

## New Prize for Water

A year from now, five water resources research projects will each be awarded prizes worth 500 000 Saudi riyals (about US\$130 000) as part of the Prince Sultan Bin Abdulaziz Prize for Water (2002–4). Nominations for the prize close at the end of October 2003.

The prize's patron is Prince Sultan Bin Abdulaziz, Second Deputy Prime Minister of Saudi Arabia, who takes a special interest in the environment in general and water in particular. The aim of the prize is to reward the efforts of innovative scientists, academics and organizations carrying out applied research in the water resources sector worldwide. It seeks to acknowledge special achievements that have led to the development of scientific solutions for problems associated with provision, protection and preservation of adequate and sustainable water resources, particularly in arid regions.

The prize will be awarded every two years in each of five branches, for which topics have been assigned to focus research efforts:

- surface water; effective flood-control methods
- groundwater; artificial groundwater recharge
- alternative (non-traditional) water resources; economical technologies for seawater desalination
- water-resources management; effective new techniques for irrigation water conservation
- protection of water resources; protection of groundwater from agricultural pollutants.

An international selection committee will advise the prize council on the nominations and the winners will be announced in May/June 2004. An award ceremony will be held in October 2004, at which time the next award (2004–6) will be launched.

*Online information and documents may be obtained from the prize website: [www.psipw.org](http://www.psipw.org)*

## Ecosan in Hebron, Palestine

Despite severe political and economic instability in the region, an ecological sanitation pilot project in Palestine has been a success, particularly in the areas of capacity building, sustainability, local adaptation and social adaptability. The project, undertaken by the Palestine Hydrology Group (PHG) with the support of Sida, demonstrates the feasibility of household ecological sanitation (based on urine diversion) in the Hebron area.

The hot, dry climate of the West Bank, combined with a serious fresh-water shortage and an abundant supply of limestone powder, creates an ideal situation for ecosan implementation. About 80 per cent of the groundwater of the West Bank is controlled by Israel and local piped water systems serve little more than half of the Palestinian population. Water scarcity in the region is aggravated by untreated black and greywater discharge and unsanitized sewage being released into the environment. This has a direct effect on the quality of groundwater since the West Bank is a karstic highland.

The project is of special interest because it is the first dry sanitation project based on the principles of urine diversion in a Muslim community. Most experts were very sceptical about the chance of success of the project, because they believed it would be rejected based on religious or cultural arguments, as Islam 'forbids' the handling of excreta. This is a widespread misunderstanding of Islam that reflects neither the reality nor a true interpretation of Islam's tenets. In fact, religious leaders in Palestine are cautiously interested in the results of the project as it addresses water scarcity in the region and adheres to the Islamic principle of man being guardian over nature, sustaining resources for the generations to come.

Of an original goal of 75 ecotoilet installations, 28 households have been fitted. Initial project objectives and timelines approved in early 2000 had to be revised as a result of the conflict in the area. The clash between Israel and

Palestine has also affected the employment and income of target area residents; so much of the project has been fully, rather than partially, subsidized. As such, economic sustainability of this project is currently unattainable.

Although the project has been deemed successful in the fundamental areas of ecological sanitation, some improvement is needed to complete the cycle of returning nutrients to the environment. Some households are using the urine to fertilize tomato and olive trees, but many households have not yet emptied their chambers or are using septic tanks to dispose of the urine and anal cleaning water, and are dumping dehydrated faeces with household waste.

To have an environmental impact in the West Bank, ecological sanitation will have to be implemented on a much larger scale.

*For more information please contact Yousef Subuh ([phg@netvision.net.il](mailto:phg@netvision.net.il)) or visit the Palestine Hydrology Group's website at [www.phg.org/dry/dry\\_sanitation](http://www.phg.org/dry/dry_sanitation). The website [www.ecosanres.org](http://www.ecosanres.org) also includes 'San Res . . . final report 2002' by Uno Winblad.*

## Egypt: sewage used in forestry

The Ministry of Environmental Affairs recently adopted an innovative programme through which treated sewage water would be used for forestry projects. According to Mamdouh Riyad, Minister of State for Environmental Affairs, 'both the preservation of the environment and our recognition of the need to use treated sewage water are strategic requirements. We need to utilize waste water in a manner that increases our national income, as well as limiting its damaging effect on the environment.'

At present, treated effluent generated in cities is used in the cultivation of forests in desert areas bordering sewage treatment plants. 'The results are encouraging,' said the minister. 'The forests help reduce the severity of sand

storms, as well as being economically viable.' Annually Egypt generates around 5.5 billion cubic metres of sewage, which corresponds to 10 per cent of Egypt's share of the Nile waters. Less than half of the sewage is treated. This has resulted in the pollution of beaches, desert areas and valuable underground water sources.

