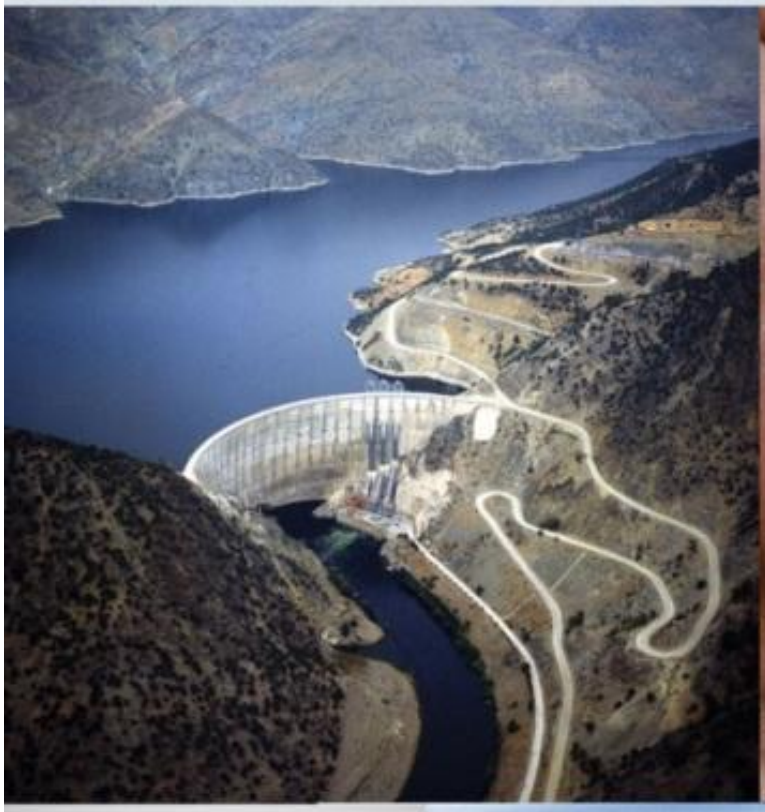


ORSAM WATER BULLETIN

Weekly Bulletin by ORSAM Water Research Programme

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





Issue 63

ORSAM WATER BULLETIN

13 February-19 February 2012

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

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

❖ Turkish company cancels hydro electric project in Georgia

TBILISI, DFWatch – Work to construct one of the biggest hydro electric power stations in Georgia has been halted, after its Turkish investor pulled out.

The Georgian government explains that the Turkish investor refused to go through with the project, and therefore a new competition has been announced to find an investor that is willing to finance it.

This project should be implemented on the river Rioni in western Georgia. The river starts on the south slopes of the Caucasus range, 2 960 m above sea level and ends near the Black Sea port of Poti.

Its full length is 327 km, and the basin area is 13 400 km. It has terraces, the height of which is from 2-3 to 20-15 mm, the length 2-3 km and several hundreds of meters of width. It is fed by glaciers, snow, rain and underground waters and has several tributaries.

From before, the following hydro electric stations have been built on the river: Rioni Hess, Gumat Hess I, Gumat Hess II, Vartsikhe Hess. There have also been built power stations on the tributaries: Ladzhanur Hess, Shaor Hess, Tkibul Hess.

The government several years ago decided to implement several new power stations on the Rioni, collectively called the Namakhvan cascade. The project aims to build three hydro electric stations with a total capacity of 450 MW. It will consist of three power stations:

Tvishi hydro electric power station – installed capacity 100 MW; Namakhvani – 250 MW; and Dzhoneti – 100 MW.

There are also plans to build transmission lines in conjunction with these power stations. It will need 800 million dollars of investment for all these together and the construction period is 5 years.

Several investors have previously showed interested in implementing the project and have signed an agreement, but several times the agreement it was dissolved.

In December 2009 a memorandum of understanding was signed between the Georgian government and a Turkish-Korean consortium. The consortium took on the obligation to start the construction work of the cascade in 2011 and invest up to a billion dollars to implement the project.

The consortium consists of the Turkish company Nuroli, and Korean Companies KEPCO and SKE&C United. But the highly experienced Korean energy company KEPCO unexpectedly left the consortium.

Now it seems that the Turkish company also has refused to implement the project, because the government is now seeking a new investor.

In a statement published on its webpage, the Georgian Energy Ministry invites a new investor to implement the project. Specifically, the Georgian the Oil and Gas Corporation affiliated company

Namakhvan Hesebis Kaskadi announced expression of interest to buy design, supply and construction services.

One of the main criteria to choose the contractor will be the experience of successfully implementing similar projects, which means reservoir type hydro power stations with installed capacity of 200 MW and above. Candidates should submit the necessary documentation by April 2, 2012 at the office of Namakhvan Hesebis Kaskadi.

Environmental activists are against this project. Manana Kochladze, the head of the non-governmental organization (NGO) Green Alternative says that 14 villages will be affected if the cascade is built, and nearly 800 people will be resettled. 924 hectare of land will be flooded, including agricultural lands which are actively cultivated. Also, 270 ha of woods is affected. Khvamli Reservation will also be affected, which is 100 meters from the Tvishi reservoir.

According to the same source, 17 architectural and 23 archaeological monuments will end up under water.

"There are caves which have high cultural importance. The reservoirs will be created 27 km along the Rioni river, which means that the ecosystem of the river will completely changed. The climate will also be changed and winds will increase," Manana Kochladze says.

She says the seismological and ecological risks are not shown in the plan documents. The region is seismologically active and power stations on this territory should be able to withstand earthquakes of 7-8 on the Richter scale. The increased mass from dammed water will cause more landslides, something there already is enough of in this region. Erosion will accelerate under the Namakhvani cascade. It should be noted that the Turkish investors promised to build terraces to avoid landslides.

Nino Ckhobadze, head of the Green Movement, says that the Namakhvani project is technically unjustified. In addition, she says Georgia won't receive any profits from this project, because Turks would transfer the energy generated from this power station to their own country.

"The project is technically unjustified. This is a 1970s-1980s type project. Yet the Soviet Union refused to implement it. Since then it hasn't changed. In fact, the power station will be built by using old technologies which were rejected in Turkey. I am interested, if Turks will not build power stations in their own country by using these technologies, why should it be built in Georgia, where the risk factors are really high at least in the seismological regards?" asks Nino Chkheidze.

She says the former investors even promised compensation for part of the population. It seems the conclusions of the geologist finally scared away the investors; due to fear that they would have been giving away solid finances to satisfy so many requests: resettlement of the population, giving compensations, building terraces and other ameliorating measures.

The second problem is the refusal of the investors to implement the projects. The government says that the investments are increasing annually, but the statistics and the international ratings say the opposite.

At the beginning of February, Bloomberg, based on data from the World Bank and the International Monetary Fund, published a list of 15 countries which will be convenient for investors for the next 5 years. Georgia is not on the list.

On a rating published in January regarding economic freedom, Georgia was labeled a mainly free to moderately free country. In the 2012 rating of economic freedom, Georgia is on 34th place place, while last year the country was on the 29th place.

"Turkish company cancels hydro electric project in Georgia", 14/02/2012, online at: **http://dfwatch.net/turkish-company-cancels-hydro-electric-project-in-georgia-96699**

BACK TO TOP

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

❖ The Maritsa River and Water Management in Bulgaria

During the heavy rain periods; flood in Maritsa river, the rise of the river in Edirne region, and it's causing to overflow have started to be seen every year in recent years. Due to the overflow taking place as a result of the destruction of the Ivanova dam located in Bulgaria's Harmanlı region three days ago, Bulgaria's Kırcaali, Harmanlı, Svilengrad, Lyübimetz regions; and the Evros region in Greece started to get alarmed in face of the risk of flooding. According to the data obtained from DSİ XI. Regional Directorate, while the flow rate of the Tunca River reached 213 cubic meters per second, the flow rate of the Maritsa River increased to 1162 cubic meters per second. As the river continued to increase, precautions were started to be taken against floods in Edirne and in the neighborhood.

Bulgaria, which is the upper riparian in the Maritsa River, strives to become a country depending on free market economy in the post-1990 with a democratic regime. As a new member of the EU, Bulgaria is in the process of transformation from central planning system into a free market based system, and she strives to solve the current internal problems. To this end, she reorganizes the legal, administrative and economic systems with the resources provided by the EU, NATO, and other international organizations. With her past experiences, Bulgaria structures the environment in industrial and energy production.

In Bulgarian policy regulations related to water, actors are divided into three main categories. These actors are: The public sector representing ministries, public companies and local authorities; private companies steering the economy; and national research and academic institutes playing a major role in production and implementation of information and policy. Besides, Water Users Association, which is responsible for the local management of irrigation started to be established upon the proclamation of the law in 2001. The major institutions in the regulation of the Bulgarian water policies are MoEW, and the Ministry of Environment and Water of Bulgaria. Another governmental actor other than MoEW is the MRDPW Ministry of Regional Development and Public Works, which is the competent authority of the EU-Phare CDC projects and the ministries especially responsible for floods such as the Ministry of Agriculture and Forestry, Ministry of Health, and Ministry of Natural and Human-made Disasters.

The public corporation called “Irrigation Systems Ltd.” is affiliated to the Ministry of Agriculture and it controls the structuring and usage of irrigation. Due to the institutional and economic problems, the amount of irrigated areas is quite insufficient compared to the pre-1990 socialist regime.

In cities, water supply and wastewater management is provided by private companies. Four Regional Environment and Water Boards were established for the equal management of water regions, which

is one of the requirements of implementing Water Framework Directive. These boards play a major role in implementing water management policies in guidance of MoEW.

Three riparian countries have free market economy, but private sector in Bulgaria is a bigger actor in management of water resources. All the hydroelectric generation is provided by the private sector. These companies aiming at maximum energy generation hold water levels in reservoirs at a maximum level throughout the year. Unlike this situation, the maximum capacities of water reservoirs should be at a level as minimum as possible in order to keep flood water.

As a result, this situation is an evidence of current conflict of interest between the actors using the reservoirs for the energy generation and public authorities which are another actor responsible for the flood control measures and research. Cooperation about the water management and flood control in Bulgaria is negatively affected by the conflict of interests, and this effect negatively affects the transboundary cooperations as well. Local authorities in Bulgaria play a secondary role as in Greece, and they are not efficient in water management. In case Bulgaria cooperates with the lower riparian countries on the management method of dams, she will have to keep the dam reservoir levels at minimum levels for the risk of floods, and this situation will decrease the quantity of power generation. The cooperation to be made would conflict with the interests. And as realists also indicate, countries make only political cooperations. While Bulgaria goes through conflict of interest in her internal politics, and while both the cooperation to be made conflict with her interests, and also it increases the current internal conflict; she avoids a cooperation with Turkey and Greece involving these conditions.

The University of Bulgaria, National Institute of Meteorology and Hydrology (NIMH) and Bulgarian Academy of Sciences (BAS) assume the advisor role as actors producing information on environmental and water issues. In addition to this, Bulgarian academic institutions, especially hydraulic laboratories, and other institutes as civilian actors serve to the management of water resources.

Despite the adjustment work people are in favor in terms of quality and quantity in Bulgaria, they encounter negative effects caused by mismanagement of water and high pollution. Bulgaria is in a transition period and considers water as an effective economic good in growing economy of the country. With the discourse of “Water, in the Marketplace”, she brings an economic dimension to hydropolitics. Producing power through nuclear energy, coal, and hydropower, Bulgaria can now export electricity.

Perceiving water as an economic meta, and its association with political and socio-economic problems in this transition period damages the issue of transboundary water management with the neighbor countries. The overflow problem in the Maritsa River Basin is directly related to the water management at national level. The economic dimension of water is also important in terms of the

water management of the other riparians Greece and Turkey, and it is observed that the lower-riparian countries Turkey and Greece are eager to cooperate with Bulgaria on a joint project related to the usage of Maritsa River water. Bulgaria, especially whose regions on the Turkey borderline were damaged, should join in the cooperation between Turkey and Greece, who started to cooperate for the management and monitoring of basin waters, as well as to take precaution against overflows. The overflow problem, which is the biggest problem of the basin, but it, can be controlled with the cooperation of three riparian countries.

References:

Arsov, R., (2010), "Bulgarian Transboundary Rivers", http://www.inweb.gr/workshops/papers-surface/BULGARIANTRANSBOUNDARY WATERS, 15.03.2010.

Dinar, S, (2008), International Water Treaties: Negotiation and Cooperation Along Transboundary Rivers, London, Routledge.

http://www.aa.com.tr/tr/manset/114061-sinir-kucuk-arac-gecisine-kapatildi

http://www.haber7.com/haber/20120207/Meric-nehri-tasti-Edirne-alarmda.php

"The Maritsa River and Water Management in Bulgaria", Tuğba Evrim Maden, ORSAM, 15/02/2012, online at: http://www.orsam.org.tr/en/WaterResources/showAnalysisAgenda.aspx?ID=1597

BACK TO TOP

❖ Towards A New Stage In Protecting Water Resources: Draft Regulation On Defining Special Provisions and Special Planning Studies

Article 16 of the Water Pollution Control Regulation, which was published on the Official Gazette dated 31.12.2004 and numbered 25687, states "in preserving reservoirs of water intended for human consumption, and preserving similar water resources; the general principles and protection zones indicated below are valid until special provisions are introduced related to each resource and its basin about the definition of their protection zones and preservation principles by evaluating characteristics of the resource and its basin through scientific studies. Special provisions are made by Ministry or by concerned governorates in coordination with Ministry (or the aforesaid authorities have special provision made). The Special provisions' verbatim taking place in concerned construction plans and environmental plan, and the aforesaid provisions' being implemented by the administration constitutes the basis."[1] And in Article 22, planning works on ground waters ("special planning study" statement) were mentioned.

What is meant by Special Provisions Defining Works is "all of the works for preserving reservoirs of water intended for human consumption and preserving similar water resources against pollution; as well as defining protection zones and preservation principles by assessing the resource and its basin through scientific studies.[2]

The Special Planning Work encompasses "the works, in which protection zones and principles that are created to preserve the current quality of the water resource by considering physical and technical characteristics of basin and aquifers of ground water, Thermal and Geothermal resources and Natural Mineral waters, are defined."[3] As it would be understood from these definitions, while generally works carried out for the preservation of the quality of surface water resources are handled under the title of "defining special provisions"; works related to preservation of thermal, geothermal, natural and mineral water resources are handled under the title of "special planning".

In 2009, the first step was taken to put forward the frame of details of these works, and the notice of Procedures and Principles Regarding Defining Special Provision In Basins was published "to regulate the work for the evaluation of physical and technical characteristics of the basin through scientific studies and for the definition of preservation zones and preservation principles; as well as to regulate the procedures and principles regarding this work.[4] On the other hand, any notice related to the Special Planning Work was not published. Therefore, synchronization in legal arrangements related to Defining Special Provision Work and Special Planning Work was lost for a certain period of time.

The Draft By-law declared on February 3rd 2012 is the recent step taken in order to place both Defining Special Provisions, and Special Planning works on a more solid legal platform, and to reestablish the synchronization established in the past (2004) on two kinds of works within the framework of "holistic approach towards water resources".

When this Draft By-law is studied, the difference between Defining Special Provisions and Special Planning works draws attention. For instance, while in defining special provision works, it is stated that these works "are made by the Ministry or by the Metropolitan Municipality General Directorate

of Water and Sewerage Administrations in coordination with the Ministry in basins, from which water intended for human consumption is provided for Metropolitan Municipalities by Ministry or by Governorates in coordination with Ministry; it is emphasized that special planning works "shall be made by the Ministry or by Ministry of Health, General Directorate of Mineral Research and Exploration (MTA, Turkish acronym), and Governorates in coordination with the Ministry.[5] What is interesting here is the fact that Metropolitan Municipalities are not given any responsibility in special planning works to be made related to potential groundwaters within the Metropolitan borders. Therefore, the fact that water resources constitute a whole, more clearly, the fact that evaluating surface water and groundwaters separately does not conforms to physical facts seems to have gone unnoticed.

As another difference, it is declared that defining special provisions studies will be made for all resources[6], on the contrary, special planning studiess shall be made on the basis of "priority".[7] This prioritization will be made by the Ministry.

Even though it is stated the control of provisions indicated in draft regulation will be made by the Ministry of Forestry and Water Affairs, it is indicated that the controlling mandate of the Ministry could also be delegated.[8] The institutions/organizations the control could be delegated to are not indicated. The clue regarding that the controlling mandates could be delegated to local authorities in the future is found in the following statement of the same article: "Metropolitan Municipalities are responsible for the controlling activities in basins of surface water resources, from which water intended for human consumption is provided for metropolis."

