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* Iraq completes Baghdad drinking water project

Iraq on Friday (December 7th) completed a new project -- valued at more than 170 billion Iraqi dinars (\$146 million) -- to supply drinking water to much of Baghdad's population, the Iraqi government said.

Saleh al-Mutlaq, deputy prime minister for service affairs, told Al-Shorfa that the "ministry of municipalities opened the Abu Ghraib Great Water Project on Thursday evening. It will provide drinking water to houses through modern networks, and will cover about 50% of capital's residents."

"The project is designed to serve the area for 25 years, and will be expanded later in consideration of population growth and urban expansion," he said.

A similar project, carried out by Iraqi companies assisted by German and Turkish companies, is now under way in al-Rasafa in Baghdad, "and we hope to complete it by mid-2013", he said.

"Iraq completes Baghdad drinking water project", 07/12/2012, online at: <u>http://al-shorfa.com/en_GB/articles/meii/newsbriefs/2012/12/07/newsbrief-06</u>

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* Kurdistan Region's food security begins at home

If Iraq is the cradle of civilisation, the semi-autonomous Kurdish region in the north gave birth to agriculture.

The first crops were planted in these fertile plains and mountain valleys and animals are said to have been domesticated on the area's ideal pastoral land seven millennia ago.

But if the region was once the bread basket of Iraq, renowned for its top-quality wheat, it is now an increasingly large consumer of imported food.

Turkey, Kurds' strongest trade partner, imported about \$7bn worth of goods into northern Iraq last year, the majority of which was food, officials say. Iran, the area's second largest importer, is another important source for food, especially livestock.

As the oil boom translates into an ever greater appetite for meat, the region now only produces a fifth of its red meat and a quarter of its poultry – and even then the feed is imported.

"Food security is like national security," says Talib Elam, agriculture adviser to the prime minister of the Kurdish Regional Government. "We need to grant the same attention to chicken feed as we do to F-16s."

Arable land spans 28 per cent of the territory controlled by the KRG, a large amount for the arid Middle East, but the agricultural sector has been undermined by the grim history of these lands.

In the 1980s, the regime of Saddam Hussein cleared more than 4,000 villages to suppress dissent in the restive rural region.

Officials also blame the oil-for-food programme, under which the sanctioned Iraqi state bought food and medicine in exchange for oil exports from 1996. The programme led to a national dependence on free food imports that undermined domestic agriculture further.



Through the 1990s, urbanisation sped up further, with thousands of youngsters moving to the cities, breaking the bond of the intergenerational farming experience.

"We need to close the generational gap and get people farming again," says Mr Elam, formerly of the UN's Food and Agriculture Organisation.

The collapse of domestic produce is apparent when looking for Erbil's renowned white sheep's cheese, Kurdish produce once prized across Iraq.

While Turkish manufactured produce and Iranian vegetables are plentiful, only a few stores sell the pungent delicacy in Erbil's covered souk.

To revive agriculture, Mr Taleb wants the government to up the percentage of its budget devoted to agriculture from the current level of 2 per cent to closer to 10 per cent, in line with UN recommendations. The average in food-importing states is about 5 per cent.

Mr Taleb also warns of a threat to its water resources, primarily because of overuse and diversion from upstream sources in Turkey and Iran, he says.

The KRG needs to reserve more land for cultivation and rearing livestock, while intervening more regularly in the market to protect domestic production against cheaper imports, as the agriculture ministry did earlier this year with a five-month ban on some imported produce.

"Some in the government say we need to encourage the free market, but then they don't believe in self-sufficiency," says Mr Elam. "For food security this is a must."

The government says it is helping town dwellers to move back to the country with low-interest loans for house building.

Extending the electricity grid to cover 80 per cent of rural areas is also aiding repopulation of arable land, which covers more than a quarter of Iraqi Kurdistan, one of the highest percentages in the Middle East.



WATER RESEARCH PROGRAMME -Weekly Bulletin-

"It's helping, the level of wheat and barley production is already increasing, but we need to do more to reduce imports," says Herish Muharam, chairman of the KRG's board of investment.