*Source: Al-Ahram Weekly Online, 5-11 Jun 2003, <http://weekly.ahram.org.eg/2003/641/sc4.htm>*

## Middle East water wars

After signing the 1979 peace treaty with Israel, Egyptian President Anwar Sadat said his nation would never go to war again, except to protect its water resources. King Hussein of Jordan identified water as the only reason that might lead him to war with the Jewish state. Former United Nations Secretary General Boutros Boutros-Ghali warned bluntly that the next war in the area will be over water.

From Turkey to Uganda, and from Morocco to Oman, nations with some of the highest birth rates in the world are all concerned about how to find enough water to sustain urban growth and to meet the needs of agriculture, the main cause of depleting water resources in the region.

All of these countries depend on one or more of the three great river systems (Nile, Tigris-Euphrates and Jordan), which have an average renewal rate of between 18 days to three months, or on vast underground aquifers, some of which could take centuries to refill.

The Nile, the world's longest river, is shared between nine countries whose population is likely to double within two decades; yet the volume of water the Nile provides today is no larger than it was when Moses was found in the bullrushes.

The list of 'water-scarce' countries in the region grew steadily from three in 1955 to eight in 1990, with another seven expected to be added within 20 years, including three Nile nations.

International law is inadequate in defining and regulating the use of shared water resources. Few agreements have been reached about how water should be shared. Since the Madrid conference in 1991, Palestine-Israel

negotiations and the now frozen negotiations with Syria have always stumbled over the issue of sharing water.

With the Israeli army in control, prohibiting Palestinians from pumping water, and settlers using much more advanced pumping equipment, Palestinians complain of 'daily theft' of as much as 80 per cent of their underground water.

Ariel Sharon went on record saying that the Six Day War started because Syrian engineers were working on diverting part of the water flow away from Israel. 'People generally regard 5 June 1967 as the day the Six-day War began,' he said. 'That is the official date. But, in reality, it started two-and-a-half years earlier, on the day Israel decided to act against the diversion of the Jordan.'

*Adel Darwish, writer and commentator on the Middle East, [http://news.bbc.co.uk/1/hi/world/middle\\_east/](http://news.bbc.co.uk/1/hi/world/middle_east/)*

## Apexa™

Apexa is a new, non-porous polymeric membrane with particular promise for irrigated agriculture in arid regions. DuPont is marketing Apexa as part of an irrigation system called 'Hydration'. Water is delivered through drip irrigation hoses that may be placed on or below the soil surface. Unlike traditional systems, however, Apexa allows growers to use brackish or poor quality water and deliver cleaner water to crops.

The key to this new technology is the proprietary polymeric membrane. It has no holes – water vapour is delivered through the membrane and leaves almost all dissolved salts behind, which allows the use of brackish or poor quality water. The amount of water that passes through the membrane is determined by how wet the soil is on the outside of the membrane. So as soil dries out, the membrane lets water vapour out through the membrane walls where it condenses in the soil. If soil is saturated from rain or other water, no water will come through until the membrane senses the need.

Unlike conventional irrigation systems, Apexa does not require high pressure to deliver a consistent level of soil moisture. And because the system

is always 'on', minimal monitoring is required, and no gauges, controllers or meters are needed.

At present Apexa is only being supplied in the USA, but it won't be long before it is available elsewhere.

*Source: [www.dupont.com/ag/products/apexa.html](http://www.dupont.com/ag/products/apexa.html)*

## Jordan: new homes require rainwater collection reservoirs

New homes in Jordan are now required to have water collection reservoirs, as municipalities around the country were issued a government directive from Prime Minister Ali Abul Ragheb not to accept penalties in place of wells. The decision was made in line with the Water and Irrigation Ministry policy of maximizing citizen use of water resources and encouraging rainwater harvesting during the winter season.

'This is not a new issue. We have been lobbying for it for some time. What's new about it is the implementation and follow-up,' the ministry's secretary general assistant for media affairs, Adnan Zu'bi, told the *Jordan Times*. Although building codes do not allow structures to be built without reservoirs, permits were traditionally granted in exchange for a certain penalty, he explained, adding that such a practice is now over.

Rooftop water collection is not a new practice in Jordan, however. As long ago as 850 BC, King Mesha of Moab ordered households to build their own cisterns. The famous Moabite Stone bears the text: 'I made two reservoirs in the midst of [Qerkhah]. Now there was no cistern in the city, so I said to all the people, "Make you every man a cistern in his house"'. Water cisterns were built and have been in use for almost 3000 years, but during the last 100 years they have often fallen into disrepair and silted up as town dwellers have come to rely on a piped water supply.

*Source: CEHA – Information Clearinghouse Water Demand Management and Pollution Control, [www.emro.who.int/ceha/clearingh\\_watdemand/portals/wutiliz/index.asp](http://www.emro.who.int/ceha/clearingh_watdemand/portals/wutiliz/index.asp) and *Jordan Times*, 3 September 2003.*