In conclusion, it is obvious that the aforesaid draft by-law – even though the final version has not come up – will be an important legal arrangement for the preservation and improvement of quality of water resources in Turkey. However, fulfilling the targets of the by-law seems to be related to the attitude of Ministry in exercising its control, to a great extent. Besides, it is quite important to reflect the outcomes to be obtained in the meetings, where the public opinion would be taken, on special provisions, so the works to be carried out would get more successful results. It is also quite significant in terms of the formation of this method, showing the fact that the principle of "participation" in Turkish water quality management is started to be implemented.[9]

References:

[1] Su Kirliliği Kontrolü Yönetmeliği, 25687 sayılı Resmi Gazete (31 December 2004)

[2] Havzalarda Özel Hüküm Belirleme Çalışmalarına İlişkin Usul ve Esaslar Tebliği, sayılı Resmi Gazete (30 June 2009), Article 3.i.

[3] Su Kaynaklarının Korunması Özel Hüküm Belirleme ve Özel Planlama Çalışmalarına Dair Yönetmelik Taslağı.

[4] Havzalarda Özel Hüküm Belirleme Çalışmalarına İlişkin Usul ve Esaslar Tebliği, 27274 sayılı Resmi Gazete (30 June 2009).

[5] Su Kaynaklarının Korunması Özel Hüküm Belirleme ve Özel Planlama Çalışmalarına Dair Yönetmelik Taslağı, Article 16.

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

[6] Article 14.

[7] Article 16.3.

[8] Article 32.1.

[9] Look for a current sample of this type of meetings: http://www.butso.org.tr/haber/252-burdur39un-harekete-gecmesi-g
ec-de-olsa-devleti-ha.html (date accessed 10 February 2012).

"Towards A New Stage In Protecting Water Resources: Draft Regulation On Defining Special Provisions and Special Planning Studies", Vakur Sümer, ORSAM, 11/02/2012, online at:
http://www.orsam.org.tr/en/WaterResources/showAnalysisAgenda.aspx?ID=1598

BACK TO TOP

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

❖ European Union Common Agricultural Policy and Water: Vision of a "Greener" Agriculture and the Case of Turkey

In European Union Member States, similar to other other countries, agriculture is one of the major water consumers. When it comes to "agriculture and water", two legislative frameworks come to forefront in the context of EU: Common Agricultural Policy (CAP) manages agricultural activities; while Water Framework Directive (WFD) puts forward guidelines of water management policy in general.

As a significant and one of the oldest policy fields of the European Union, Common Agricultural Policy took form as a result of famine and shortages caused by the World War 2, and it was designed with the main objective that could be summarized as "to provide Europe with sufficient amounts of food". On the other hand, legal regulations related to water management within the EU framework – which the WFD is also a part of – took shape with relatively different priorities in later stages. The basic approach shaping the WFD and other EU legal regulations on water has been "to fight against pollution and to improve water quality". Therefore, an apparent difference of approach between CAP and WFD draws attention at first glance.

Nevertheless, contrary to the framework the CAP was first designed, upon the fact that it gained a structure increasingly prioritizing environmental concerns; the theoretical contradiction between EU water management policy and CAP started be understood within the context of a search for a common platform between these two political fields. As a result, while CAP says "yes", and WFD says "no" to the question "is irrigation good in agriculture?" in principle; today it is concluded that the answer is indeed much more complicated and "grey".

Upon the fact that CAP started to reveal some undesired situations ("butter mountains" and "wine lakes" appeared as a result of major incentives for production, and also, overuse of chemicals led to water, soil and air pollution) in 1980's, the idea of reform in agricultural policy began to come to forefront. The first major from efforts appeared with the Mc Sharry reforms in 1992. The second wave is the Agenda 2000 document declared in 1997. And throughout 2000's, further reform efforts continued to be one of the current issues on CAP agenda.

Considering the amount of water used in agriculture, the approach of CAP towards water resources gains great significance. There are 4 measures that summarize the current approach of CAP towards water: 1. Protection belts envisaged to be reated around water bodies. 2. Implementing necessary procedures of "authorization" in places where permission is required to use irrigation water. 3. Environmentalist measures related to agriculture in CAP. 4. Payments conditioned to the implementation of Water Framework Directive. Thus, CAP puts forth a certain framework related to the protection of water resources.

Furthermore, the form CAP will take in the future can be expected to adopt a more "strict" approach in protection of water resources. Because, as far as perceived from the suggestions put forward related to the CAP reform on October 2011, new water investments will be subject to a stricter framework. For instance, in these suggestions, it was put forward that new irrigation investment could be considered "eligible" on condition that new irrigation investment will be a project to decrease water use at least at the rate of 25% compared to the previous irrigation system in the region

where irrigation investment will be made. In addition to this, suggestions such as; registering certain places as "permanent pasture", and expanding the "set-aside" principle that could be described as not cultivating a certain percentage of fields, contain clues regarding that CAP will envisage a "greener" understanding on protection of water resources.

Considering the agricultural policy in Turkey, we see that expansion of irrigated areas is still a priority. Therefore, the impact of agriculture on country's water resources should be expected to increase in short and medium terms. However, the efforts for putting forward and controlling this impact at scientific level are on the rise, as well. For instance, with the "water footprint" studies, which have gained momentum in recent period; it was aimed to provide a more clear understanding of the impact of agriculture on water resources, and to control this impact through "defining special provisions" and "special planning works". In the context of agriculture-water liaison, Turkey is reaching a balance, which both promotes agricultural production and also makes water use more efficient, and provides long-term sustainability of water resources, corresponds to a scenario that could take place as resultant of many efforts. As part of this, it is quite important to closely follow the steps the EU has taken/will take. Especially, the experience of countries, such as Spain and Greece, with relatively similar economic and hydrologic characteristics with Turkey, should be the subject of serious analyses.

References:

Water Framework Directive meets Common Agricultural Policy - Opportunities for the future (CAP & WFD)", Sixth Framework Programme (FP6) project), http://ecologic.eu/1369, accessed on 14.02.2012.

EU official web site, EUROPA, Policy Areas, Agriculture, http://europa.eu/pol/agr/index_en.htm, accessed on 14.02.2012.

"European Union Common Agricultural Policy and Water: Vision of a "Greener" Agriculture and the Case of Turkey",Vakur Sümer, ORSAM, 16/02/2012, online at: http://www.orsam.org.tr/en/WaterResources/homepage.aspx

BACK TO TOP

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

❖ Expansion of Iraq ties on agenda: energy minister

Tehran, Feb 13, IRNA - Expansion of ties with Iraq is among the long-term strategies of the government, said Energy Minister Majid Namjou on Monday.

Talking to reporters after a meeting with Iraqi's Minister of Water Resources Mohanned Salman al-Saadi he said that the two countries are determined to resolve the problems related to water sector.

He said that 8 percent to 10 percent of water flowing to Iraq comes from Iran, adding the main part of water originated from other countries which created a number of problems for the country.

'We do our best to resolve the related problems within the framework of agreements signed between the two countries,' the official said.

Namjou said that a joint committee is expected to be established for pursuing the objective of supplying water to Basra, Iraq pointing out that a number of short, medium, and long-term plans will be implemented in this respect.

A memorandum of understanding was signed during the meeting he said, adding a technical and engineering team is expected to be formed to study the problems, especially the pollution of the Arwand River flowing between Iran and Iraq.

Earlier, Namjou said that Iran has saved some 100 trillion rials (around 8.1 billion dollars) in water consumption and some 5 trillion rials (around 400 million dollars) in power consumption since the implementing the Subsidy Reform Plan in December 2010.

The administration is planning to reduce the per capita consumption of water to 30 liters from 150 liters, the minister added.

"Expansion of Iraq ties on agenda: energy minister", 13/02/2012, online at:
http://www.irna.ir/News/Economic/Expansion-of-Iraq-ties-on-agenda,-energy-minister/30816200

BACK TO TOP

❖ Debates on Federalism in Iraq and Water Management Issues

Oil and natural gas are the two leading natural resources of Iraq. Those two resources are the most important issues that take attention both in Iraq and in assessments about Iraq. As an addition, those resources are also constitutes the ground for the debates about federalism, new administration system in Iraq, along with the ethnic and sectarian issues. However, water issue is mentioned as a problem for a long time and this issue gradually became on the agenda in Iraq.

Iraq sees neighbouring countries in general and Turkey specifically as responsible for the water problem in the country. Iraq asserts that because of the Southeast Anatolia Project (GAP) which Turkey implements as a multi dimensional project, the amount of water which flows to the country from Turkey is decreased. Those claims are not acceptable, but responding such claims is not the aim of this study.

After the invasion of Iraq and overthrow of Saddam Hussein by coalition forces with the leadership of USA, the debates were about the new government system in the country. In this era ethnic and sectarian strife emerged and caused a civil war. With the United Nations Security Council's Resolution no: 1546 it is come on the scene that, new governmental system will depend on federalism. In that resolution federal, democratic, pluralist and united Iraq is mentioned and therefore future of Iraq is constituted.[1]After forming of Interim Administration Council, Transitional Period Administrative Law has been adopted and this law constituted the basic of 2005 Iraqi Constitution.

According to the 1. article of the Iraqi Constitution, dated 15 October 2005, Iraq is a parliamentarian, democratic and federal republic.[2]Moreover, with the federalism law adopted in October 2006, establishment and regulation of federal regions are provided however, not only because of the tension between federal government and Kurdish regional government but also among sectarian and ethnic groups, the law could not come into force.

Federal structure of Iraq cannot be considered apart from the ethnic and sectarian identities. Thus, the structure expected to be unifier seems to have a secessionist character. The basic argument that strengthens the thought that there is a long way for democracy in Iraq is the organization of political parties in ethnic and sectarian basis. Each group in Iraq considers federalism differently. Particularly, the Kurdish Regional Government considers federalism as a mechanism softening the power of federal government on Kurdish areas and increasing the influence of regional government. Tragic events in the past strengthen their determination on this issue.

There are some groups rejecting federalism as well as some groups that consider establishing a Shi'ite region composed of 9 governorates. Iraqi Sunnis are concerned that federalism will harm the unified Iraq.[3]

Iraqi Constitution states in article 111 that oil and natural gas resources belong to all Iraqis. On the other hand in article 112 points out that the federal government will manage oil and natural gas resources with the producing governorates and distributes its revenues in a fair manner in proportion to the population distribution in all parts of the country. At the same time this article stresses that the regions which were deprived of by the old regime will have priority in this distribution. These expressions bring an ambiguous regulation and provide sufficient arguments to all parties about the management and distribution of oil and natural gas revenues.

The same ambiguity appears about water resources. Constitution diversifies the water resources as external and internal and gives exclusive authority to the federal government. Article 110 arranges exclusive authorities of the federal government. According to the 8. paragraph of the article "Planning policies relating to water sources from outside Iraq and guaranteeing the rate of water flow to Iraq and it's just distribution inside Iraq in accordance with international laws and conventions" is in the authority of federal government. 114. article arranges the competencies shared between the federal authorities and regional authorities. 7. paragraph of the related article expresses that the competencies about formulating and regulating the internal water resources policy in a way that guarantees their just distribution are shared between federal and regional governments and this will be arranged by a law.

It is explicitly stated in the 115. article of the constitution that, in the case of conflicting water resourses development policies between federal and regional governments, the policies of the regional governments have priority.[4] Furthermore, article 121 states, "in case of a contradiction between regional and national legislation in respect to a matter outside the exclusive authorities of the federal government, the regional power shall have the right to amend the application of the national legislation within that region."

According to the Iraqi Constitution governorates have the right to organize into a region except Baghdad and temporarily Kirkuk governorates. However to date there is no region other than the Kurdish Regional Goverment. Even if there are demands for establishing regions it can be considered that dissents to these demands are more dominant. Kurdish Regional Government is constituted from Dohuk, Sulaimaniyya and Arbil. The region that covers the mountainous areas of northern Iraq has rich water resources with respect to other areas of Iraq. Many tributaries of the Tigris River are in this region. Moreover Dukan and Darbandikhan HEPP's are also located in this region. Even if the greatest dam and HEPP of the country, Mosul Dam, is not in the borders of the Kurdish Regional Government, it is de facto controlled jointly by KDP and PUK.

In the case of a disagreement about water resources development policies between Kurdish Regional Government and Federal Government Iraq will face a new problem. Current constitution does not give much hope for a solution. Kurdish Regional Government has much experience on regional government practices since 1992. It is clear that Kurdish Regional Government will behave jealously,

by stating their tragic experiences, on the rights given by the current constitution. Nowadays, importance of holistic approach in water management is understood. Consequently, it must be taken into account by all parties that a disintegrated water management will create problems.

[1] http://daccess-dds ny.un.org/doc/UNDOC/GEN/N04/381/16/PDF/N0438116.pdf?OpenElement,

[2] http://www.uniraq.org/documents/iraqi_constitution.pdf

[3]Duman, Fatma Ceren Türkmen, http://www.orsam.org.tr/tr/trUploads/Yazilar/Dosyalar/20111021_inceleme3.pdf

[4] http://www.uniraq.org/documents/iraqi_constitution.pdf

"Debates on Federalism in Iraq and Water Management Issues", Seyfi Kılıç, ORSAM, 02/02/2012, online at: http://www.orsam.org.tr/en/WaterResources/homepage.aspx

BACK TO TOP

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

❖ Water Resources of Iraq and Iraqi Constitution

Iraq is known as a water stress country. This is an expected situation due to arid and semi-arid climate conditions of Iraq's geographical location. However, relating Iraq's water stress with only geographical and climatic conditions is inadequate since it means ignoring the whole problem.

One of the most important components of Iraq's water stress is destroyed water infrastructure due to long lasting circle of war, embargo, occupation and civil war. Water per capita per annum in Iraq is 2461 cubic meters.[1] This amount is high relative to neighbouring countries. Water per capita per annum is 1652 cubic meters in Turkey,[2] 837 cubic meters in Syria,[3] 1880 cubic meters in Iran,[4] 155, 5 cubic meters in Jordan[5] and 89, 52 cubic meters in Saudi Arabia.[6]

Despite the fact that water per capita per annum is higher compared to the neighbouring countries, Iraq faces a heavy water stress. 25% of the capital Baghdad does not have water network and the population depends on unsecured and expensive water resources. 30% of the urban population out of Baghdad is deprived of water services. This ratio is much higher in rural areas.

2005 dated Iraqi Constitution give authority both to federal and regional governments. Article 110 arranges the federal government's exclusive authorities. According to 8. paragraph of the article "Planning policies relating to water sources from outside Iraq and guaranteeing the rate of water flow to Iraq and its just distribution inside Iraq in accordance with international law and conventions" is under the federal government's responsibility. Article 114 arranges the competencies shared between the federal and regional authorities. 7. paragraph of the related article expresses that the competencies about formulating and regulating the internal water resources policy in a way that guarantees their just distribution are shared between federal and regional governments and this will be arranged by a law. It is explicitly stated in the 115. article of the constitution that, in the case of conflicting water resources development policies between federal and regional governments, the policies of the regional governments have priority. Furthermore, article 121 states, "in case of a contradiction between regional and national legislation in respect to a matter outside the exclusive authorities of the federal government, the regional power shall have the right to amend the application of the national legislation within that region."

In the Iraqi Constitution authority shared between federal and regional governments is not clear about waters originate inside and outside Iraq. By the definition "the waters originate outside Iraq" on which federal government has exclusive authority, Tigris and Euphrates rivers are implied. There is no tributary in Iraq that joins Euphrates river, thus there is no problem with respect to the constitution in this issue. The issue must be considered for Tigris river. It must be kept in mind that just before leaving Turkish territory, in Cizre gauging station, main tributary of

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

the Tigris river's average flow is 16 billion cubic meters. Average annual flow of the river is 50 billion cubic meters. A part of the difference between these two figures originates from northern Iraq while another important part of it comes from tributaries such as Habur, Greater Zap that originate from Turkey and Lesser Zap that originates from Zagros mountains in Iran. Since there is a distinction of authority for waters originating inside and outside Iraq, it must be determined that which water will be included in which scope. If Tigris River's tributaries that originate from other countries and join in Iraq are included in the authority of the federal government, water management competency of Kurdish Regional Government will be limited. On the other hand, in the case that these waters are considered as waters originating inside Iraq, this implies ignoring of a hydrological fact and another dimension will be created in water management issues in Iraq. In order to solve this problem a legal arrangement is required.

[1] http://www.fao.org/nr/water/aquastat/data/factsheets/aquastat_fact_sheet_irq_en.pdf

[2]DSİ, Su ve DSİ, Ankara, DSİ, 2009.

[3] http://www.fao.org/nr/water/aquastat/data/factsheets/aquastat_fact_sheet_syr_en.pdf

[4] http://www.fao.org/nr/water/aquastat/data/factsheets/aquastat_fact_sheet_irn_en.pdf

[5] http://www.fao.org/nr/water/aquastat/data/factsheets/aquastat_fact_sheet_jor_en.pdf

[6] http://www.fao.org/nr/water/aquastat/data/factsheets/aquastat_fact_sheet_sau_en.pdf

"Water Resources of Iraq and Iraqi Constitution", Seyfi Kılıç, ORSAM, 02/02/2012, online at: http://www.orsam.org.tr/en/WaterResources/showAnalysisAgenda.aspx?ID=1572

BACK TO TOP

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

❖ Power Cuts Expected Due to Fuel Shortage

ERBIL, Iraqi Kurdistan – The Kurdistan Region is expected to face power cuts thanks to a shortage in the supply of fuel for local turbines.