Agriculture is one of three sectors – along with industry and tourism – that the government is seeking to promote via special incentives, including tax breaks for foreign investors.

As well as wheat and barley, cash crops such as nuts, tobacco and even truffles from the region's oak forests, could add to the KRG's emerging oil wealth.

Some returning expatriates are bringing new horticultural techniques from abroad, such as mushroom cultivation, but the sector as a whole has yet to take off.

Mr Muharam argues that there are signs of hope.

A few years ago, Kurdistan – like other areas of Iraq – was importing bottled water. The emergence of industrial plants has made the region almost self-sufficient in bottled water, with 70 per cent produced locally, says Mr Muharam.

One example is Life Water, produced by family-owned conglomerate UB Holding which now operates one of the largest bottling factories in the Middle East, in the northern Iraqi town of Zakho.

"We used to import all of this and now we are selling it throughout Iraq," he says.

"Kurdistan Region's food security begins at home", 08/12/2012, online at: http://www.krg.org/a/d.aspx?l=12&a=46066&utm_source=KRG&utm_medium=KRG.org

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✤ Israel treading water in corruption index

Israel received a score of 60 (0 being very corrupt and 100 being clean of corruption) and ranked 39th best out of 176 nations and territories • Among the 37 OECD countries, 23 rank higher than Israel — among them Chile, Ireland, Spain and Portugal • Israel's neighbors however, ranked much lower: Jordan 58th, Egypt 118th, Lebanon 128th, and Syria placed near the bottom at 144th.



Israel still has work to do to clean up public sector corruption, Transparency International's new Corruption Perceptions Index shows.

Israel received a score of 60 and ranked 39 out of 176 nations and territories. In 2011, Israel ranked 36th, and in 2010, 30th.

The Corruption Perceptions Index ranks countries and territories based on how corrupt their public sector is perceived to be. A country or territory's score indicates the perceived level of public sector corruption on a scale of 0-100, where 0 means that a country is perceived as highly corrupt and 100 means it is perceived as very clean. A country's rank indicates its position relative to the other countries and territories included in the index. This year's index includes 176 countries and territories.



When examining the results of the 37 nations belonging to the Organization for Economic Cooperation and Development however, Israel is situated in the bottom half (ranked 24th).

Among the OECD ranked higher than Israel in terms of corruption are Chile (20th place overall, and 13th place in the OECD), Ireland (25th overall, 15th in the OECD), Spain (30th overall, 16th in the OECD) and Portugal (33rd overall, 18th in the OECD). Israel's neighbors however, ranked much lower: Jordan ranked 58th of the 176 nations measured, Egypt 118th, Lebanon 128th, and Syria near the bottom at 144th. Neither the Palestinian Authority in the West Bank nor the Hamas regime in the Gaza Strip were included among the countries and territories ranked in the index.

"In comparing with years past, there has been no significant change in the fight against corruption and the realization of the damage it causes the country," Transparency International Israel said of the index.

Transparency International called out Israel for having little or no enforcement of the OECD antibribery convention.

Three countries tied for the top position as least corrupt — Denmark, Finland and New Zealand, each of which received a score of 90 out of a maximum of 100. Three countries also shared the bottom position as most corrupt — Afghanistan, North Korea and Somalia, each of which scored 8. Sudan, just above them, scored 13.

"Israel treading water in corruption index", 05/12/2012, online at: http://www.israelhayom.com/site/newsletter_article.php?id=6639

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***** Israel Water Prices for Factories Expected to Rise 17.5% in 2013

The Israel Water Authority is expected to raise the price of water supplied to factories by 17.5 percent starting Jan. 1, the Manufacturers Association said, calling on the government to halt the planned price rise.

The manufacturers said today in an e-mailed statement that such a jump in the industrial water bill would boost consumer prices, including food and toiletry costs. The association said the increase would raise manufacturers' water costs in 2013 by 100 million shekels (\$26.3 million) to 700 million shekels.

