate government policy to keep Britain short of water. And the explanation for this baffling volte-face lies in a "Communication" issued in 2007 by the European Commission (COM (2007) 414 Final) "addressing the challenge of water scarcity and droughts in the European Union".

This document was based on the belief that Europe was facing a water crisis due to global warming. The only way to meet the prospect of severe droughts, it argued, was to encourage us all to use water much more "efficiently". Not once in this 14-page document is there any mention of the need to improve the storage of water. From now on, the policy of member states must be, by every possible means, to reduce the use of water, not least by making it more expensive. This is the policy that our



government has now adopted, as was confirmed last year by Mrs Spelman's White Paper, Water for Life. In all its 105 pages, there are plenty of mentions of climate change and the need to conserve water in face of the predicted droughts. As Mrs Spelman put it, when rivers start to run dry and cracks appear in those empty reservoirs, "we must recognise these as warning signs of what we might expect to see in a changing climate". But not once, as in the EU's paper, is there any mention of a need to build new reservoirs. The only message is that we must learn to conserve this "precious resource", not least by making us pay more for it.

Herein, it seems, lies the explanation for our current utterly bizarre plight, wherein Mrs Spelman pronounces that there is "no immediate need" for new reservoirs, and Ofwat tells water companies, as it did last week, that there is no need for them to fix those leaks before 2015.

If the people of Britain, not least the 20 million in the South East still under a hosepipe ban, were aware that this was being brought about by a quite deliberate policy, backed by the crackpot projections of our climate change-obsessed Met Office, they would be very angry indeed. But so far, Mrs Spelman has been remarkably successful in hiding from us just what a dirty and nonsensical game she is playing.

At least Australians can sack their climate-mad PM

As I discovered Down Under, we might learn quite a lesson from the peculiar present state of Australian politics. Their Prime Minister, Julia Gillard, is the most unpopular in the nation's history, not least because she Is about to break an earlier promise by imposing on them a "carbon tax", charging the country's 500 worst "polluters" £14.38 for every ton of carbon dioxide they emit. Equating to £300 a year for every Australian household, this will inflict such damage on the economy that all the signs are that she will be heavily defeated at the next election by Tony Abbott, the robust leader of the opposition, who has pledged to scrap the tax.

Someone whom I was delighted to meet again in Australia was Professor Ian Plimer, a prominent "climate sceptic", who is one of Abbott's advisers. In his latest entertaining book, How To Get Expelled From School (by asking the teachers 101 awkward scientific questions about their belief in global warming), Plimer cites a vivid illustration of how great is the threat posed to the planet by man-made $CO\square$.

If one imagines a length of the Earth's atmosphere one kilometre long, 780 metres of this are made up of nitrogen, 210 are oxygen and 10 metres are water vapour (the largest greenhouse gas). Just 0.38 of a metre is carbon dioxide, to which human emissions contribute one millimetre. Australia's share of this is 0.015 of a millimetre, the breadth of a human hair, to reduce which Gillard is about to inflict on her country's economy damage costing billions of pounds a year.

Yet what few people realise is that we here in Britain are about to do much the same, when next year our government imposes its own version of a "carbon tax" by charging our electricity and other industries £16 for every ton of $CO\Box$ they emit, rising by 2020 to £30, and £70 by 2030. We only do not appreciate what damage this will do to us all, because it is not described as a "tax" but is hidden away as a "carbon floor price" – and even more because we have no politicians such as Tony Abbott prepared to dismiss taxing $CO\Box$ as "crap".



If David Cameron were more honest about what he is letting us in for, he might soon become as unpopular as Ms Gillard. But our own politicians, who all share her make-believe on this issue, give us no choice.

Abused girls paid price for 'child care'

Much of the response to the case of the teenage girls in Rochdale who were sexually abused by Pakistani and Afghan men has focused on whether this horrifying episode should be discussed in terms of the racial origins of the perpetrators. Rather less attention has been paid to the revelation that many of the 47 girls involved in the case were in council care, under our "child protection" system. Ofsted, reponsible for monitoring child care, is reported to be investigating claims that a great many more girls in care in the area have been abused, not a few of them in "sole" care in private homes run by companies that charge councils up to £250,000 a year for each child, 10 times the annual fee for Eton.

Ofsted admits that 631 children in care have been the victims of actual or suspected sexual abuse in the past five years, 187 in the past 10 months alone. This latest case appears to confirm that many of the 10,000 now being taken into care each year by English social workers are at more risk of serious harm than they ever were from the families from which they were removed. Inevitably, this prompts the question – who is in a position to protect these children from the social workers? Of all the scandals clustering round our dysfunctional "child protection" system, this may be the most obviously shocking – but there are plenty more. So far off the rails has this entire system gone that it is hard to imagine how it can ever be corrected. The only people with the power to call it to account are the politicians. But with the shining exception of John Hemming MP, they seem as oblivious to what is really going on as they are to so much else.

"Keeping the country short of water is now government – and EU – policy", 12/05/2012, online at: <u>http://www.telegraph.co.uk/comment/9261122/Keeping-the-country-short-of-water-is-now-government-and-EU-policy.html</u>

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Students work for degrees in water issues

Water has been called the next gold or the next oil. "It certainly is a commodity that, although renewable, can disappear if used or managed improperly," said Chris Matson. He is the water resources geoscience program coordinator at the University of Montana-Helena. There students concerned with the quality and availability of water can received an associate's of applied sciences in either water quantity or water quality.

Matson said the program attracts a diverse array of students, from those right out of high school and interested in a science degree who want to get out in the field right away, to agriculture producers who are concerned with water issues on their land, to those who are tired of an office and want a career that takes them out into the field.

"Some students are already involved with water resources in some way. They may work for a company that deals with water or they may be a landowner, or the son or daughter of a landowner, who has water rights and they come in to take the program," he said.

The course takes about two years to complete and most of the classes can be taken online. "That lends itself really well to long-distance learning so if you are working fulltime you can take this course and learn more about water issues," he said.

Across the United States, demand for water technology jobs is expected to increase by 15 percent. Graduates can expect to work for local, state and federal agencies as well as public and private industry.

Students in these classes are trained in water collection and analysis. They learn how to interpret water policies for a ranch or specific location. They are taught how to write technical reports, go out into the field and collect samples, test the turbidity of water, and estimate stream flow on streams, irrigation canals, and whole river channels

The course on water quantity also trains students in geology and physical characteristics that have bearing on water supplies in an area. The quality option involved micro-biology. Both options teach water rights and policies.

"A lot of work they do is in terms of looking at environmental policy and laws, surface water and hydrology, applied methods, irrigation issues and rights, These courses give you a broader view of water resources in the state and nationally. We take it to the ground level and get them thinking about water, ownership rights and using water as a resource," he said.

Students with a water technology degree in either quantity or quality control can find jobs at water technicians, water efficiency technicians, and water management specialists. They can work for local or state agencies, and private or public industry. In agriculture there is a growing demand for water specialists to handle irrigation, ground water and water right issues.



WATER RESEARCH PROGRAMME -Weekly Bulletin-

"The future of water in this state is the source of a lot of legal issues. Students are planning for the future in terms of water so that we, as Montanans and farmers and ranchers, can work with the regulation side to come to the best management agreement for the resource itself. We take into account the great need for water in farming and ranching and other industries and also look at the long-term management so it is still here in the future for everyone," concluded Matson.

"Students work for degrees in water issues", 13/05/2012, online at:

http://www.theprairiestar.com/news/regional/students-work-for-degrees-in-water-issues/article_b6a8182a-9559-11e1bc79-001a4bcf887a.html

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