The Ministry of Electricity said the turbines need 7 million liters of gasoline daily and the local refineries can only produce around 1.4 million liters of gasoline in a day.

In addition to the two major hydroelectric power plants of the Dukan and Darbandikhan lakes, the Kurdistan Region relies on 18 private stations that consume gasoline and liquid gas to generate electricity.

Officials say operating these gasoline turbines costs the Kurdistan Regional Government (KRG) US$150 million every month.

The Economic Research Committee of the Change Opposition Movement (Gorran), assigned with conducting research in the field of economic problems, released a report last week titled "The Issue of Electricity and Solution Roadmap" which highlights errors in production and distribution of electricity.

"Hundreds of millions of dollars are wasted every year by the Kurdistan Regional Government in the process of electricity production," read the report.

"People's demand for electricity increases every year by around 13 to 15 percent," read the report. "But according to international standards, increase in the consumption should be around 3 to 5 percent. This abnormal increase is mainly because the KRG does not provide sufficient heating fuel for the citizens, and they resort to using more electricity."

Diyar Baban, general director of production in the Ministry of Electricity, said that stations that run on liquid gas work properly. "We have problems with eight gasoline turbines stations," he said.

Baban maintained that most of the gasoline for the turbines is imported.

The big demand for fuel supply has put Kurdistan's Ministry of Natural Resources under pressure. An official from the ministry, who spoke to Rudaw on condition of anonymity, said that their ministry is in debt to numerous companies that transport gasoline to the power plants.

"The ministry of finance has been asked to pay the debt of those cargo companies which amounts to 48 billion Iraqi Dinars (US$38.4 million)," said the official.

For his part, Baban said that unless it is resolved, the debt issue could affect production of electricity as well.

According to the Ministry of Electricity, the Kurdistan Region needs 3,000 megawatts of electricity, but only 2,000 megawatts are produced.

"Due to lack of fuel, two turbines have been halted in Erbil province which means the loss of 250 megawatts," Baban said. "However, if all the turbines operate properly, we can produce 2,300 megawatts of electricity which means the provision of 18 hours of electricity a day for people."

The Dukan hydroelectric dam is Kurdistan Region's largest source of electricity. Its capacity is 400 megawatts, but local officials say it is currently producing only 40 megawatts. With a capacity of 250 megawatts, the Darbandikhan dam is producing only 20 megawatts.

Mahmood Haji, the spokesperson for the Ministry of Electricity, said the work of the hydroelectric dams is rather seasonal.

"We are unable to use these two hydroelectric dams when the demand for electricity is high during winter, because the water of these two dams runs from September to May. We do not need those two dams after that," he said.

KRG officials say that the government is planning to build three new hydroelectric dams by next year: Deraluk dam with a capacity of 260 megawatts, Mandawa dam with 620 megawatts and Taqtaq dam with a 270-megawatt capacity.

"These dams are mainly constructed to manage water resources. Therefore, they do not generate enough electricity and we have to depend on other sources of electricity," said Haji.

"Power Cuts Expected Due to Fuel Shortage", 17/02/2012, online at: **http://www.rudaw.net/english/kurds/4432.html**

BACK TO TOP

❖ Israel balks at adding pricey mineral to desalinated tap water

Despite the recommendations of experts, the government has opted not to add magnesium to desalinated water after balking at the prohibitive costs. The treatment had been estimated at a few hundred million shekels.

The decision was made following a meeting Monday night in the economics department of the Prime Minister's Office to determine whether the addition of magnesium should be part of the new regulations on water quality that the Knesset is to vote on soon.

The recommendation to add magnesium to desalinated sea water was made by the committee of experts that prepared the new water quality standards. The Health Ministry made the same recommendation.

The recommendation comes as a response to the expected decline in magnesium following the increased use of desalinated sea water, because magnesium is removed from the water by the desalination process.

"Many studies, some done in Israel, have proved that adding magnesium helps heart function among both the healthy and the sick," Prof. Michael Shechter, of the Cardiac Institute at Sheba Medical Center, Tel Hashomer, said.

Shechter added that it also reduces the frequency of diabetes and can reduce the tendency to obesity and high blood pressure in children.

Various estimates on the cost of adding the magnesium to the water were presented at the meeting, ranging from NIS 130 million to NIS 500 million.

Magnesium may be added by a number of methods, one of which - developed by the Technion in Haifa - involves producing the element directly from the sea water and adding it to the desalinated water.

Health Ministry representatives at the meeting, who stressed the importance of magnesium to health, said adding it to drinking water was the most efficient way to deliver it.

However, representatives of the Water Authority said the project was very expensive because it could damage the quality of the desalinated water, necessitating the addition of chemicals and compounds that make the water hard. The hard water would coat pipelines with scale, which would have to be removed using electric equipment and piping

The Water Authority representatives said that in many places in the world there is hardly any magnesium in the water, and Israelis get enough magnesium in their food.

They also said there was no point in investing so much money in adding magnesium to the desalinated water when only one percent of that water would be used as drinking water.

The Prime Minister's Office then decided that there was no economic justification for making the addition of magnesium one of the new water regulations.

The Water Authority said on Tuesday that adding magnesium to the water would increase its cost to households by between 23 and 81 agorot per cubic meter.

"We have asked the Health Ministry to study the need to add magnesium by means of a survey it has conducted and accepted standards worldwide. If it is decided to add the magnesium, the most economic way to do so would be examined, whether to the water or to food."

One idea raised was that magnesium be added to flour. However, Shechter said: "Doctors' recommendations are not to increase consumption of flour, which causes obesity. And besides, some people don't eat flour. If [people are not getting] enough magnesium people will be weak, and will have to purchase magnesium additives," he said.

According to the Water Authority, no countries add minerals to desalinated water other than calcite, which Israel also adds.

Israelis consume more magnesium than the recommended standard, the Water Authority said, but even in countries like the United States, where magnesium consumption is very low, no magnesium deficiency has been reported in the population.

But according to Shechter's data, there is enough magnesium in the water in the U.S., and magnesium consumption is going down in Israel.

"Israel balks at adding pricey mineral to desalinated tap water", 15/02/2012, online at: **http://www.haaretz.com/print-edition/news/israel-balks-at-adding-pricey-mineral-to-desalinated-tap-water-1.412914**

BACK TO TOP

❖ Britain Helps Israeli Water Thieves

Stuart Littlewood exposes British Water's complicity with the Israeli occupation authorities who are not only stealing Palestinian water, but also overseeing the flooding of Palestinian fields and villages with untreated sewage from hilltop Jewish settlements.

There are few crimes more despicable then stealing your neighbour's water.and polluting what's left, then watching him and his children suffer thirst, disease and ruin.

Most of us would want nothing to do with the perpetrators of such evil.

British Water describes itself as the voice of the water industry. It talks about best practice and corporate responsibility, and lobbies governments and regulators on behalf of its members. No doubt it does a good job.

It also has international ambitions, including in the Middle East. So, presumably it knows what's going on water-wise in the Holy Land.

Apartheid Wall and water theft

British Water should know, for example, that the 400-miles long structure known worldwide as Israel's Apartheid Wall bites deep into the Palestinian West Bank, dividing and isolating communities and stealing their lands and water.

If the wall was simply for security, as Israel claims, it would have been built along the internationally-recognized 1949 Armistice "Green Line", although not even this is an official border. The wall's purpose is plainly to annex plum Palestinian land and water resources for illegal Israeli settlements, and to that end it closely follows the line of the Western Aquifer.

In 2004 the International Court of Justice (ICJ) at The Hague ruled that the construction of the wall is "contrary to international law" and Israel must dismantle it and make reparation for damage caused. The ICJ also ruled that "all states are under an obligation *not to recognize the illegal situation resulting from the construction of the wall* and *not to render aid or assistance in maintaining the situation* created by such construction".

But the wall marches on, aided by American tax dollars and America's protective veto, so that Israel can wield complete control over the water resources it sees as necessary to the regime's present and future needs. This makes the Palestinians, who sit on top of enough water to be self-sufficient, entirely dependent on Israel for God's life-giver. Israel also consumes most of the water from the Jordan River despite only 3 per cent of the river falling within its pre-1967 borders. Palestinians now have no access to it whatsoever due to Israeli closures.

Most of the Coastal Aquifer, on which Gaza's inhabitants rely for water, is contaminated by sewage and nitrates, and is unfit for human consumption. Children particularly are at great risk .The aquifer is depleted and in danger of collapse. The damage could take generations to reverse, say experts.

During Israel's deadly assault on Gaza (Operation Cast Lead) in 2008/09 over 30 kilometres of water networks were damaged or destroyed, in addition to 11 wells. A UN Fact Finding Mission (the Goldstone report) considered the destruction "deliberate and systematic". Proper repairs have been impossible these last three years because Israel blocks the import of spare parts.

Palestinians must buy their own water from Israel at inflated prices

Thirsting for Justice is an aptly-named campaign by the Emergency Water Sanitation and Hygiene group (EWASH), a coalition of 30 Palestinian and European humanitarian organizations, including Oxfam. It calls on European governments to put pressure on Israel to respect international law and the Palestinians' basic rights to water and sanitation.

Under the warped arrangements of the Interim Agreement on the West Bank and the Gaza Strip (1995) Palestinians are allowed only to abstract 20 per cent of the "estimated potential" of the mountain aquifer beneath the West Bank. Israel not only takes the balance (80 per cent), but overdraws its sustainable yield often by more than 50 per cent. A Joint Water Committee (JWC) was set up to implement the agreement but Israel was given veto power and the final say on decisions. As a result, a number of essential projects for Palestinians have been denied or delayed. To make up for part of the supply shortfall, Palestinians are forced to buy water from the Israeli national water company Mekorot, some of which is extracted from wells within the Palestinian West Bank. In other words, they are having to buy their own water, and at inflated prices.

Oxfam, which is very active on the ground in Gaza, confirms that 90-95 per cent of water from Gaza's only source, the Coastal Aquifer, is undrinkable. At the current rate the aquifer will be unusable by 2016 and the damage irreversible by 2020.

Gaza residents are restricted to an average of 91 litres of water per day compared to 280 litres used by Israelis. Some 100-150 litres a day are required to meet health needs, says the World Health Organization. Marginalized Palestinian communities in the West Bank survive on less than 20 litres per capita per day, the minimum amount recommended by the World Health Organization to sustain life in an emergency.

Palestinians in Gaza and the West Bank are said to have full legal rights to nearly 750 million cubic metres of water but they have to make do with a trickle, or go without, while Israelis fill their swimming pools, sprinkle their lawns and wash their cars. In Bethlehem's Aida refugee camp the water is turned off for days. When the street taps come on again, usually for a few hours, there is a desperate scramble to refill domestic tanks and other containers before the next cut.

Water an apartheid weapon in a brutal occupation

The Israeli newspaper *Haaretz* last month reported on the French parliament's Foreign Affairs Committee findings on the geopolitical impact of water in confrontation zones like Israel-Palestine.

According to the report, water has become "a weapon serving the new apartheid… Some 450,000

Israeli settlers on the West Bank use more water than the 2.3 million Palestinians that live there. In times of drought, in contravention of international law, the [illegal] settlers get priority for water."

Israel is waging a "water occupation" against the Palestinians, says the report, which accuses the Israelis of "systematically destroying wells that were dug by Palestinians on the West Bank" as well as deliberately bombing reservoirs in the Gaza Strip in 2008-09. Furthermore, "many water purification facilities planned by the Palestinian Water Ministry are being blocked by the Israeli administration."

The head of the Palestinian Water Authority, Dr Shaddad Attili, observed: "Palestinians need to be able to access and control our rightful share of water in accordance with international law. The Oslo Accords did not achieve this… Without water, and without ensuring Palestinian water rights, there can be no viable or sovereign Palestinian state."

And not content with robbing the Palestinians of their water, the Israelis are in the habit of flooding Palestinian fields and villages with untreated sewage from their hilltop settlements.

Under the radar

Against this background, British Water has decided to cooperate with MATIMOP, an Israeli government agency that has been ordered to enter into international agreements and "aggressively expand opportunities for Israel's industry".

Always eager to oblige, the UK Trade and Investment Department's briefing on Environment Opportunities in Israel contains this advice:

Israeli companies are keen to form alliances with companies abroad, and this is where the UK can benefit. In addition, growing development and marketing costs compel Israeli environmental companies to seek cooperation with foreign partners...

The UK are world leaders in many aspects of the environment and so the UK and Israel complement each other and have much to offer each other in this sector. Teaming up with Israeli environment companies will give UK companies access to innovation and entrepreneurial spirit. *UK companies can also benefit by providing their experience in marketing and management for Israeli companies*." [my italics]

So, British Water signed a Memorandum of Understanding with MATIMOP on 21 December, so close to the Christmas holidays that it went unnoticed here. The event was not even recorded on British Water's website but it was proudly featured on the Israeli embassy's website and treated by the Israeli press as a triumph.

MATIMOP calls it "a strategic cooperation agreement". Its executive director, Israel Shamay, said:

We are pleased to be working closer with British Water than we have worked with any foreign trade organization before. The UK water sector is well respected internationally for its world-leading

capabilities, solutions and services, making it the perfect partner to help commercialize and market Israeli innovation and R&D in this sector.

British Water agreed the text for an announcement by the Israeli embassy but didn't release it, apparently happy for Tel Aviv's propaganda boys to take care of it. In the press release MATIMOP says: "Israel has been coping with water scarcity since its founding."

Yes, coping by thieving.

The Palestinians have been subjected to the longest and most brutal military occupation in modern times and are held prisoner within the fragmented remnants of their own country, unable to develop its resources or travel freely within it to find work, attend university, visit family or worship at their holy places in Jerusalem. Is helping Israel to become a water superpower really the right thing for British Water to be doing?

Question: "EU agreements require Israel to show 'respect for human rights and democratic principles' and provide for the agreement to be suspended otherwise. Does the MATIMOP agreement include similar good behaviour conditions?"

British Water: "The agreement with MATIMOP is a Memorandum of Understanding. Both parties are professional organizations with admirable aims and objectives."

Question: "British Water will be aware that Israel illegally occupies its neighbour Palestine and has seized control of its water resources. The path of Israel's 400-mile Separation Wall closely follows the line of the Western Aquifer and encloses key supplies. In 2004 the International Court of Justice ruled that the construction of the wall in the occupied territories, including East Jerusalem, is 'contrary to international law' and 'all States are under an obligation not to recognize the illegal situation resulting from the construction of the wall and not to render aid or assistance in maintaining the situation created by such construction'. In the circumstances, should ethically-minded British companies allow themselves to become embroiled?"

British Water: "I'm not sure what you mean by 'embroiled' or 'ethically-minded'. The aim of the MoU is for businesses to work together for the good of the global water industry… It's no part of our role to exchange philosophical concepts with you. The arrangement with MATIMOP is one of commercial intent for the benefit of UK and Israeli companies…"

Question: "Is British Water being evenhanded in this Holy Land confrontation zone? Are you offering help to the Palestinian Water Authority? Have you responded positively to the sea-water desalination project for Gaza and other programmes for West Bank towns and villages?"

British Water: "We notify our member companies of potential commercial opportunities wherever they may arise, leaving them – as they're best-qualified – to weigh the relative attractiveness of different markets."

David Neil-Gallacher is British Water's chief executive and also director-general of Aqua Europa, which does the same sort of job on a Europe-wide basis. This was his parting shot:

Regions of tension are bound to engender strong views and conflicting principles, and it's usually notoriously difficult to discern unequivocal moral ascendancy on the part of any of those involved… In my dealings with our companies active in the region, however, I've never seen any evidence that they are lacking in principle or moral locus… British Water's perspective has to be a commercial one… We do our best to conduct our activities in the best interests of our part of British industry and strictly within the requirements of the law…

How will British Water avoid complicity with Israel's endless oppression of the Palestinians and the deadly strife with its other neighbours in the region? Perhaps Mr Neil-Gallacher should ask one of his own member companies, Veolia, what can happen if caught up in Israeli projects that violate international law. Veolia dumps Israeli waste on Palestinian land and is helping to build and run a tramway connecting Jerusalem with illegal Israeli settlements. The company must rue the day it "crossed the line" to fall foul of those nice folks at the Boycott-Divestment-Sanctions Movement (BDS).

"Britain Helps Israeli Water Thieves", Stuart Littlewood Redress, Al-Jazeerah, 13/02/2012, online at: http://www.aljazeerah.info/Opinion%20Editorials/2012/February/13%20o/Britain%20Helps%20Israeli%20Water%20Thieves%20By%20Stuart%20Littlewood.htm

BACK TO TOP

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

❖ Television expose reveals: Some 'mineral' water bottles contain well water

Show's anchors set out to investigate the mineral water industry in Israel and found that the big mineral water bottling companies bottle water pumped from wells dug by the water utility Mekorot, not only spring water.