"Israel Water Prices for Factories Expected to Rise 17.5% in 2013", 05/12/2012, online at: http://www.businessweek.com/news/2012-12-05/israel-water-prices-for-factories-expected-to-rise-17-dot-5-percent-in-2013

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* Israel, Christians Negotiate The Price Of Holy Water

Dec 5, 2012 (All Things Considered) — High-level diplomacy helped avert a disaster last month, in a dispute over the unpaid water bill of one of Christendom's holiest sites. The water company that supplies the Church of the Holy Sepulcher in Jerusalem said it owed \$2.3 million. Eventually, the bill was waived -- but the church now promises to pay going forward.

One of the holiest sites in Christendom has also been one of the most contested. The Church of the Holy Sepulcher in Jerusalem lies on the site where Jesus Christ is said to have been crucified and buried.

Multiple Christian denominations share the church uneasily, and clerics sometimes come to blows over the most minor of disputes. The Roman Catholic, Greek Orthodox, Armenian Apostolic, Coptic Orthodox, Ethiopian Orthodox and the Syriac Orthodox all have a presence in the church.

But the most recent conflict at the 4th century church was over something entirely different: an unpaid water bill.

Last month, a dispute over water used by the church nearly closed its doors — until some high-level diplomacy defused the row.

Since the Ottoman Empire, the political authority in Jerusalem had traditionally waived the church's water bills — until the Israeli water company was privatized in 2003. Since then, the charge has grown to 9 million Israeli shekels, or \$2.3 million, including interest.

Father Fakitsas Isidoros, superior of the Greek Orthodox Patriarchate, said the water company should settle the problem with the Jerusalem municipal government.

"We are willing, in the future, to pay the bills of water. But the [debts before the] 9 million [are] not our problem," he said. "They have to discuss with the municipality to solve the problem."

The dispute prompted the water company to freeze the patriarchate's local bank account, which Isidoros said caused even more headaches.



"Of course it's very difficult, because we cannot pay the salaries or blessings for our fathers — the electricity, the telephone bills here, everything," he said.

Finally, it took a meeting between Patriarch Kirill, head of the Russian Orthodox Church, and Israeli President Shimon Peres to get the water company to waive the 9 million shekels and the church to promise to start paying for water.

Wajeeh Nuseibeh is the church's doorkeeper. In another twist, he is a Palestinian Muslim, whose family has opened and closed the church's heavy wooden doors every day for the past 1,300 years. He says that the church, located in the Christian quarter of Jerusalem's Old City, provides more than just spiritual facilities.

"Most of the water [is] used by the pilgrims, because they are going to [the] washroom, and nobody pays for that," he says. "They enter through the church normally. We don't charge people to come into the church or go to the bathroom."

Indeed, the church's public toilets are among the few in the Christian quarter of Jerusalem's Old City.

Israel has pledged to act as a responsible custodian for all the holy places of all religions.But Hana Bendcowsky, program director at the Jerusalem Center for Jewish-Christian Relations, says that younger generations of Israeli Jews have grown up increasingly isolated from minority communities and unaware of what the pledge of custodianship requires of them.

"This is a new experience for us as Jews to be the majority here, and to be responsible for Christian communities," Bendcowsky says. "We used to be minorities among Christians, and suddenly we are the majority, and we have the responsibility over Christian minorities." And yes, she says, that responsibility extends all the way down to the plumbing.

"Israel, Christians Negotiate The Price Of Holy Water", 05/12/2012, online at: http://www.northcountrypublicradio.org/news/npr/166523128/israel-christians-negotiate-the-price-of-holy-water

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* Polish NGO safeguards Palestinian water rights

Israel's ambassador to Poland was summoned to the Polish deputy foreign minister's office in the wake of an article published in the mass-circulation, liberal paper Gazeta Wyborcza. The ambassador was not summoned because of planned construction in E1, but because of a demolition. This happened last February, but the newspaper continues to take an interest in the reason behind the diplomatic event: the demolition of a Palestinian community's old water cistern, which had been restored with Polish government funding through the Polish Humanitarian Action NGO.

Judging by comments on the Internet, and discussions held in Polish media outlets and social networks, the fact that Israel was destroying sources of water belonging to the population for whose welfare it is responsible was a shock to quite a few Poles.

On February 4, 2012, the women's supplement of Gazeta Wyborcza (which takes a soft-feminist line) published an interview with the Jerusalem director of Polish Humanitarian Action, Marta Kaszubska. She described the work of cleaning and restoring 20 old cisterns belonging to four communities in the southern Hebron Hills area. The interviewer, Piotr Pacewicz, 60, is one of the founders of the paper, which was established in 1989 as an offshoot of the roundtable talks between the Solidarity opposition movement and the Polish government.

Gazeta Wyborcza was supposed to cover the partially free elections of 1989 and then close down (its name means "Elections Gazette"). The members of the editorial board, including Pacewicz, were veteran correspondents of the underground press with a proven past of disobedience and of carrying out actions which the communist dictatorship of the time had declared illegal. Solidarity won the elections with the maximum possible number of votes permitted under the agreement with the government, and the paper continues to exist.

With degrees in Mathematics and Psychology, Pacewicz has written three books, one of them about the mechanism of revolutions. Over the years, he began to specialize in writing about human rights issues. His subjects have included homophobia, the intolerable conditions faced by women giving birth in Polish hospitals, the right to die humanely and, more recently, reforms in the education system.

"As you know, writing in a newspaper changes nothing," Pacewicz told Haaretz. Accordingly, he combines his writing with personal involvement in social-activism activities, aiming to heighten consciousness, get others involved and bring direct pressure to bear on the authorities. For example, the campaign to improve conditions in hospital delivery rooms succeeded beyond expectations

On February 13, a week after the publication of the interview with Kaszubska, Pacewicz received a text message from her: "Israel demolished our cistern." She was referring to a small rainwater



reservoir in a small Palestinian village, Rahwa, in the southwest part of the West Bank. On the same day, Civil Administration personnel demolished six residential shelters, seven livestock sheds, four storage areas and four mobile latrines donated by another NGO. All this was documented by the United Nations Office for the Coordination of Humanitarian Affairs (OCHA).

"On the day the article was published [February 14], I got a call from the Israeli embassy," says Pacewicz, who returned to Israel and the Occupied West Bank two weeks ago to follow up on the "Polish" water-collection structures in the West Bank. In a written statement, the embassy asserted that the cistern was demolished because it is illegal to dig such structures without a permit. Then the Israeli ambassador, Zvi Rav-Ner, was summoned to a meeting with Poland's deputy foreign minister, Jerzy Pomianowski. Rav-Ner was asked to explain why the cistern had been destroyed. Thereafter, the paper received a second statement from the embassy, recommending that requests to authorize such projects be submitted to the relevant authorities, and that signs of the Polish humanitarian organization should be placed next to the restored cisterns.

Pacewicz took this as an indication to mean that the Israeli authorities would not damage the "Polish" cisterns. However, a few months later, Civil Administration inspectors issued demolition orders for two of these "Polish" structures in the village of Khirbet Zanuta, again in the southwest part of the West Bank. And on August 28, the Civil Administration demolished yet another of these cisterns in the nearby hamlet of Tiran. According to a list drawn up by OCHA, the Israeli authorities demolished two other ones in Tiran, along with a storeroom, water tank and five animal pens on the same day.

"Polish NGO safeguards Palestinian water rights", 07/12/2012, online at: <u>http://www.haaretz.com/weekend/week-s-end/polish-ngo-safeguards-palestinian-water-rights.premium-1.483301#</u>

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Solution Over the second secon

While we don't celebrate the energy crisis and financial woes in Jordan, it is poor finances that's reportedly putting the highly controversial <u>Red-Dead Canal</u> on hold, Israel's *Maariv* newspaper reported on Wednesday. The original plan which called for a canal between the Red Sea in the south up to the Dead Sea in the North to "save" the shrinking Dead Sea, <u>has had environmentalists up in arms</u>. The benefits of the canal, proponents say would be a new water source to the shrinking Dead Sea, while the altitude differential getting the water to the Dead Sea will create energy which could fuel a desalination plant to the very thirsty Hashemite Kingdom, Jordan.