Some mineral water bottles contain regular water from the Mekorot water utility's drills, as opposed to spring water, claims the investigative television show Hamakor.

The show's anchors, journalists Raviv Drucker and Miki Rosenthal, set out to investigate the mineral water industry in Israel. They found that the big mineral water bottling companies Ein Gedi, Neviot and Mayanot Eden (Eden Springs) bottle water pumped from wells dug by the water utility Mekorot, not only spring water.

The case of Ein Gedi had been quite widely known. Not widely known was that Neviot stopped using its original spring entirely and relies solely on water from Mekorot wells.

Mayanot Eden pumps its water from the Salukia Spring in the Golan Heights, near the town of Katzrin. Hamakor found that until a few years ago, Salukia served both the company and the residents of Katzrin. But as demand for mineral water ramped up, the company took it all, and the people of Katzrin were delivered water pumped by Mekorot.

Demand for mineral water kept ramping up and the Salukia couldn't meet the demand. Thus, Hamakor learned, Mayanot Eden also began using the Mekorot well. A pipeline was laid from the well to the Salukia. The tourist attraction part of the spring (now known as the Mayanot spring) gets filled from the Mekorot pipeline. So in fact Mayanot Eden's bottled water is a combination of well and spring water.

Neviot used to get water from the Ein Zahav spring near Kiryat Shmona, which had been a local tourist attraction until the company started pumping its water. The upshot was a battle ultimately won by the region's residents: Neviot had to stop pumping from Ein Zahav. Neviot today boasts of having developed a new method of water production: no more springs, but pumping from an aquifer in the Upper Galilee. The rub is, says Hamakor, that in fact it's getting its water from a Mekorot well called Hula 7, which also supplies the residents of Metulla and Kiryat Shmona.

Neviot states clearly that the water originates from a well, but it's no new production method, says Hamakor. It's just piggybacking on Mekorot's well.

Ein Gedi bottles water taken from the Ein Gedi spring by the Dead Sea. The spring is the sole water source for Kibbutz Ein Gedi, which is right next door, as it were. The mineral water company Ein Gedi reached an arrangement with the kibbutz, under which if it pumps more than a certain amount of water from the spring, it has to reimburse water to the kibbutz.

"Let them pay royalties"

Israel should consider making the mineral water companies pay royalties to the state, Environmental Protection Minister Gilad Erdan told the show: "They're enjoying a natural resource that belongs to the people," he said.

Asked for a comment, all three companies pointed the investigators to a single expert, Prof. Yona Amitai, a toxicologist and former senior official at the Health Ministry. Asked about tests of Neviot water, he said they had relied on statements by the company, not his personal inspection of the production site.

Asked on the show if he knew where Neviot got its water, Amitai said he did not know down to "the resolution level of which spring." They told him on the show that it wasn't using a spring at all, but was taking water from a Mekorot well.

Quality tests by the Health Ministry of water taken from the companies, and from tapwater in the homes of Drucker, Rosenthal and Erdan, found no bacterial contamination in any. In all cases the water met Israeli standards.

"Television expose reveals: Some 'mineral' water bottles contain well water", 14/02/2012, online at: **http://www.haaretz.com/business/television-expose-reveals-some-mineral-water-bottles-contain-well-water-1.412768**

BACK TO TOP

❖ Thousands of Palestinians in the Jordan Valley risk forced displacement, says UN body

Sixty thousand Palestinians live under harsh conditions in the Jordan Valley and the Dead Sea area – one of the most isolated and restricted areas in occupied Palestine. The UN Office for the Coordination of Humanitarian Affairs (OCHA) has summarized their humanitarian situation in its February 2012 fact sheet.

The Jordan Valley and Dead Sea area covers about one third of the West Bank. Eighty-seven percent of the land is designated as Area C, where Israeli exercises full control over security, planning and construction. The area is earmarked for the use of the Israeli military or falls under the jurisdiction of the illegal Israeli settlements. An additional 7% is designated as a nature reserve. In total, Palestinians are prohibited from using 94% of their own land.

Meanwhile, 9,500 Israeli settlers have established 37 settlements in the occupied Jordan Valley in contravention of international law. The Fourth Geneva Convention prohibits Israel from transferring parts of its own civilian population into occupied territory. Supported by Israel, the settlers have developed highly profitable agricultural, tourist, mineral and other businesses, including Ahava cosmetics.

Severe restrictions on Palestinians

One quarter of the Palestinian population of the Jordan Valley and Dead Sea area – around 15,000 – live in Area C, including some 7,900 Bedouins and herders. The Israeli authorities obstruct construction activity by the Palestinian communities by withholding building permits for homes, schools, clinics, roads and water networks.

Palestinians in the area have restricted access to water resources. Water consumption in most herding communities is about 20 liters per person per day. This stands in sharp contrast to the World Health Organization's recommendation of 100 liters per person a day. The settlers in the area consume a shocking 300 liters per person per day.

In addition, Palestinian access to and from the Jordan Valley is highly constrained. Four of the six access routes to the Jordan Valley are controlled by Israeli checkpoints. Non-residents are only allowed to cross these checkpoints as pedestrians or by traveling via registered public transportation. Palestinians who own commercial vehicles have to coordinate the crossing in advance, according to OCHA. Numerous checkpoints, roadblocks and trenches in the area are an obstacle impeding Palestinian access to grazing and agricultural land, services, and markets for agricultural produce. Moreover, the restricted freedom of movement undermines family and social ties. The map printed in OCHA's fact sheet provides a clear overview of the situation.

Israel's full military control of Area C has resulted in food scarcity and water scarcity. A joint survey by UNRWA, Unicef and the World Food Program revealed that 79% of the Bedouin and Palestinian herders in Area C in the West Bank – the Jordan Valley and the Dead Sea area included - are food insecure. The food insecurity in the herding communities in Area C is much higher than among the

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

Palestinian population in the West Bank and the Gaza Strip where respectively 25% and 61% of the households are food insecure.

Forced displacement and evictions

In 2011, the Israeli authorities demolished over 200 Palestinian-owned structures in the area, displacing around 430 people and affecting the livelihoods of another 1,200 Palestinians. According to OCHA, thousands of Palestinians in the area are at risk of forced displacement due to home demolitions, forced evictions from closed military zones and a range of restrictions imposed by Israel.

However, the Palestinians are determined to continue living on their land. For example, Abed Yasin Rashaida, who has lived for 15 years in Fasayil in the occupied Jordan Valley, says on video: ”We are Bedouin. Once we were nomads – we used to move from one place to another. Eventually we settled here to let our children study at school.” On 20 December 2012, the Israeli army demolished some houses and animal shelters in Fasayil. “They started demolishing at eight in the morning. The bulldozers destroyed everything and covered the mattresses with soil. Flour, sugar, lentils, oil – they destroyed everything,” according to Rashaida.

“Thousands of Palestinians in the Jordan Valley risk forced displacement, says UN body (VIDEO)”, 13/02/2012, online at: **http://www.nl-aid.org/domain/human-rights/thousands-of-palestinians-in-the-jordan-valley-risk-forced-displacement-says-un-body-video/**

BACK TO TOP

❖ Palestine joins international conservation union

RAMALLAH (Ma'an) — Palestine has been accepted as a full member of the International Union for the Conservation of Nature, the Palestine Wildlife Society said on Sunday.

Executive Director Imad al-Atrash said the Bethlehem-based group was notified of Palestine's entry to the global body, founded in 1948 as the world's first international environmental organization.

Since the group joined the West Asia Union of Wildlife Societies in 2006, it has worked together with the PA agriculture and tourism ministries to set a strategy to protect Palestine's nature, he said.

Palestine has been working to join international agencies since President Mahmoud Abbas applied for a full seat at the United Nations on Sept. 23, 2011.

The bid stumbled at the Security Council, but UN cultural agency UNESCO voted to admit Palestine as a full member on Oct. 31.

"Palestine joins international conservation union", Ma'an, 14/0272012, online at: http://mideastenvironment.apps01.yorku.ca/?p=4351

BACK TO TOP

❖ Palestine, France Discuss Preparations for Water Forum

JERUSALEM, February 9, 2012 (WAFA) – Head of the Palestinian Water Authority Shaddad Attili and French Minister Henri de Raincourt Thursday discussed ways of cooperation between the two countries and preparations for the water forum.

Spokesman of the French Ministry of Foreign Affairs Bernard Valero said, in a statement issued by the Consulate General of France in Jerusalem, that the two ministers discussed necessary steps needed to implement the right to access water in Palestine.

De Raincourt welcomed Palestine's constructive participation to prepare for the forum held in Marseille in March.

He affirmed the importance of implementing the UN Convention on International Water Resources and Integrated Water Management of 1997 as soon as possible.

De Raincourt welcomed the start of the proposed desalination project in Gaza, which aims to provide drinking water to 1.6 million Palestinians.

"Palestine, France Discuss Preparations for Water Forum", WAFA, 14/02/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=4358

BACK TO TOP

❖ Israeli scientists find that photos from space allow better monitoring of Kinneret waters

Scientists believe comparing data measured on land with those from space will enable more effective monitoring of algae concentrations and the pollution they cause.
By Eli Ashkenazi

Scientists have been studying the possibility of monitoring the algae in the Kinneret from space, in a bid to map the water quality in the lake more effectively. The findings of the study, financed by the Water Authority, were published recently in the periodical "Eretz HaKinneret."

The scientists used SISCAL – Satellite Information System for Coastal Areas and Lakes – which analyzed photographs from two satellites that pass over the Kinneret daily and one that passes over it every three days. Until recently the algae movement in the Kinneret was monitored by five measuring stations in the lake.
Algae Kinneret – Gil Eliyahu – 13022012

Algae in Lake Kinneret can effect the quality of drinking water.
Photo by: Gil Eliyahu

The scientists believe comparing the data measured on land with those from space will enable more effective monitoring the algae concentrations and the pollution they cause. The satellite photos will also enable building a multi-year data bank of the Kinneret's water quality.

During 2010, 304 satellite photographs were fed into SISCAL, then compared and calibrated with data from the five measuring stations operated by the Kinneret Limnological Laboratory, at the Israel Oceanographic and Limnological Research.

The study was conducted by Dr. Gideon Tibor and Dr. Yosef Yacobi of the limnological institute and Lana Ashkar of the Geological Institute.
Kinneret

Satellite image of algae concentration in the Kinneret, with red indicating high density.

"The satellites are a complementary device. Until today we knew what was going on at a specific point at a week's frequency. Now we know what is happening over the whole lake in real time," says Tibor.

However, pictures from the satellite provide data only a few meters deep, while the local measurements sample the entire water shaft, he says.

"The satellite photos show only the appearance of algae – now we must study a higher resolution of them to identify the type of algae as well, he says.

The study is especially important in view of the changes in the Kinneret over the past 20 years. For example, the peridinium algae, which used to flower in the lake annually, started blooming

intermittently since 1996, while a different kind of alga appeared. Another case in point is the sudden appearance of an alga in 2008, which first seemed like sewage pollution, with a greenish stain with foam waves above it. When studied in the Kinneret Limnological Laboratory, headed by Dr. Tamar Zahari, this transpired to be a flowering alga that created foam, coloring the water olive-green. It was a new species of alga in the Kinneret that has not been defined yet.

The scientists believe the major causes of instability in the Kinneret are man-made, such as fishing and pollution, in addition to the fluctuating water levels.

"Israeli scientists find that photos from space allow better monitoring of Kinneret waters", Haaretz, 14/02/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=4363

BACK TO TOP

❖ UNDP Celebrates Launching of Combat Desertification Strategy in Palestine

RAMALLAH, February 9, 2012 (WAFA) – The United Nations Development Program (UNDP) Thursday celebrated, in an official ceremony in Ramallah, the launching of the National Strategy to Combat Desertification in the occupied Palestinian Territory (oPT).

The Palestinian Ministry of agricultural in cooperation and full coordination with all relevant parties prepared the agricultural sector strategy; the 'Shared Vision 2011-2013' which focused on efficiently and sustainably managing the natural resources in Palestine through increasing water availability and supply management as well as through improving the demand for agricultural water.

Minister of Agricultural, Ahmad Majdalani, stressed that there are many difficulties facing agricultural development in Palestine, particularly the Israeli occupation measures and its settlers aggressions, including the continuation of the oppressive siege on Gaza, the establishment of the annexation and expansion wall in the West Bank, which resulted in the isolation of more than 700 thousand dunums, the Israeli continued control over 80% of Palestinian water rights and its control over more than 85% of agricultural land, the confiscation of land and water and the uprooting of trees for the benefit of settlements, Leading to land degradation and depletion of natural resources and increasing desertification.

He said: 'The Ministry of Agriculture is implementing several projects that aim to increase the green areas and control desertification, especially the national program for greening of Palestine."

On his part, UNDP Special Representative of the Administrator, Frode Mauring, in a speech, said "this strategy is an important step ahead on the right way to join the world in fighting desertification as well as fulfilling the requirements of the United Nations Convention to Combat Desertification."

Mauring said that in February 2010, 193 countries have ratified the United Nations Convention to Combat Desertification. The Palestinian Authority was not among them, but now we are very close to the day where the Palestinian Authority will be the country 194.

He added that the natural capital in Palestine provides a significant ecosystem services and support for human activities in agriculture, annual husbandry, traditional and pharmaceutical health products and many other activities.

Therefore, "UNDP/PAPP will continue its supports to the PA institutions, civil society and the private sector to implement the action plan formulated to materialize the objectives of this strategy. Part of that is to improve the awareness of stakeholders and maximizing their participation," he said.

"UNDP will also continue to provide the needed support to enable the PA to access to relevant international windows of funds such as Special Climate Change Fund, the Adaptation Fund for United Nations Frameworks on Climate Change, Clean Development Mechanism and the Global Environment Facility," said Mauring.

He concluded, "I would like to thank the Global Mechanism of the United Nations Conventions to Combat Desertification for funding the formulation of this Strategy and its action plan and would like to thank all our partners present here today and wish you all best of luck in this ceremony."

"UNDP Celebrates Launching of Combat Desertification Strategy in Palestine", WAFA, 16/02/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=4389

BACK TO TOP

❖ Jordan Receives Two Bids for Red Sea Water Desalination Project

Jordan received offers from two groups of companies for a project that would desalinate water from the Red Sea and help replenish the Dead Sea, a spokesman at the Ministry of Water and Irrigation said.

Two of the six groups that were qualified in 2011 to compete submitted technical and financial offers, Adnan Zu'bi said by telephone from Amman. The ministry will start talks in April with the two groups, which he declined to identify.

A statement posted on the ministry's website indicated that the six qualified groups were a venture between Japan's Mitsubishi Corp. (8058) and Acciona SA (ANA) of Spain, Saudi Arabia's ACWA Power International, Jordan Red Sea Group, Egypt's Orascom Construction Industries, South Korea's Samsung C&T Corp. (000830) and China's Sinohydro Group Ltd. (SHYDRZ)

The project involves extracting 1.2 billion cubic meters of water from the Red Sea, of which 930 million cubic meters will be desalinated and the rest will be channeled into the shrinking Dead Sea, according to the ministry's statement.

"Jordan Receives Two Bids for Red Sea Water Desalination Project", 13/02/2012, online at: http://www.bloomberg.com/news/2012-02-13/jordan-receives-two-bids-for-red-sea-water-desalination-project.html

BACK TO TOP

❖ Jordan's Green Fairytale- 'Once Upon A Water' Campaign

Launched by 7iberINC, **Once Upon A Water** *aims to tell the story of Jordan's vanishing water supply and how they can have a 'happily ever after'*

According to the WHO, Jordan has one of the lowest water resource availability per capita in the world. By the year 2025, if current trends continue, per capita water supply is expected to fall from the current 200 cubic meters per person to only 91 cubic meters, putting Jordan in the category of having an absolute water shortage. The Once Upon A Water In Jordan campaign, launched by the influential 7iber media site, is hoping to raise awareness of this dire water situation and also encourage Jordanians to take positive action now.

The title of the project plays on the Arabic for 'once upon a time' to which one letter is added to make it read 'once a upon a water'. According to the campaigners this projects want to:

channel efforts and conversations around the water issues throughout Jordan into one platform that invites interested multimedia professionals and environmentalists to collaboratively produce digital stories of Jordan's diminishing water, with the technical support from 7iberINC.

Such stories will seek to amass a wealth of oral history and thus put a human face on an ongoing issue, in the eyes of the average citizens and communities affected by the loss and scarcity of water.

As well as working with photographers to highlight water scarcity and wall stencils which explore problematic issues such as water theft, they have created a fact-packed infographic. The Arabic infographic shows that the average Jordanian consumes just 80 litres of water a day. That's a lot less than the average Egyptian or Israeli who consume, respectively, 200 and 242 litres of water a day. It's also a lot less than the average American who guzzles a whopping 340 litres of water a day. Another little interesting fact is that 28% of all houses in Jordan collect rainwater and also 35% of water is lost through leakages.