The same proponents envisioned a pastoral Venice-like canal separating Israel and Jordan, and saw the canal as a venue for peace, despite overlooking consequences such as increased terror activities or the <u>underlying earthquake fault zones that could rupture the canal</u> destroying the hydrological profile of the desert that lies between these two bodies of water.

The canal project would create two billion cubic meters of drinking water for the regional partners, which included the Palestinian Authority, and the highly saline by-product from the desalination process would be channeled to the Dead Sea. Scientists I've spoken with says that the mixture of such saline water with a different salt content in the Dead Sea could create a blanket of bacteria, changing the face and beauty of the Dead Sea forever – so I am happy that the plan still seems to be on the backburner.

For science geeks, here's more details on the <u>Red Dead Canal concept</u>, developed by the United Nations University.

For now the plan is on hold despite a back and forth, on-again, off-again relationship Israel has had with its proposed partner, Jordan who three years ago said it planned to go it alone, and create the <u>Red Dead Canal without Israel</u>.

Estimated to cost anywhere from \$5 to \$10 billion dollars, an energy-strapped Jordan says it cannot foot the bill and if it were to go ahead the Red Dead Canal would need to be scaled back. The Maariv



cited the Jordan Times. Meanwhile the Israeli developers said they hadn't heard the news from Jordan. All along I had assumed that Jordan would be getting international financing and donations for the project, but perhaps not now.

"The purpose of the project is to advance regional peace through a desire to save the Dead Sea," the Ministry for the Development of the Negev and the Galilee in Israel said recently. The ministry added that the benefits from tourism and cooperation will easily compensate for the initial cost of the project.

To date the World Bank has spent a reported \$16 million USD investigating the feasibility of a Red Dead Canal, and their decision-making report was to be released in 2010. So far there's been no report, and prospects for peace in the region since the Arab Spring do not look better than they did ten years ago.

"Jordan Drops Out of Red Dead Project, Citing Financial Woes", 06/12/2012, online at: http://www.greenprophet.com/2012/12/jordan-red-dead-canal/

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Past Dead Sea dry-out points to ominous future

SAN FRANCISCOThe Dead Sea, the saltiest sea in the world, almost completely dried up roughly 100,000 years ago, which may be ominous news for the future of the water in the region, new research suggests.

The findings, presented here Wednesday (Dec. 5) at the <u>annual meeting of the American Geophysical</u> <u>Union</u>, are the result of analyzing sediments drilled from the Dead Sea that captured about 200,000 years of the salty body's history.

The fact that the <u>Dead Sea has dried up</u> before may have implications for the future of the Middle East. Several water-hungry countries in the region already use all of the runoff that flows into the sea, and if climate change further dries up the freshwater supply, it could worsen an already tense situation, said Steven Goldstein, a geologist at the Lamont Doherty Earth Observatory at Columbia University and a study co-author.

"Water is a source of conflict in this area," Goldstein told OurAmazingPlanet.

Freshwater from the Sea of Galilee, on the border of Syria, Lebanon, and Israel, feeds into the <u>Dead</u> <u>Sea</u> via several lakes in the region. As that freshwater travels south through several rivers, Lebanon, Syria, Jordan, Israel and Palestine all pull water to maintain their populations. Already, the salty body's water level is dropping about 5 feet a year, and that fall is accelerating, said Ari Torfstein, a study co-author also from Lamont Doherty.

In 2011, the team drilled a 1,476-foot-long core, which captured roughly 250,000 years of the sea's history. Within the core, they found about 150 feet of salt topped by a layer of pebbles, a record of an ancient, long-forgotten beach.

The team concluded that at that point in history, the Dead Sea nearly vanished: The lake evaporated, leaving salt deposits in the process as water levels fell about 2,300 feet until only a beach remained. The major desiccation happened during the planet's last warm period, around 100,000 years ago.

The findings are bad news for the region. Climate change models predict that the Middle East will get warmer and drier, similar to the conditions during the last interglacial period when the Dead Sea dried up. That could mean <u>water woes</u> even without the populations that are siphoning off water.



"Less water will be available if those predictions are right and what we've shown is that actually happened when there were no people using all the water," Goldstein said.