The campaign has also produced a video report (in Arabic) by Rami Abdelrahman about Jordan's plans to drag waters from a desert aquifer in Disi along 350 km to the capital Amman. The campaign doesn't yet have it's own website but there are some great photos of outings to the Dead Sea and the Azraq Wetland Reserve on their facebook page.

"Jordan's Green Fairytale- 'Once Upon A Water' Campaign", 18/02/2012, online at: http://www.greenprophet.com/2012/02/jordans-green-fairytale-once-upon-a-water-campaign/

BACK TO TOP

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

❖ USAID and University of Nebraska Partner to Optimize Use of Water Resources in the Middle East

WASHINGTON, D.C. - The U.S. Agency for International Development (USAID) and the University of Nebraska announced a new partnership to expand research and development capacities in the Middle East, with a focus on water management. USAID Administrator, Rajiv Shah and University of Nebraska President, James Milliken signed a Memorandum of Understanding (MOU) today that hopes to increase food production and improve water management in the Middle East.

"Today's MOU signing represents our Agency's commitment to high impact engagement with universities," Shah said. "We look forward to deepening our partnership with the University of Nebraska, as we help to build scientific and research capabilities throughout the world."

Dr. Shah and President Milliken were joined by Sen. Ben Nelson, Rep. Jeff Fortenberry, Roberto Lenton, the new executive director of the University of Nebraska's Robert B. Daugherty Water for Food Institute; Mara Rudman, Assistant Administrator for USAID's Middle East Bureau; and John Wilson, Director of the Office of Technical Services for USAID's Middle East and Asia Bureaus.

"Nebraskans have been leading the world in new irrigation techniques and groundwater management practices for more than 100 years. The success of our state has always depended upon it," Senator Nelson said. "This partnership has the potential to have a lasting impact in a part of the world where water scarcity causes dangerous tensions between countries and severe suffering among people."

Rep. Fortenberry said, "As a Member of Congress from Nebraska with responsibilities in both agriculture and foreign affairs, I am extremely proud of the University of Nebraska's leadership in agriculture and water management research. The University of Nebraska's Water for Food Institute is invested in exciting world-class research that may lead to advances in farming technology of immense global impact."

This new partnership will leverage USAID and NU's comparative advantages to reduce the use of water in agriculture while sustainably maintaining crop yields. Through collaborative research, education, and outreach programs, USAID and NU will focus on irrigation, groundwater management, rain-fed agriculture, drought risk assessment and mitigation and support the Middle East North Africa Network of Water Centers of Excellence (MENA NWC).

"I'm delighted that the University of Nebraska has this unique opportunity to partner with USAID to address one of our most important shared concerns: the need to feed a rapidly growing global population with a limited amount of water," Milliken said.

USAID and the University of Nebraska are eager to work together to support research program development and implementation undertaken by the MENA NWC. Rudman concluded the event with promise of a continued partnership, "We look forward to seeing the benefits of this partnership in the years to come, and we trust that our collaboration will grow over time."

About the Middle East North Africa Network of Water Centers of Excellence The MENA NWC links technical institutions across the Middle East and North Africa region, with each other and with counterpart U.S. institutions to address water challenges confronting the region. The Network helps build and exchange regional science and technology capacity to improve water planning and management, expand water supply, manage demand, and dramatically increase its efficient and productive use. MENA NWC strengthens and reinforces an important alliance of governments, research and educational institutions, civil society, and the private sector working together to resolve water challenges through research, capacity building, innovation, and knowledge sharing. This should help lead to sustainable development and improved livelihoods.

About University of Nebraska

For more than a century NU has been a national and international leader in research on water, agriculture and the management of critical natural resources. The university provides unparalleled facilities and infrastructure to support research in these areas, including a 3840-hectare field-scale research center near Lincoln, and five research and extension centers located throughout the varying agro-ecological zones in the state. NU Extension provides outreach throughout the state to transfer research into practice for agricultural producers, water managers, and other stakeholders. The newly established University of Nebraska Robert B. Daugherty Water for Food Institute, or the Institute, reflects these strengths, as well as the ambitious goal of using its expertise to help people throughout the world grow more food using less water. NU is a comprehensive public land-grant university and Nebraska's research university system. NU offers academic programs at the undergraduate, graduate and professional levels in most disciplines, and has a student body of approximately 24,000 undergraduates and 4,000 graduate and professional students.

For more information about USAID and its programs in the Middle East, visit www.usaid.gov/middleeast.

"USAID and University of Nebraska Partner to Optimize Use of Water Resources in the Middle East", 17/02/2012, online at: **http://www.usaid.gov/press/releases/2012/pr120217.html**

BACK TO TOP

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

❖ 'Spanish-led consortium scoops UAE water project

A consortium led by Aqualia, FCC's water management subsidiary, and local company Mace has been awarded a contract to manage the sewage and water treatment system in Abu Dhabi. The seven-year contract, worth 76.3 million euro, was awarded by Abu Dhabi Sewerage Services Company.

This is the first water management contract to go to a Spanish company in the United Arab Emirates. It includes the operation and maintenance of more than 2,400 km of sewers, 68 wastewater-pumping stations and 19 wastewater treatment plants in the city of Al Ain (eastern Abu Dhabi, on the border with Oman) and the surrounding areas.

This contract strengthens FCC's presence (through Aqualia) in the Middle East, which is a strategic area for the company's global expansion. Aqualia has been operating since 2011 in Saudi Arabia, where it is implementing an innovative project to search for and repair leaks in Riyadh's water network in order to increase the network's efficiency.

Also in 2011, FCC (through its construction subsidiary) signed another strategic alliance with the company Abu Dhabi Commodore to bid jointly for infrastructure development projects in the UAE. Separately, in 2008, FCC's Austrian subsidiary, Alpine completed the construction of the Dubai Cricket Stadium. In January 2011, Alpine won a $111 million contract for the Borouge 3 expansion project in Ruwais, Abu Dhabi.

"Spanish-led consortium scoops UAE water Project", 13/02/2012, online at: **http://www.utilities-me.com/article-1805-spanish-led-consortium-scoops-uae-water-project/**

BACK TO TOP

❖ Water terrorism by India to overawe Pakistan

The majestic and ravishing landscape of the Kashmir Valley is so enchanting that whosoever happens to visit it gets spell-bounded and overawed by its natural beauty and longs to revisit it.

The fairy land is rich in gem stones, timber and is laden with juicy fruits of all kinds; the men are fair colored, handsome, hardworking and skilled in handicrafts; and the women are beautiful and charming. The valley is rightly called the paradise on earth. It is, however, irony of fate that its beauty, fruits and freshness of air have only been enjoyed by foreign invaders and by tourists and not by the inhabitants of Kashmir. All the conquerors treated the people of Kashmir like slaves.

This serene and enthralling valley has been converted into virtual hell for the Kashmiris. Except for 1-2% affluent Kashmiris, it is difficult for the rest to keep body and soul together.

Notwithstanding the cruel rules of earlier rulers, Kashmir was subjected to worst excesses in 1846 AD, when she passed into the hands of Dogra chieftain Maharaja Gulab Singh for a paltry sum of seven and a half million rupees through infamous Sale Deed of Amritsar, executed by the British conquerors of Sikh territory. The Dogra Hindu rule extending over more than a hundred years from 1846 till 1947 was one of the blackest periods in the history of Kashmir. Gulab Singh (1846-56) sucked the very life blood of the people. The last of the autocratic Dogra rulers was Hari Singh who had to abdicate power on 26 October 1947 in the face of freedom movement launched by Azad forces of Kashmir and tribal lashkar. The latter had come to the rescue of Kashmiri Muslims on 24 October 1947 after learning that they were being brutally butchered by Dogra Army and Hindu terrorist gangs.

By that time Pakistan had come on the world map but was only two months old. 80% of Muslim subjects of Kashmir under the leadership of Ghulam Abbas, chairing Muslim Conference had aspired to join up with Pakistan and had moved a resolution to that effect. But for the wily role of pro-Indian National Conference leader Sheikh Abdullah who was duped by Nehru, machinations of Congress leaders and Mount Batten would have failed.

Despite the mismatch, Pakistan forces put up a valiant fight and succeeded in keeping Kashmir a disputed territory requiring resolution through a fair and free plebiscite under the supervision of the UN so as to allow right of self-determination to the people of Kashmir. One-third of Kashmir which is known as Azad Kashmir was retained by Pakistan, which acts as the operational base for the freedom struggle in two-third Indian occupied Kashmir.

Pakistan had laid claims on Kashmir on the basis of ideological, religious, political and geographical linkages. Pakistan shared with Kashmir three of its rivers namely Indus, Chenab and Jhelum which originate from Himalayan part of Kashmir and form the backbone of its agriculture and literally the aqua vital. The other three rivers flowing into West Pakistan were Ravi, Sutlej and Beas had its origins in Indian Territory. Pakistan being a lower riparian was placed at a distinct disadvantage at the very outset particularly when viewed in context with India's bellicosity and expansionist designs and its failure to reconcile with existence of Pakistan. Hindu leaders had agreed to the creation of

Pakistan under the illusion that it would live as a satellite under the gigantic shadow of Indian military, or would beg for re-integration into Indian Union within six months of its birth.

The 15-month 1948 war ended in January 1949 as a result of UNSC arranged ceasefire which was requested by India. Nehru agreed to stop the war after he assessed that major part of Kashmir including the enchanting vale, Jammu and origins of three rivers had been annexed, and that Pakistan being a lower riparian would be perpetually at its mercy. Liaquat Ali Khan accepted the ceasefire since at that time fledgling Pakistan was too deeply immersed in host of intractable problems. Prolongation of war would have been at the cost of survival of Pakistan. He was sure that the pledges given by Nehru and UNSC to hold a free and fair plebiscite under the auspices of the UN would be honored.

Nehru however made a u-turn on his promises and not only disregarded the UN resolutions but also started integrating Kashmir into Indian Union through deception, fraud and use of brute force. India's negative attitude and flagrant disregard of UN resolutions on Kashmir thwarted all attempts to settle the dispute by peaceful means. Instead of reaching an amicable settlement with Pakistan, it all along tried to pressurize Pakistan into giving up its demand for a just and fair settlement of the issue. Its obduracy and bellicosity led to 1965 Indo-Pak war and even the 1971 war was a result of unsettled Kashmir dispute. The two sides came close to war in 1990-91 and clashed with each other in Dras-Kargil sectors in the summer of 1999 due to Kashmir. Decision of the two countries to go nuclear in 1998 was also motivated by Kashmir, India wanting to retain its illegal hold over it and Pakistan wanting a just solution. Laws framed by the US on terrorism in the aftermath of 9/11 suited India and Israel the most. Encouraged by the US, the two terrorist and expansionist states involved in massive human rights against Palestinians and Kashmiris respectively for decades became more barbaric.

Pakistan by agreeing to become a front line state at the behest of USA to combat global terrorism got completely distracted from Kashmir and got deeply immersed in fighting its own people. Indo-Pak peace treaty signed between Gen Musharraf and Vajpayee in January 2004 gave new hopes of resolution of Kashmir dispute and other core issues. However, tall promises made by India proved elusive since it wasted time in futile CBMs and kept the core issues on the sidelines. India availed the elusive peace along the LoC to its advantage by intensifying its atrocities against marooned Kashmiri Mujahideen, devoid of support from Jihadi groups based in Azad Kashmir and Pakistan.

When India could no more drag its feet and situation in Occupied Kashmir became explosive following dispute over Shri Amarnath land, India's RAW in connivance with Mossad and CIA engineered Mumbai attacks drama on 26 November 2008, blamed Pakistan, stalled composite dialogue and reverted to its old hostile posture.

Whole-hearted support of the US, western world and Israel as well as of Afghanistan together with easy induction of sophisticated weaponry from advanced world made the Indian leaders highly belligerent and uncompromising. Its military leaders openly talked of resorting to Cold Start doctrine to overrun Pakistan.

Pakistan tardily realized that it had been deceived by India under the garb of peace treaty and its real motive was to proceed with its covert war from Afghanistan and cultural war from its own soil so as to encircle Pakistan in a three-directional pincer and make it powerless. FATA and Balochistan were

made volatile to play the Balochistan and Pashtunistan cards and to force Pakistan to give up Kashmir. Water war was operationalized by building dams over the three rivers flowing into Pakistan from Occupied Kashmir to choke Pakistan.

Quaid-e-Azam Muhammad Ali Jinnah had rightly termed Kashmir as the jugular vein of Pakistan since cutting of the jugular vein causes instant death to a person, and if it is pressed hard, it renders the person half-dead. Sensing the wicked designs of the Hindu leaders, Jinnah could foresee that if the jugular vein gets severed in the process of partition of India, it would cause death to Pakistan, and if it is choked it would make Pakistan comatose. An enemy grip on the hill courses of these three rivers could starve West Pakistan. Furthermore, it could enable India to either flood Pakistanis living in low lying West Punjab, or choke water flow and cause drought and kill them, or flood or dry up canals suiting its military design during war.

He had rightly decided to stand up to the Indian aggression in 1948 irrespective of the fact that in that timeframe newly born Pakistan was engulfed in multi-dimensional problems. Had the two ill-equipped infantry brigades together with Azad forces and tribesmen not resisted Indian military's Summer Offensive launched in April 1948, whole of Kashmir would have been annexed by India. And had we not agreed to ceasefire as desperately demanded by India and continued fighting, our forces could have pushed out the thoroughly demoralized and exhausted Indian forces from Kashmir.

His apprehensions have come true and India is doing exactly what he had visualized in 1947. Despite signing Indus Basin Treaty in 1960, which gave exclusive water rights of Western Rivers Jhelum, Chenab and Indus flowing down from Occupied Kashmir to Pakistan, India in blatant violation of the said treaty has not only usurped the full quota of the three eastern rivers namely Beas, Sutlej and Ravi, but taking full advantage of the jugular vein which is in its iron grip is pressing it from many points by building dozens of dams to suffocate Pakistan to death or to make it gasp for life and thus forget about Kashmir.

India has ventured upon an ambitious plan worth $120 billion to divert waters of Rivers Jhelum, Chenab and Indus flowing from north to south and turn fertile lands of Pakistan into a desert. So far, it has built 65 dams and headworks, but has plans to build a total of 300 small and big size dams so as to gain total control over the three rivers. It is constructing a 3800 km long canal in order to divert water from River Indus to River Sutlej. This project will be completed by 2014. In addition, construction of series of canals measuring 14000 km is also in the pipeline, which will help connect 14 rivers of India. From 2008 onwards, West Punjab's standing crops are getting severely damaged due to water shortage caused by Baghliar dam.

Violation of Indus Basin Treaty is in line with India's national policy of backtracking from its pledges and breaking international agreements and defying the UN. India intends to complete its water denial plan to Pakistan by 2016 after which Pakistan will get deprived of its share of water. Pakistan's condition will become worse than Somalia and Ethiopia, the two drought ridden countries. If India opens the gates of these illegal dams, it can sink Pakistan within 48 hours.

With no end to its malevolence, India has now managed to coax its strategic partner Afghanistan to build dams over River Kabul and has offered its full assistance. This would further worsen water

problem of Pakistan. India has full backing of USA, UK and Israel as well as the western world as a whole since none has ever taken notice of this most pitiless form of terrorism against humanity.

Among host of coercive tactics applied by the gang of six based in Kabul, water terrorism is one of the cruelest forms to overawe Pakistan and break its will to resist. I wonder what the preachers of Aman-ki-Asha who are spending their entire energies to present the soft image of India have to say about the excessive human rights violations of Indian security forces against the Kashmiris including teenagers and water terrorism against Pakistan, which will suck the very life blood of the people of Pakistan. Brahman Hindus are far crueler than Hindu Dogras in Kashmir.

Unlike India which starts howling like a spanked child on slightest suspicion, or procurement of a weapon by Pakistan, or a terrorist attack and makes a mountain out of a mole, and the US led western world rush forward to extend their wholehearted support to anguished India lamenting over cooked up grievances, our leaders on the other hand for unexplained reasons remain tightlipped even when the very survival of Pakistan is at stake. Our lackadaisical approach encouraged India to build dams in contravention to the treaty. India managed to build so many dams illegally since we didn't make noise and failed to take up the case with international bodies in time. Jamaat Ali Shah, deputed to protect Pakistan's water interests remained in a laid-back position thereby allowing India to complete construction of Baghliar dam and now the Kishinganaga dam. He has gone in exile.

Pakistan should immediately take up this grave matter in the UNSC and International Court of Justice and under the UN deputed unbiased Commission carryout on spot inspection of all the spots on Rivers Chenab, Jhelum and Indus where dams have been/are being built and put an end to India's madness.

"Water terrorism by India to overawe Pakistan", 17/02/2012, online at:
http://www.asiantribune.com/news/2012/02/16/water-terrorism-india-overawe-pakistan

BACK TO TOP

❖ Curb wastage, pollution to tackle water disputes'

New Delhi: Curbing wastage, reducing pollution and forming joint platforms to assess geological changes were among the urgent steps needed to tackle the growing conflicts on water between countries and within their own boundaries, say experts.