Because the Dead Sea gets its water from runoff further north, it is a barometer of water availability in the region, Torfstein told OurAmazingPlanet.

"If the Dead Sea is drying down from both human usage and climate change, that means the Sea of Galilee would be in danger," Torfstein said. "And once this big reservoir of freshwater to the region is shut down, that has a huge implication."

"Past Dead Sea dry-out points to ominous future", 06/12/2012, online at: http://www.cbsnews.com/8301-205_162-57557597/past-dead-sea-dry-out-points-to-ominous-future/

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* Middle East Water Security and the Dead Sea

The Dead Sea Has Dried Up Before and Could Dry Up Again

A new scientific research study has shown that the Dead Sea dried up almost completely approximately 100,000 years ago, raising fresh fears over water security in the Middle East.

The study, which was presented on December 5th at the annual meeting of the America Geophysical Union, analysed sediment samples taken from the floor of the Dead Sea covering 200,000 years of history for the world's saltiest sea. The team behind the study found that during the world's last world period water levels dropped by 2,300 feet, leaving very little water remaining, and warned that the same thing could happen in the near future. In fact, it may even be considered likely if you take into account the fact that water-hungry countries in the region are already using all of the run-off which would otherwise be replenishing the salty water body.

According to Ari Torfstein, a co-author of the study, the Dead Sea is seen as a barometer of water available in the region.

"If the Dead Sea is drying down from both human usage and climate change, that means the Sea of Galilee would be in danger," Torfstein said. "And once this big reservoir of freshwater to the region is shut down, that has a huge implication."

That implication is clear – severe water shortages in the Middle East, which climate models have already predicted will experience hotter and drier weather due to global warming. This is also sure to create serious tensions between nations which rely on common water sources for survival.

"Middle East Water Security and the Dead Sea", 06/12/2012, online at: <u>http://worldnewscurator.com/2012/12/06/middle-east-water-security-and-the-dead-sea/</u>

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Desalination provides solutions to water scarcity issues in the Middle East

With the United Nations advising that water use has been growing at twice the rate of population increase in the last century, many companies are actively developing advanced technologies to address the critical issues of water usage, water sustainability and water storage.

It is well-documented that water scarcity is being driven by a combination of increasing populations, greater industrialization and urbanization, and growing economies. Estimates indicate that, by 2025, 1,800 million people will be living in countries or regions with absolute water scarcity, and two-thirds of the world population could be under stress conditions.

The issues are exacerbated in arid regions where there is a severe shortage of freshwater supply. Many assume that arid regions mean the dry, hot and sandy stretches of the Middle East, but surprisingly, parts of Europe, Australia, south-east Asia and also the United States of America can be considered as 'arid'.

However, it is the Middle East that is taking strong and affirmative action to address the water shortage issues. Arabic countries are introducing new technologies to increase their supply of water not only for drinking, washing and the essential air-conditioning, but also to provide for their renewable energy challenges.

One such technology is desalination, and the International Desalination Association, headed by its Abu Dhabi-based president, Dr Corrado Sommariva, is fully supportive of the efforts being made in the region. "Thanks to what was done in the Middle East, desalination has become a solution to water problems well beyond the traditional arid areas of the Middle East and North Africa. Now, we hope that with initiatives such as the IWS conference and in general the Masdar initiative, the Middle East will become the champion of sustainable desalination solutions, which IDA supports entirely".

"Clearly, desalination is a critical component of sustaining life and economy in the Gulf region. Some countries in the Gulf rely on desalination to produce 90 per cent or more of their drinking water, and the overall capacity installed in this region amounts to about 40% of the world's desalinated water capacity".



"The desalination industry that we know today is founded on the premise that was created in the Middle East back in the 1950s to support the region's people and industry in these largely expanding countries. We can even assume today that there would not have been an oil and gas industry if there were not a desalination industry serving the community and allowing incredible development in the Middle East."

"The Gulf is only one region where desalination provides the only new and sustainable source of fresh water. No real development in society or industry in the area would have been possible without the parallel development and implementation of desalination", explains Dr Sommariva.

"I think the impact of desalination in oil and gas-producing regions such as the Middle East is certainly very significant. If we consider that a thermal plant has a specific energy consumption of 20 to 40 kwh/m3 and a SWRO plant has power consumption of 4-5 kwh/m3, the overall energy that is required in the UAE only to drive desalination plants is between 7000 to 9000 MW. This amount could be reduced with a program of energy efficiency that foresees the retrofit with state-of-the-art solutions to some of the oldest and more obsolete plants and generally a gradual replacement of existing thermal plants with new SWRO technologies as long as the end of the commercial lifetime of the thermal assets occurs."

In January 2013, Abu Dhabi, the capital of the United Arab Emirates, will host the inaugural International Water Summit (IWS) as a part of Abu Dhabi Sustainability Week which is hosted by Masdar, Abu Dhabi's multi-faceted renewable energy company.

IWS is a new global platform for promoting water sustainability and the water-energy nexus in arid regions. As a natural extension of the UAE's commitment to sustainability, the Summit will bring together policymakers, scientists and business leaders to tackle the urgent challenges of wastewater and water access and security.

Dr Corrado acknowledges that desalination, whilst a critical contributor, is not the only solution to the challenges, and the global approach to water sustainability has changed in recent times.



"At one time, the focus was on making water at any cost. Today, there is a gradual but constant change in perspective and environmental understanding that is driving the technology towards more efficient and environmentally friendly options and towards energy optimization".

"For a long time, the Middle East has been driven by robustness rather than efficiency. It is understandable for a region where there is no water storage and all water comes from desalination systems. On the other hand, a slow but gradual shift is taking place in all the Middle East towards supporting R&D in renewable desalination and adopting a more energy efficient approach towards their energy solutions."

"The enormous potentials that are achievable by energy efficiency in the Middle East are not yet totally understood. As I mentioned before, the emphasis was once - and rightly so - on robustness and reliability of supply, rather than efficiency. However, as desalination plants have proven themselves now for 50 years, I believe we can convince policy-makers and end users to adopt more energy efficient measures and designs that are gradually made available by the technology."

IDA will convene a meeting of its global Energy Task Force during the International Water Summit to help create a framework for the desalination industry to achieve a 20% reduction in energy consumption in seawater desalination by 2015.

The IDA has backed the inaugural International Water Summit in Abu Dhabi from 15-17 January 2013 by becoming a strategic partner, and Dr Sommariva believes that real and sustainable outcomes will be achieved.

"This event provides a platform to address issues that are essential for the desalination industry and are at the top of IDA's mission and agenda. Because this event is located in the core of the desalination area, we believe this will be a wonderful tool to reach the policy makers, the plant end users and the operators, and make them aware of what the technology can offer. We believe it is a unique opportunity for sending a message to the overall community for the development and success of a new initiative towards sustainable desalination solutions that will serve generations to follow".



Dr Sommariva has called for action on a number of levels which he is confident will be the centre of discussions at the International Water Summit in Abu Dhabi in January.

"There are two levels of actions that, in my opinion, require urgent attention. The first one is the creation of a set of policies that encourage energy efficiency, providing a realistic price for energy even in oil-rich countries and commercially rewarding energy efficiency in the implementation of projects. On the technical level, it is necessary to conduct a campaign of education to plant operators and managers that demonstrates that many of their plants could be operated in a much more energy efficient manner with a relatively small changes".

"It is also important that we find a structure to let new technology evolve from the laboratory and pilot scale, and reach the commercial level. We cannot think that, in a short time, Forward Osmosis could, for instance, compete with traditional SWRO or MED for the next 50 MIGD, but we need to create a set of projects, perhaps initially of small scale, where technologies such as Forward Osmosis and membrane distillation can compete for business and find a way to evolve from the R&D level."

IDA has confirmed its participation as a Knowledge Partner at the International Water Summit from 15-17 January 2013 which is hosted by Masdar with Borouge and Borealis being the principal sponsor and the Abu Dhabi Water & Electricity Authority as a strategic partner. IDA will also organize two sessions at IWS on the water-energy nexus, and its Desalination Academy will conduct courses on desalination technologies and practices in conjunction with the event.