The issue was debated at length by various experts, including filmmakers, columnists, academics and activists, at a roundtable on Water at War at the Alliance Francaise here Wednesday. Water had led to tensions between countries and caused fights within cities, the participants noted.

Curbing wastage was key, said senior journalist B.G. Verghese, pointing out that over 80 percent of water was supplied for irrigation but there was enormous wastage due to practices such as flood irrigation.

He recommended changes in the cropping pattern in the country and said practices such as drip irrigation should be encouraged.

"We need to have a whole battery of incentives. Merely looking at supply side is not going to give us answers," he said.

Anita Inder Singh, professor at the Centre for Peace and Conflict Resolution of the Jawaharlal Nehru University, said international treaties had helped reduce water conflicts but there was a possibility of countries using water as a weapon when there are shortages.

"Unless you take climate change into account, how do you honour your treaties," said Joydeep Gupta of the Third Pole Project, India, observing that water was getting more scarce due to impact of climate change.

Francois S. of the International Committee of the Red Cross (ICRC) referred to the conflict in Middle East and said the dispute between Israel and some of its neighbours involved issues concerning water.

The issue had come to such a pass, said filmmaker and activist Sanjay Mitra, that people bought mineral or bottled water to quench their thirst and had no faith in supply from municipal services.

He also spoke of urban apathy towards water pollution.

According to Verghese, who answered many of the questions from the audience, the Indus treaty between India and Pakistan was one of the most successful agreements that had withstood wars. However, he said "partitioning of water" under the treaty had led to complaints. "Pakistan feels India is stealing water," he said.

"Curb wastage, pollution to tackle water disputes"', 16/02/2012, online at: **http://zeenews.india.com/news/eco-news/curb-wastage-pollution-to-tackle-water-disputes_758747.html**

BACK TO TOP

❖ Indo-Israeli pact for water treatment technologies

Harinder Mishra Jerusalem, Feb 13 (PTI) India and Israel have inked a key pact to cooperate in water treatment technologies, including joint ventures for research and design in resources management, sewage and drainage. The agreement was signed Additional Secretary D. Diptivilasa and Director of International Trade at Israel's Ministry of Trade, Industry and Labour, Boaz Hirsch, in the the presence of Kamal Nath, the Indian Minister for Urban Development who is on a three-day visit to Israel. "The economies of India and Israel are considered to complement each other. Accelerated economic growth in India poses many challenges, but Israel with its knowledge and technologies can help us cope with these challenges," Nath said during discussions ahead of the signing of the agreement. He said cooperation in the fields of water, hi-tech, nano-technology and agriculture between the two countries is impressive but their remains a huge untapped potential. "We have proposed to hold a seminar during the course of the year on water management, sewage so that Israeli companies can participate in India's urban infrastructure development," Nath told PTI. A Joint Working Group would be established following the agreement "to examine ways to deepen cooperation between the two countries in a variety of areas related to water", said a press release by Israel's Ministry of Trade, Industry and Labour. Among other things, the two sides will look into establishing joint ventures, launching studies and design frameworks of long-term cooperation in water resources management, sewage and drainage. The two sides will also discuss establishing demonstration centres of Israeli technologies in India in order to promote the integration of these technologies in projects that will help India cope with the challenges in water management, the Israeli ministry said

"Indo-Israeli pact for water treatment Technologies", 13/02/2012, online at:
http://ibnlive.in.com/generalnewsfeed/news/indoisraeli-pact-for-water-treatment-technologies/963023.html

BACK TO TOP

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

❖ China's Big Desalination Plans

China plans to quadruple its desalination capacity by the end of 2015 in an effort to relieve chronic water shortages that threaten to upend its economic growth, *China Daily* reported.

Meanwhile, Jordan is moving ahead with its Red Sea Water Desalination Project, which will extract 1.2 billion cubic meters of water from the sea, of which 930 million cubic meters will be desalinated and the rest will be transferred to the ailing Dead Sea, *Bloomberg* reported.

Australian gas drilling company Santos has reported three spills of contaminated water containing heavy metals from its coal seam gas operations in eastern New South Wales, according to *Reuters*. Santos said the spills were from operations formerly owned by Eastern Star Gas, which Santos acquired in November 2011.

Kyrgyzstan's biggest gold mine routinely ignores national environmental legislation and could have a far-reaching negative effect on Central Asia's water supply, according to a recent report cited by *EurasiaNet*.

Protests are underway at a Moroccan silver mine over concerns that the mine is sucking up scarce water supplies in a dry area and polluting crops with wastewater, *Reuters* reported.

The International Bottled Water Association and student activists are squaring off over the growing number of campaigns to ban bottled water in college campuses because of environmental and health concerns about the industry, *NPR* reported.

"The Stream, February 14: China's Big Desalination Plans", 14/02/2012, online at:
http://www.circleofblue.org/waternews/2012/the-stream/the-stream-february-14-chinas-big-desalination-plans/

BACK TO TOP

❖ Nepal: Climate change impacts reveal alarming trends

The big environmental issues cannot be solved on a national level. This is an experience we are making for centuries. The big river systems, be it in Europe, in the Middle East or in Asia have always been a connecting element between different people and countries - but they also have often been a major bone of contention (German – French history is a vivid example for this). Regional co-operation is therefore the only reasonable way of addressing environmental cross-border issues.

South Asia has always been – to some extent - prone to disasters, especially to water related disasters. In recent years, the risks and also the worldwide perception of risks, have change dramatically due to climate change. I therefore wish to elaborate a few points on climate change from a German perspective. Climate change is the definitive challenge of the 21st century. Changes in the climate destroy the basis on which a human life subsists; drought, for instance, leads to shortages in food and water. Rising sea levels are already threatening the territories of small island states like the Maldives and vast stretches of coastland as we see in Bangladesh.

Climate change impacts in Nepal demonstrate alarmingly increasing trends. According to a recent OECD report, Nepal's average mean temperature is projected to increase by 1.2 to 3 degrees Celsius in the next 40 to 90 years.

Warming trends will have adverse impact on Nepal's glacial landscapes and also bring the threat of Glacial Lake Outburst Flooding (GLOF). Both cause potential danger in the livelihood and security of billions of people depending on the Himalayan headwaters in the South and East Asian Regions.

Changes in snowfall patterns are already experienced which pose threats to Himalayan snow accumulation forcing glacial retreats. Dry season run-off of the rivers in Nepal emanating from the Himalayas is now partly reduced, meaning Nepal's largely agricultural economy, hydroelectricity potential and river-bank farming will be under substantial danger in coming years.

However, the international community has to admit that it has not, as things stand, stepped up to the challenge posed by climate change. Global CO_2 emissions went up again in 2010, global temperatures are already 0.8°C higher than before industrialization, and sea levels rose twice as fast between 1993 and 2003 as they did in the preceding decade; icebergs and glaciers are melting at

record speeds and the big re-insurance companies warn us about an ever increasing number of disaster events.

Germany is aware of how pressing this problem is. We are therefore doing what we can – within our sometimes limited scope – to mitigate it effectively. Thanks to our national reduction measures, we are within the targets which the Intergovernmental Panel on Climate Change recommends for industrialized countries: we intend to reduce our emissions by 40% by 2020 and by 80-95% by 2050. We are also doing our bit to push for ambitious reduction targets within the EU.

At the highest level internationally, too, we want to create awareness that we have to act now to tackle climate change. It was under Germany's presidency that the United Nations Security Council, on 20 July 2011, unanimously acknowledged for the first time ever that climate change poses a threat to international security.

The German Government has been assisting countries - in South Asia and worldwide - that are particularly affected by climate change for years. Our partners in developing countries and emerging economies receive support for projects to mitigate and adapt to climate change through German development cooperation under the auspices of the Federal Ministry for Economic Cooperation and Development as well as through the International Climate Initiative being run by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. Between 2010 and 2012, our Government is providing these countries in all regions of the world with a total of 1.26 billion Euro in additional funds for mitigation and adaptation, within the scope of the industrialized countries' fast start finance initiative agreed in Copenhagen in 2009.

South Asia has benefited from this initiative with funds for a regional programme with the International Centre for Integrated Mountain Development (ICIMOD) to preserve the biodiversity in the Mount Kailash region. Further funding will be added to this programme in 2012. Other programmes help South Asian countries in the energy sector to build a green economy, reduce green house gas emissions, and improve energy efficiency or to preserve its biodiversity.

Parallel to these specific measures, we also need to reach a comprehensive agreement in the international climate change negotiations which encompasses all the big emitters. Only when we

finally stop pointing the finger, and create the legal certainty that no country will be at a disadvantage or be able to opt out, can we combat climate change effectively.

As part of the EU, and shoulder to shoulder with many developing countries, small island states and LDCs, Germany working for a robust, legally binding climate change agreement. That is the only way for us to achieve our common goal of capping global warming at 2ºC and so fulfil our obligation to future generations. I am convinced that we cannot afford, economically or otherwise, to hold off on combating climate change until its effects become even more drastic.

I am aware the focus of this meeting goes beyond the issue of climate change. I nevertheless hope, that the raising awareness of its international challenge will also contribute to a wider awareness on environmental issues and the need for regional co-operation in general. I therefore appreciate initiatives taken like this one by the Centre for South Asian Studies to bring together Government and Civil Society Representatives from the region for an intensive and open experience of joint learning and discussion.

"Nepal: Climate change impacts reveal alarming trends", 17/02/2012, online at: http://www.telegraphnepal.com/views/2012-02-15/nepal:-climate-change-impacts-reveal-alarming-trends.html

BACK TO TOP

❖ Toward water security

Water comes in bottles, pours out of skies and faucets and laps at the sand on beaches, covering more than two-thirds of the planet. A recent study also pointed out that the amount of land ice lost annually from glaciers and ice caps is enough to make the global sea level rise by half an inch. Unfortunately the sheer volume of water around is not the kind of water needed to perform tasks such as cleaning, cooking and helping crops grow, much less the water needed for use by industry or as an energy source.

To help alleviate water shortage concerns, many researchers are working on developing crops that are tolerant of drought or salt, and seeds that use water more efficiently. Water security itself was one of the topics discussed at the recent 14th Asian Security Conference in New Delhi.

In his speech to the conference attendees on Feb. 13, the Indian defense minister was quoted as saying that, "Water is actually fast emerging as a major source of insecurity and a potential issue for conflict among nations. Thus, nations need to cooperate on sharing water and efficient water usage and harvesting and initiate collective action for preserving our common environment."

One method of tracking water usage to more efficiently use this resource came from a report released the same week as the Asian security conference. Engineers from the Netherlands calculated the water usage in every country between 1996 and 2005. To measure what they called the "water footprint of humanity," they considered how much water is being used in the home, in agriculture and in industry, and factored in each country's use of rainwater, which they referred to as "green" water, groundwater and surface water, which they called "blue" water, and polluted or "gray" water.

Varying water usage

Based on their data, they found that China, India and the United States have the largest water footprints worldwide, but the makeup of each country's water usage varied widely. For example, a quarter of the world's gray water is used by China, while India uses a quarter of the world's blue water, primarily to grow wheat, rice and sugarcane.

For every country, the researchers noted, the largest factor in the water footprint was agricultural production. However, another factor they considered was what they called the "virtual water flow," or how goods and services made in one country were then exported rather than used locally. They reported that the top three gross virtual water exporters were the United States, China and India and that the top three gross virtual water importers were United States, Japan and Germany.

More than 40 percent of the products involved in the virtual water flow turned out to be oil-producing crops such as soybean and sunflower. Another 17 percent was dedicated to cereal crops and 8 percent was utilized for coffee, tea and chocolate. Beef products, according to the report, accounted for almost 7 percent of the water flow.

"For governments in water-scarce countries such as in North Africa and the Middle East," the engineers wrote in their report, "it is crucial to recognize the dependency on external water resources

and to develop foreign and trade policies such that they ensure a sustainable and secure import of water-intensive commodities that cannot be grown domestically."

The study was published online the week of Feb. 13 in the journal Proceedings of the National Academy of Sciences USA.

"Toward water security", 17/02/2012, online at: http://business.inquirer.net/45049/toward-water-security

BACK TO TOP

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

❖ `Virtual Water' is No Game for Food Importers at Risk

Desert and drought-prone nations increasingly rely on water from other countries and don't even know it. That's the conclusion of a study in the *Proceedings of the National Academy of Sciences* that maps the world's water flow.

The problem revolves around a phenomenon that to the uninitiated might sound like a Facebook app or Web game: virtual water. It's the phrase resource economists are using to describe the amount of water that goes into making a product bound for shipment abroad.

Countries that import food are buying goods made with water. That means they are outsourcing both food production and the environmental and economic risks that can come with overuse of limited water supplies. Food security for these importers may be at increasing risk from water scarcity among trading partners.

The countries most reliant on foreign watersheds are island and desert nations: Malta, which is 92 percent dependent on virtual water, Kuwait (90%), Jordan (86%) and Israel (82%).

Some of the world's most water-rich countries also import vast amounts water. These include the U.S., which imports 234 billion cubic meters a year, Japan (127), Germany (125) and the rain-soaked, umbrella-carrying United Kingdom (77). That's because much of the food they import, or coal in China's case, requires vast amounts of water to produce. The U.S. and China are also the world's largest virtual-water exporters, at 314 billion and 143 billion cubic meters/year) respectively.

The authors of the paper, Arjen Hoekstra and Mesfin Mekonnen at the University of Twente in the Netherlands don't propose any direct solutions. They argue that accurately mapping humanity's global water footprint is the first step for nations to avoid finding themselves at the mercy of drought or pollution in a trading partner who might be forced to cut off food exports.

"`Virtual Water' is No Game for Food Importers at Risk", 13/02/2012, online at:
http://www.bloomberg.com/news/2012-02-13/-virtual-water-is-no-game-for-food-importers-at-risk.html

BACK TO TOP

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

❖ There is No Sustainable Development Without A Sustainable Population

Is it possible to talk about sustainable development without talking about population, in a world of 7 billion people and growing?

Apparently the policymakers involved with the upcoming UN Conference on Sustainable Development (UNCSD) conference (Rio+20) think so, from the dearth of the words "population growth" appearing in official documents. This, despite the fact that the 1992 *Rio Declaration on Environment and Development*, in Principle 8, acknowledges that "To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies."

Agenda 21, the blueprint for sustainable development that also came out of Rio in 1992, stated "The growth of world population and production combined with unsustainable consumption patterns places increasingly severe stress on the life-supporting capacities of our planet." And, "Population policy should also recognize the role played by human beings in environmental and development concerns. " It went so far as to say that increased awareness of this issue is needed among decision makers. Later UN conferences, such as the 1994 United Nations International Conference on Population and Development in Cairo, dealt with population growth and sustainable development. Not much has happened at that level since then.

And while the rate of population growth has slowed in many areas around the world, it is still increasing, with 80 million people added every year. There could be a total of 9.4 billion by 2050. Or there could only be 8 billion, if the world takes action.

Of the seven critical issues for Rio, listed on the UNCSD website, population isn't one of them. The theme of Rio+20 is the "Green Economy" and the focus will be on ecosystem services and green technologies (and the unstated theme of how much money can be made in these two areas).

The draft document for Rio+20, released this January and titled "The Future We Want", barely mentions the issue of population. The one paragraph which does talk about it accurately states the situation the world is facing:

> *We are deeply concerned that around 1.4 billion people still live in extreme poverty and one sixth of the world's population is undernourished, pandemics and epidemics are omnipresent threats. Unsustainable development has increased the stress on the earth's limited natural resources and on the carrying capacity of ecosystems. Our planet supports seven billion people expected to reach nine billion by 2050.*

Point 107 of the draft document addresses sustainable development goals, including sustainable consumption and production patterns as well as priority areas such as oceans; food security and sustainable agriculture; sustainable energy for all; water access and efficiency; sustainable cities; green jobs, decent work and social inclusion; and disaster risk reduction and resilience.

Since population growth affects all of this, it must be on the Rio agenda. Access to water, noted in point 107, is a human right, but the concern is how to balance this with increasing water scarcity. Somalia, Yemen, Niger, Mali all have populations projected to double but are already experiencing periods of water scarcity and droughts affecting food security. The UN itself has warned that 65 per cent of human kind could be living in water-stressed and water-scarce countries by 2025.

In the face of resource scarcity, how do sustainable cities become created? Since the 1992 Earth Summit, urban populations have increased by close to two billion and now for the first time in history more people live in cities than in rural areas. The UN's own statistics cite that by 2050, the world's population is projected to increase from 7 billion to 9 billion, with roughly 70 percent of people residing in urban areas.

Kim Lovell, with the Sierra Club's Global Population and Environment Program, said that "Rio provides a rare opportunity to have a global conversation about sustainable development solutions that protect human rights, improve community and environmental health, and preserve resources for future generations. Slowing population growth by ensuring access to voluntary family planning and education for women and girls is essential in this pursuit."

Furthermore, Lovell notes "When women are educated and have the ability to plan their family size, they tend to have smaller, healthier families - and with solutions like these that improve lives and lessen pressure on scarce resources, what better venue than Rio to engage stakeholders at all levels to take local, national, and global action?"

Efforts have been made to highlight population and environment issues. In September 2011, the United Nations Population Fund (UNFPA) called the failure to address population in Rio+20 a step backwards and said that failure to cover it would undermine efforts to promote sustainable development.

And last November, an International Conference on Family Planning took place in Dakar, Senegal. One of the conference topics was on connecting the issues of population growth, family planning and environmental impacts to environmentalists.

Roger-Mark de Souza, vice president of research and director of the Climate Program at Population Action International, participated in the Dakar conference. "It's completely logical," he recently said, "to connect family planning and natural resource management efforts in their communities."

The future that the world wants is one based on healthy families, communities and ecosystems. It doesn't want only lip service. The hour is getting late and if we are to truly bring about these positive outcomes, then population must be on the table. Viable solutions would address voluntary family planning, women's rights, and conservation, as well as poverty alleviation, reduction of inequality and unsustainable levels of consumption. The world cannot afford another global conference with modest or weak results.

What you can do to get population on the agenda?

- Over the next few months the draft outcome text will be negotiated, prior to a final document at Rio+20. Per the UNCSD, unless you are affiliated with an accredited organization, or you are part of a national government delegation, UN rules do not allow an individual to participate in official meetings in one's own personal capacity.
- However, the website states that UN accreditation is not a prerequisite; there are a number of ways by which you can *inform* the Rio+20 process, including submitting case studies, registering partnerships, and participating in the national preparatory processes. See the UN Frequently Asked Questions page for details.
- Comment on the next UCSD intersessional meeting (26-27 March 2012, New York) – see the list of civil society groups already involved in the UN process, or get your group accredited.
- Contact groups such as Women's Environment & Development Organization or join their online community Women on the Road to Rio+20; see also some youth-focused organizations already involved – Rio+twenties, and Road to Rio Plus 20.
- Contact your congressional representative and urge them to have the more than fifteen U.S. federal agencies that are preparing for Rio+20 put population and related issues on the official agenda.
- Go to Rio de Janeiro and join in civil society activities, such as The People's Summit, a parallel event to Rio+20 being held Jun. 15- 23, 2012.

"There is No Sustainable Development Without A Sustainable Population", 14/02/2012, online at: http://www.baycitizen.org/blogs/citizen/there-no-sustainable-development-1/

BACK TO TOP

❖ Food Insecurity: West Africa's Turn

Last year, international attention was riveted by the near humanitarian disaster in the Horn and East Africa caused by prolonged drought. Relevant UN agencies and NGOs were able to mobilize the necessary resources, and a famine of biblical proportions was forestalled, though there were high casualties among children and the elderly.

This year, it is West Africa's turn. A drought that began late last year destroyed much of the harvest, and some communities are running out of food several months before the next harvest is due. According to the national director of Mauritania's Ministry of Water and Sanitation, a third of its population already suffers from food insecurity. Burkina Faso, Chad, Mali, Mauritania, Niger, Cameroon and Nigeria are calling for international assistance. As in East Africa last year, the UN and NGOs are trying to rally international assistance. But, thus far, the international community has pledged only about half of the $650 million dollars needed by the UN alone. NGOs also face funding shortfalls. José Luis Fernandez, regional emergency coordinator of the UN's Food and Agriculture Organization points out the advantages of early mobilization with respect to efficiency and costs—to say nothing of lives saved. He notes, for example, that it costs ten to twenty times more to airlift food than to ship it.

Droughts have long been feature of Africa. But their frequency and severity appears to accelerating, and the international community needs a better understanding of their causes. The conventional wisdom is that they result from the interrelationship between climate change, population growth, acute poverty, changing migration patterns, conflict and bad governance. No doubt, broadly speaking this is true, if not necessarily helpful for understanding a particular episode. Famine often is localized in its causes and frequently involves political factors, as it did in Somalia last year, where al-Shabaab blocked international aid efforts and Somali children paid with their lives. It can't be the money. For the international community $650 million is peanuts. After all, the conventional wisdom is that the U.S. presence in Afghanistan was costing the U.S. taxpayer $300 million per day. Perhaps more important in explaining apparent donor lassitude may be factors such as the international community's limited attention span, compassion fatigue, and frustration over an apparent inability to deal with the root causes of humanitarian disasters. At least in West Africa, there is no al-Shabaab.

"Food Insecurity: West Africa's Turn", 17/02/2012, online at: **http://blogs.cfr.org/campbell/2012/02/17/food-insecurity-west-africas-turn/?cid=soc-Facebook-in-africa-food_insecurity-021712**

BACK TO TOP

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

❖ The Long Drought

Great empires are traditionally founded on the banks of great rivers such as the Nile, the Yangtze, the Indus and the Tigris-Euphrates complex because people need food, and food crops need water. Which is why the Yucatan peninsula of Mexico, together with the land farther south into Belize, Guatemala and Honduras is one of the least likely places on Earth in which to grow a civilization. Because of its porous limestone bedrock, the Yucatan lacks surface water in the form of substantial rivers and lakes. During the Mayan era, from around 3,000 years ago, agriculture was almost entirely dependent on seasonal rainfall, with limited backup from *cenotes* (natural water-filled sinkholes), *aguados* (small surface reservoirs) and *chultuns* (underground cisterns). Yet during what archeologists have dubbed the "Classic Stage," between 200 and 910 CE, the population flourished, perhaps tripling in numbers to a peak of 20 million people.

Then, within 30 or 40 years after 909 (the date of the last known "Long Count" inscription, by which Mayans kept track of the age of their civilization) much of the Mayan society had collapsed. Archeological evidence shows that most of the major urban centers, especially in the southern lowlands, were abandoned, including the great cities of Tikal, Calakmul, El Mirador, Palenque and Copan. What caused such a rapid and near-complete collapse? Archeologists haven't been shy about offering explanations: By one count, no less than 88 different scenarios have been suggested, including tribal warfare, epidemics, foreign invasion (perhaps by Toltec or Teotihuacan people), revolution, disruption of trade routes and royal in-fighting.

One hypothesis that has been steadily gaining traction is prolonged drought. By sampling lakebed sediments and measuring stalagmites (whose growth varies according to moisture levels) paleoclimatologists estimate that starting around 800 CE, and lasting for 200 years, the Yucatan region suffered its worst drought in 7,000 years. Without rainfall, crops failed, leading to the demise of the empire's many city-states. If this theory is correct, the wonder is that they hung on as long as they did.

A new study by researcher Ben Cook from NASA's Goddard Institute for Space Studies proposes that the Mayans may have at least partially brought on their own demise. In order to grow sufficient corn and manioc in the area's thin topsoil, they probably clear-cut some 100,000 square miles of forest, equivalent to the area of Oregon. Crops have a higher albedo (reflectivity) than forests, resulting in less sunlight being absorbed. This translates into less energy being available for convection, and hence for rainfall. While not claiming that clear-cutting actually *caused* the drought — and hence the decline of the Maya — Cook says that his team's analysis shows that "deforestation can bias the climate toward drought and that about half of the dryness in the pre-Colonial period was the result of deforestation."

The *indigenas* never recovered between the 10th century collapse and the Spanish conquest six centuries later, giving the forests a chance to regrow. Today, the vast bulk of their former territory is covered in trees. If not for their ruins, it's as if the classical Mayan empire never existed.

"The Long Drought", 16/02/2012, online at: http://www.northcoastjournal.com/outdoors/2012/02/16/long-drought/

❖ Crores spent, city still parched

The BMC has spent about Rs 10,000 crore on water supply in the last five years, and yet, several areas receive very little or no water.

It has spent over Rs 450 crore on repairs and rehabilitation of water pipelines in the last two years, detecting about 67,000 leakages in the same period.

To provide clean, drinking water, the BMC collects 65% of your property's rateable amount as water tax, which is included in property tax bills. It is the civic body's duty to ensure equal distribution of water and a clean water supply at good pressure. Water supply is now around 3,450 mld, while demand is 4,250 mld. The hydraulic department has taken up mega-projects, including construction of the Middle Vaitarna dam, which promises to augment supply.

BJP MLA Yogesh Sagar said, "The over 210 supply zones were created in 1997. Despite a population increase in the suburbs, the BMC made no change in the system." The crisis is mainly confined to the western suburbs, especially areas beyond Goregaon, and parts of the eastern suburbs including Govandi, Chembur and Mankhurd. "Almost 30% of Mumbai's population lives from Goregaon to Dahisar, but only 20% of the water is supplied there. Similarly, 50% citizens stay from Bandra to Dahisar, but the stretch receives only 36% of the supply," Sagar said.

"Crores spent, city still parched", 14/02/2012, online at: **http://articles.timesofindia.indiatimes.com/2012-02-14/mumbai/31058644_1_water-supply-mld-water-tax**

BACK TO TOP

❖ Sights and Insights: A river runs beside it

What was true in antiquity remains true today—no other river in history or literature has garnered as much affection as the Jordan River.

Wayne Stiles is an author who has never recovered from his travels in Israel and loves to write about them from his desk in Texas.

Other rivers have more beauty. Many are longer. Most are cleaner. But none has garnered as much affection as the Jordan River.

Even the Nile River Valley—although it flows deeper, wider, and longer without tributary or raindrop to feed it—fails to match the depth of the Jordan Rift Valley. The Jordan Valley cuts the deepest ditch on the planet, ultimately draining into the Dead Sea, the lowest spot on earth. The ancient Egyptians worshiped the Nile as a god, but the Jordan surpasses it in spiritual influence and sanctity. Just looking at it, though, you'd never have imagined why.

"Jordan" originates from yarad, a Hebrew term that means "to go down, to descend"—and that's what it does. In the north of the country, seeping snows of Mount Hermon surface at Tel Dan and Banias, forming the headwaters of the Jordan. From there, the river snakes its way south about twenty-five miles to the Sea of Galilee. At the lake's southern edge, the river picks up its journey and winds back and forth more than 125 miles—but only 60 miles as the crow flies—to supply the Dead Sea. Modern agricultural and domestic interests have diverted more than 90 percent of the Jordan River's current, replacing it with sewage. No wonder the World Monuments Fund has designated it an Endangered Cultural Heritage sit

It wasn't the beauty of the Jordan River that has inspired centuries of psalms, hymns, and spiritual songs to include it in their verses. Its significance began as a simple geographic barrier, which—practically speaking—represented a border (Joshua 22:18-25). The river's presence on Israel's eastern edge stood as an enduring metaphor of transitions.

Crossing the river for Joshua meant entering the Promised Land and leaving the leadership of Moses. When the priests of God left the Jordan's eastern banks and stepped into its current, the river stopped flowing upstream at a site called Adam. After the nation crossed, Joshua made a fundamental comparison: "For the Lord your God dried up the waters of the Jordan before you until you had crossed, just as the Lord your God had done to the Red Sea, which he dried up before us until we had crossed" (Joshua 4:23). Joshua connected their powerful redemption as a nation to the same power of God that helped them enter the Promised Land. They erected stones to commemorate the event.

Another significant transition occurred in the same location on the Jordan. Elijah transferred the prophetic mantel to Elisha just before Elijah ascended to heaven. And as the Jordan had done in the

shift from Moses to Joshua, it parted for Elijah and Elisha, who crossed on dry ground (2 Kings 2:8).

It's no wonder John the Baptist chose this same area to baptize. Because the Jordan represented a place of transition—in fact, of new beginnings—it became the place where John baptized Jesus. But instead of the waters parting, the heavens did (Mark 1:10).

Today, the most popular place for pilgrims and tourists to get baptized in the Jordan River is a spot just below the Sea of Galilee. Trees with white bark overhang the river, offering shade to tourists and refuge for birds. Handrails and white robes provide a safe and meaningful experience. (And the fish that nip at the hairs on your legs will make it an unforgettable one!) Although the Yardenit baptismal facility represents the most beautiful place to get baptized in the Jordan, it most likely was not the location of Jesus' baptism.

Although there are proponents with different views, it seems most likely that John baptized Jesus across from Jericho, in the same area of the previous significant transitions. Recent improvements now allow guests to visit this area, although when I went there recently our group had to get permission from the IDF.

The Jordan as a place of transition remains an enduring symbol. The transitions that occurred there were sometimes national—as with Moses and Joshua, Elijah and Elisha, and John and Jesus. But the area also had its personal transitions—even conversions—as in the cases of Rahab, Naaman, Zaccheus, and Bartimaeus. Be they national or personal—or both—any new beginning also requires an ending. It requires leaving one shore and crossing the river for another.

Entering the Promised Land by fording the Jordan remains a timeless metaphor for crossing over from death to spiritual life (see Hebrews 4:1-10). As Joshua pointed out after crossing the Jordan, the same grace of God that redeemed them was the grace that led them home (Joshua 4:23). I think the same is true of us.

"Sights and Insights: A river runs beside it", 13/02/2012, online at:
http://www.jpost.com/Travel/AroundIsrael/Article.aspx?id=257636

BACK TO TOP

❖ 'Schaduf' sets up rooftop urban farms for low-income families

On a small rooftop in a residential building in Maadi, Sherif Hosny has swapped satellite dishes for hydroponics to grow crops using mineral nutrient solutions in water, without soil. And he hopes to soon do the same to rooftops in surrounding lower-income areas.

The name of this micro-agriculture initiative, "Schaduf," refers to a simple tool composed of a long suspended pole maintained by a weight at one end and equipped with a bucket attached at the other to lift water.

Hosny and his brother Tarek launched Schaduf in September to create a second source of income for low-earning families through micro-urban gardens. The company plans to install hydroponic growing systems on roofs in the poorer neighborhoods surrounding Maadi.

Schaduf will provide the newly appointed urban farmers with technical training and cheap supplies. Hydroponic systems fertilize plants with mineral nutrient solutions and the water used for irrigation is recycled. The plants are grown through "vertical farming," where a single irrigation line feeds feeds multiple shelves of produce.

Soil-less agriculture systems use water that is recycled through a closed irrigation system and thus cut water and pesticide usage to near zero, lowering growing costs and creating healthier food. On the test site in Maadi, Hosny is growing lettuce, chicory and herbs. He believes it's possible to fit up to 75 heads of lettuce on a square meter of shelving, but says they are still determining the optimal space needed between plants.

All of the products used from the wooden frames, the perelite (a soil conditioner), the peat moss to the tarps are locally manufactured. Schaduf has already received enough donations to set up three rooftop farms and is working with local NGOs to find families who are interested and have the appropriate amount of space.

"Maadi is separated by a single street from neighborhoods with narrow streets, dirt roads and lots of alleys, and there's a real interest in those areas for people looking for more income," Hosny said.

A system can cost anywhere from LE7000 to LE15000, an investment that low-income families can't afford. Urban farmers will receive the system and training for free, and will eventually repay the loan through a small portion of their monthly produce sales.

Hosny estimates that it will take around a year to repay the set-up loan. That money will then be used to handle installation costs for a rooftop farm in another building. Hosny, who has a background in engineering and an MBA, quit his job in Dubai and spent months working on an organic farm in the US. It was there he got the idea for Schaduf.

"I was just taken with it," he said, adding that he returned to Egypt wanting to use agriculture to help lift families above the poverty line.

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

Eventually, Schaduf aims to set up a small farmers market at a neighborhood sporting club where the urban farmers can sell their "made in Maadi" produce.

"It's not a sole income, but an additional income," said Hosny, adding "LE300 to LE500 extra a month is a sum of money for a lot of people."

On the test site in Maadi, Hosny is also experimenting with aquaponics, a sustainable food production system that combines aquaculture with hydroponics in a symbiotic environment.

He will raise tilapia — freshwater fish — in tanks below the shelves, and use the fish to add nutrients to water. Aquaponics can provide families with an additional source of protein from the fish. The system is simple. Fish live in tanks below the vertical shelves and are fed cheap food pellets. Water is pumped through their tanks, filtered and then pumped back into the irrigation tubes.

So far, Hosny says the biggest challenge has been keeping the fish alive during Cairo's unusually cold winter. But, they are experimenting with low-tech heating devices that rely on tinfoil reflecting light to heat the water. For now, though, Hosny says it's likely Schaduf willfocus on hydroponic systems.

The advantages of rooftop gardening are huge, according to Osama al-Beheiry, a professor at the Faculty of Agriculture at Ain Shams University: Rooftop gardens create shade, lower amounts of carbon dioxide in the air and provide green space in a densely packed urban environment.

Beheiry began working on rooftop gardens in collaboration with the Ministry of Agriculture over a decade ago. With two established centers on the university campus and in the ministry devoted to offering advice and wholesale supplies to aspiring urban farmers, Beheiry says the idea is gaining momentum.

"Things quieted down for a while after the revolution, but in the last two to three months, people have become interested again," said Beheiry.

Schaduf hopes to have the first set of hydroponic systems installed for three families by April and to double that number by the end of summer.

For Hosny, there is little reason to hesitate. Worries over exposure to urban pollution are misguided, he says, adding that many rural farms tend to be near heavily trafficked motorways.

"Trees in the neighborhood may filter out some of the pollution sediments before they reach roofs, and the plants create CO2, pulling pollution out of the air," he says adding that if rooftop planting takes off in mass "it could have a big impact on Cairo air."

"'Schaduf' sets up rooftop urban farms for low-income families" ,Egypt Independent, 16/02/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=4387

BACK TO TOP

❖ Study: Fracking Does Not Cause Groundwater Pollution

The Houston Business Journal is reporting a University of Texas Study has concluded the process of fracking to recover oil and natural gas from shale formations does not cause contamination of groundwater.

What is fracking?

Fracking, a process that has been used since he 1940s, involves injecting a fluid largely comprised of water and sand, with a small amount of lubricant, into shale formations, causing cracks to occur, according to Scientific America. Natural gas or oil, trapped in those formations, then rise to the surface where the product is recovered.

Why is fracking considered so beneficial?

Fracking has allowed energy companies to access domestic oil and gas in areas that hitherto have been inaccessible. This in turn has caused economic booms to take places in areas of the country such as Catarina, Texas, Pennsylvania and North Dakota, the latter of which has been dubbed the Midwest's "Saudi Arabia." Oil and gas recovered in domestic shale formations will not have to be imported from sources in volatile parts of the world such as the Middle East.

Why do environmentalists oppose fracking?

The anti-fracking site "Gasland" claims the chemicals used in the fracking process pollutes the groundwater in the areas where energy companies are recovering oil and gas. Environmentalists are demanding the federal government place severe restrictions on fracking or ban the practice outright. USA Today reported the EPA suspects fracking does cause groundwater pollution and is moving in the direction of regulation. Environmentalists have seized upon the EPA conclusions as evidence that fracking is not safe.

What did the University of Texas Study say?

The study concluded that instances of groundwater pollution in areas where fracking is taking place was not caused by the fracking process itself. Instance of environmental hazards were caused by factors common to all oil and gas operations, including casing failures and the mishandling of waste water once it is brought above ground for storage and eventual processing at a waste treatment plant.

The study focused on three areas where fracking is taking place, the Barnett Shale in North Texas, the Marcellus Shale in Pennsylvania, New York and parts of Appalachia, and the Haynesville Shale in western Louisiana and northeast Texas.

The purpose of the study, a spokesperson said, is to help to separate fact from fiction and to provide governments with information they will need to enact regulations to ensure responsible shale gas development.

"Study: Fracking Does Not Cause Groundwater Pollution", 18/02/2012, online at: http://news.yahoo.com/study-fracking-does-not-cause-groundwater-pollution-160500641.html

BACK TO TOP

❖ Humanity's Growing Impact on the World's Freshwater

As the human population has climbed past seven billion, and the consumption per person of everything from burgers to blue jeans has risen inexorably, the finiteness of Earth's freshwater is becoming ever more apparent.

It takes water to make *everything*, and the explosion of demand for all manner of products is draining rivers, shrinking lakes, and depleting aquifers.

Consider this: on average it takes 2,700 liters (713 gallons) to make a cotton shirt and 9,800 liters (2600 gallons) to make a pair of blue jeans. The cotton crops growing in farmers' fields consume most of that water; a smaller share is used in the factories that churn out the clothes.

On any given day we're likely wearing more than 15,000 liters (~4,000 gallons) worth of water. And if we slip on a pair of leather loafers, well, add another 8,000 liters (~2,100 gallons). It takes a lot of water to grow the grain to feed the cow whose skin is turned into shoes.

Such figures might not matter if there was abundant water whenever and wherever we needed it – or if water had a substitute. But water is limited, and there's no substitute for it. We need water to quench our thirst, to grow our food, to cool electric power plants, and to make cars, computers and all those cotton shirts.

And that's why the size of humanity's water footprint – and of yours and mine – matters.

In a study published this week in the Proceedings of the National Academy of Sciences, researchers Arjen Hoekstra and Mesfin Mekonnen of the University of Twente in the Netherlands, have made the most detailed estimate to date of the scale and patterns of humanity's water consumption.

This is a tricky and complicated task. Using a high level of spatial resolution, the researchers tabulated all the water from both rainfall and irrigation that's consumed in making goods and services for the global population. To complete the picture, they added in the volume of water needed to assimilate the pollution generated along the way. They calculated the annual average global footprint for 1996-2005, the most recent ten-year period for which the necessary data were available.

The result is a large number – 9,087 billion cubic meters (2,400 trillion gallons) per year. That's a volume equivalent to the annual flow of five hundred Colorado Rivers.

Agriculture accounts for a whopping 92 percent of that global water footprint. Not only are crops naturally thirsty, we're feeding more than a third of the global grain harvest to livestock to satisfy our desires for meat and other animal products. Added up, the average beef burger takes 2,400 liters (634 gallons) of water to make.

In fact diets heavy in meat largely explain why the average water footprint for the United States is twice the global average. U. S. consumers eat 4.5 times more meat than the global average.

One of the most interesting findings of Hoekstra and Mekonnen is that one-fifth of humanity's water footprint travels across national borders in the form of "virtual water" – the water embedded in products that are traded between countries. For Egypt, Israel, Iran, Jordan, Saudi Arabia and other water-scarce nations, the ability to externalize their water consumption by importing wheat and other thirsty grains allows them to save their scarce water for industrial production and other higher-value uses.

"Humanity's Growing Impact on the World's Freshwater", 17/02/2012, online at:
http://newswatch.nationalgeographic.com/2012/02/17/humanitys-growing-impact-on-the-worlds-freshwater/

BACK TO TOP

❖ A Street View for Rivers

Jared Criscuolo wants to go where no videographer has gone before: onto all of America's rivers.

Using the same technology harnessed by Google Maps, he is working to document the nation's rivers as well as pollution levels in the water and the surrounding areas — the river equivalent of video street views.

A 30-year-old surfer who lives in San Diego, Mr. Criscuolo said he was inspired to take action in 2006 after suffering gastrointestinal problems and a sinus infection that he later realized was probably caused by pollution he encountered during his morning surf session.

"You're not supposed to be in the water 72 hours after a rainstorm," he said. "Since it doesn't rain a lot" in San Diego, "there's a massive rush of runoff. What happens is you get oils, animal waste, pesticides."

Like many water sports enthusiasts, Mr. Criscuolo did not initially grasp the breadth of the problem. So he set off with a friend and fellow surfer, Kristian Gustavson, to learn more.

What began as an annoyance soon turned into a full-time obsession. Then they landed on the idea of producing a street view for rivers.

Mr. Criscuolo sent a blind e-mail to the United States Geological Survey in May 2011 and immediately received a response. The survey had been considering a similar idea, and they began working together.

With a demo site already online, the team is preparing to begin with the Sacramento River. It hopes to document 27 rivers in the first five years.

"Riverview will be used for tracking paddling, fishing and camping routes, and as a policy and environmental protection tool," Mr. Criscuolo said. "Fishermen and paddlers will be the two biggest interest groups, but we're getting lots of interest from nonprofits as well."

Also in the works is a phone app called Streamview that will allow paddlers to take part in the river documentation project and "creatively gather footage of what they see. We want to start crowd sourcing a library of America's rivers," he said.

The project is receiving financial support from the Clif Bar Family Foundation, the Alaskan Brewing Company and the Lake Pontchartrain Basin Foundation as well as small grants from the Environmental Protection Agency. The Geological Survey has provided access to its vast network of boats, staff, and scientific data resources.

Mr. Criscuolo has also connected with a few people from Google who are advising the Riverview team on how to use the company's mapping tools.

"A Street View for Rivers", 13/02/2012, online at: http://green.blogs.nytimes.com/2012/02/13/a-street-view-for-rivers/

BACK TO TOP

❖ Artificial Glaciers Water Crops in Indian Highlands

Villagers discover that it is easier to store water in ice than in a reservoir, and less is lost to evaporation.

This story is part of a National Geographic News series on global water issues.

A remote Indian village is responding to global warming-induced water shortages by creating large masses of ice, or "artificial glaciers," to get through the dry spring months. (See a map of the region.)

Located on the western edge of the Tibetan plateau, the village of Skara in the Ladakh region of India is not a common tourist destination.

"It's beautiful, but really remote and difficult to get to," said Amy Higgins, a graduate student at the Yale School of Forestry & Environmental Studies who worked on the artificial glacier project.

"A lot of people, when I met them in Delhi and I said I was going to Ladakh, they looked at me like I was going to the moon," said Higgins, who is also a National Geographic grantee.

(Related: "Melting Glaciers Mean Double Trouble for Water Supplies")

People in Skara and surrounding villages survive by growing crops such as barley for their own consumption and for sale in neighboring towns. In the past, water for the crops came from meltwater originating in glaciers high in the Himalaya.

But in recent decades, climate change has uncoupled glacial melt cycles in the Tibetan Plateau—which is warming up on average two degrees Celsius faster than the rest of the world—from the traditional agricultural season, causing water shortages in April and May when Ladakhis typically begin sowing seeds for the summer season. If the villagers don't sow during this critical window, there is no crop that year.

DIY "Glaciers"

One winter in the late 1980s, an engineer from Skara named Chewang Norphel came up with a possible solution to his village's problem while strolling around his backyard.

Norphel noticed that a small stream had frozen solid under the shade of a poplar grove, though it flowed freely elsewhere in his sunny yard. The reason for this, he realized, was that the flowing water was moving too quickly to freeze, while the sluggish trickle of water beneath the grove was not.

Over the next several years, Norphel worked to create an irrigation system that functioned using the same simple natural principle. The result has been Ladakh's artificial glaciers. Ten have been built to date.

To create the glaciers, Norphel and his team of engineers divert water from rivers into neighboring valleys that have been carefully penned in with rocks. This step usually takes place in the winter months of October through December. To slow the water down to a trickle, the diversion canals often take long meandering routes around mountainsides.

Once it arrives in the valley, the water freezes in a shallow layer in small pools. The process is repeated until the stacked layers of ice are several feet thick. If too much water is added too quickly, the result is a slushy pit. "It takes a lot of patience," Higgins said.

The largest artificial glacier created to date occupies an area of more than a square mile. Because the artificial glaciers sit at a much lower altitude than true glaciers, they melt sooner, in time for the villagers' spring planting.

(Related: "Video: Receding Himalaya Glaciers")

"You could do the same thing by building a big water reservoir," Higgins said, "but it would require a lot more materials, and the water would evaporate because there's so much sunshine. You would also have to worry about it getting contaminated."

Long-Term Peril

Peter Gleick is a water expert and president of the Pacific Institute research center in Oakland, California. Gleick, who was not involved in the project, called the artificial glaciers an innovative solution to the region's increasingly difficult changes in climate.

"I think they're great and likely to play a role, at least in the short term, in helping some of these high-elevation villages deal with the very real and immediate changes to the melting glaciers in the Himalaya," he said.

Gleick worries, however, that in the long run, the gradual disappearance of high-elevation natural glaciers will make it increasingly difficult to create and maintain the artificial glaciers.

"I'm not optimistic that the [artificial glaciers] are going to be sustainable in the long run," he said.

Environmental chemist William Cooper, who also played no role in the project, called the artificial glacier project an "interesting and noble idea."

"If he is able to actually store that much water as ice and release it later by natural processes, it's a low-cost alternative to dams," said Cooper, director of the Urban Water Research Center at the University of California, Irvine.

Norphel, the Skara engineer, calculated that a real glacier containing about one million cubic feet—about 7.5 million gallons—of water could be used to create an artificial glacier capable of irrigating about 380 acres of land.

“Even though that sounds like it’s a lot of water, it doesn’t sound like an awful lot to me,” Cooper said.

For comparison, he added, a water reuse plant in Southern California typically recycles about 70 million gallons of water—per day.

The amount of water stored in the artificial glacier is also tiny compared to the flow rate of the Indus River, where most of the glacial melt ultimately ends up. For this reason, they are unlikely to have any major negative downstream effects, Cooper said.

Asked if she thought the artificial glaciers might have a negative downstream effect, Higgins said, "In my opinion, no. More of the water is taken up by the crops being grown, but it would otherwise flow unused out to the Arabian Sea during October and November."

Local Support

Like Gleick, Cooper worries about how engineers in the region will maintain their painstakingly created frozen lakes when the true glaciers are gone. But even before that happens, the true glaciers will melt completely, and that might cause flooding that could threaten the artificial glaciers, he said.

“Climate change is just now beginning to be felt,” Cooper said. “When we’re really in the throes of climate change, I think those glaciers are going to start to melt . . . and if the glaciers start to melt to any large extent, the [artificial glaciers] are going to disappear.”

Higgins added, "If climate change continues, and glaciers shrink from warming temperatures, then yes, eventually there would be no water to sustain the artificial glaciers. But then there's no water for life, which would be a pretty bad scenario not just for Ladakh but for much of the world that relies on snowpack and glacial melt as a water source."

For now, though, the man-made glaciers appear to be making a real difference among farmers in Skara and the surrounding communities.

Surveys conducted by Higgins show that not only can farmers sow their seeds on time, they can also plant crops that require more water, such as potatoes and peas.

"People depend on the artificial glacier more now," one villager told Higgins.

"The one problem is it melts so quickly. But on the upside, we make the glacier, it’s good for the field.”

Will such solutions become more common in an increasingly water-stressed world?

“Artificial Glaciers Water Crops in Indian Highlands”, 14/02/2012, online at:
http://news.nationalgeographic.com/news/2012/02/120214-artificial-glaciers-water-crops-in-indian-highlands/#

❖ Kenya: Arid Food Insecure Regions Can Benefit From Intensified Irrigation Programmes

One of the causes of poverty in Turkana County is food insecurity.

This is manifest in the fact that people here rely on livestock, which is managed using traditional free range production systems that have suffered in recent years due to climate change. One solution to this problem is irrigated agriculture.

Water resources need to be efficiently used in order to meet the requirements of basic human survival, especially now with the spiralling population. The objective of interventions like irrigation is to increase agricultural production. Therefore, scientific management of water under irrigation provides the best insurance against weather-induced flactuations in food production.

Efficient and easy irrigation is achieved when there is a properly designed water distribution system.

This involves structures that convey, divert, and control water on the farm. For a good irrigation layout, good structures are essential to save labour, water, and land. The system can have either surface channels or underground pipes.

Kenya has 4,000 hectares under irrigation, a paltry figure compared to the potential of 54,000 hectares. Part of the problem can be attributed to the Nation Irrigation Board Act of 1966, which gazetted only six irrigation schemes, namely Mwea, Bunyala, West Kano, Ahero, Bura, and Perkerra, to be managed under the National Irrigation Board (NIB).

The rest of the country is served by micro schemes that are not mandated to carry out irrigation and do not benefit from NIB's expertise. The law has remained unchanged for the past 45 years and this has limited the mandate of the board.

Yet irrigation can play a significant role in alleviating food scarcity in places like Turkana.

The case of Turkana is unique because the government has not made any concerted effort to address the food security issue in a sustainable way.

Efforts on the ground to solve the problem of food shortage since the 1960s in Katilu, Amolem, and Turkwel have been undertaken through the cooperation of international non-governmental organisations like the United Nations Food and Agriculture Organisation, the Norwegian Agency for Development Cooperation, and the World Bank.

Since these interventions come in the form of projects limited by five to 10 year cycles, they have not been very successful.

The exception is a project funded by World Vision Kenya at Morulem, Lokori, along the Kerio River, whose success was due to the involvement of the local community right from the conceptualisation, implementation, and eventual phase-out stages.

The potential for irrigation in Turkana County is high. Rivers Turkwel and Kerio hold the key to unlocking this potential, as well as the streams scattered all over the region. Another source that has not been exploited is underground water.

The area may not require advanced irrigation technologies, like the drips and fertigation used in the Middle East and North Africa; simple canals and basins will do.

Irrigated agriculture would be successful along the upper and middle reaches of the Turkwel River because of the controlled flow that is aided by the hydro-electric power station at Turkwel Gorge.

Water flows throughout the year at Loyapat, Nakwamoru, Katilu, Lokapel, Turkwel, and Lodwar, as well as the Kerio River, which can be used to irrigate Morulem, Lotubai, and Lokwii and grow water stress-resistant crops such as sorghum, millet, cowpeas, chickpeas, and cotton.

Israel, 60 per cent of which is made up of the Negev Desert, produces surplus food that is exported to Europe during winter. Irrigation from underground water is used. Egypt is food secure from irrigated agriculture along the strip that is the River Nile, whose source is in East Africa.

The per capita income of Egypt, an Africa dryland is $5,400, and Israel's is $31,000. Compare this to Kenya's $250.

With intensified irrigation in the arid and semi-arid lands, which constitute 80 per cent of our country, food security in vulnerable regions like Turkana can be assured.

“Kenya: Arid Food Insecure Regions Can Benefit From Intensified Irrigation Programmes”, 12/02/2012, online at: http://allafrica.com/stories/201202131005.html

BACK TO TOP