IWS will be co-located with the World Future Energy Summit, also hosted by Masdar, as part of Abu Dhabi Sustainability Week (13-17 January 2013), alongside the International Renewable Energy Conference in Abu Dhabi (ADIREC) and the 3rd session of the Assembly of IRENA.

"Desalination provides solutions to water scarcity issues in the Middle East", 03/12/2012, online at: <u>http://www.ameinfo.com/desalination-provides-solutions-water-scarcity-issues-321142</u>

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✤ Middle East faces extreme climate change

DOHA // From heatwaves to water scarcity, desertification and flooding of coastal cities, the Middle East will be acutely affected by climate change, a report by the World Bank has warned.

The report, "Adaptation to a Changing Climate in the Arab Countries", was launched yesterday alongside the United Nations climate change summit in Doha, Qatar.

As far as the Arabian Gulf region is concerned, extremely high temperatures are likely to be among the most serious impacts brought about by changes in the climate.

Such a scenario is becoming increasingly possible, unless emissions of greenhouse gasses - caused by the burning of fossil fuels - are reduced quickly. The available scientific data is already a concern, said Rachel Kyte, World Bank's vice president for sustainable development.

"Temperatures in this region have increased 50 per cent faster than the global average," she said.

The year 2010 was the hottest since records began in the 1800s, with 19 countries setting records for high temperatures, said Ms Kyte. "Five of them were here in this precise region," she said. "Kuwait, for example, measured temperatures in excess of 52°C."

With Gulf cities, including Abu Dhabi and Dubai, already experiencing extreme heat in summer, any increase will further push already harsh conditions.

"Imagine living in these cities when they regularly experience temperatures of 54°C, 55°C, 56°C," said Ms Kyte. "As someone put it to me yesterday, we are going to have to build fridges for people to live in ovens."

Prepared in partnership with the League of Arab States, yesterday's report reflects the feedback of experts, policymakers and civil society organisations from across the region. It follows another World Bank publication, Turn Down the Heat: Why a 4°C Warmer World Must be Avoided.

As the title suggests, the document, released last month, analysed the impacts of a rise of 4°C in average global temperatures. At the Doha conference, world governments are trying to agree upon measures that will limit global warming to no more than 2°C. Even if the pledges for emissions



reductions being discussed in Doha, are met, there is a "roughly 20 per cent likelihood" of exceeding 4°C of warming, the report said. And if the pledges are not met, this threshold can be crossed as early as the 2060s.

The World Bank followed November's report with yesterday's publication on the Arab world, because the average global increase of 4°C will not be evenly distributed throughout the globe. The increase for the Middle East and North Africa is expected to be higher, at an average of 6°C.

Under the Kyoto Protocol - the only legally binding agreement on climate at the moment - only developed countries are obliged to commit to reducing their emissions. The protocol considers the UAE and other countries in the Middle East as developing nations, and so they are obliged only to report their emissions, as well as any voluntary measures they decide to take.

"Our natural constituency as the World Bank are our shareholders and our clients and those are normally represented by the ministers of finance in those countries, and I think that the dialogue with them about the economic, financial and investment consequences of not acting now is something we wish to deepen and speed up," said Ms Kyte.

While officials fell short of recommending that Arab countries pledge legally binding reductions in greenhouse gas emissions, they stressed steps were needed to ensure they adapt to the climatic changes to come in future.

One key issue is the need to make an in-depth study on the likely impacts facing each country, said Dr Junaid Ahmad, World Bank's director for sustainable development in Middle East and North Africa. Food security and infrastructure development were also pointed as priorities.

"Middle East faces extreme climate change", 06/12/2012, online at: <u>http://www.thenational.ae/news/uae-news/environment/middle-east-faces-extreme-climate-change</u>

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Can Lebanon ever be green again?

BEIRUT: The cedar at the center of Lebanon's national flag may indicate a country filled with luscious forests, and while that once was the case, the symbolic tree belies the toll that decades of mismanagement, conflict and urban development have taken on the landscape.

And it's not just the cedar forests which have suffered, but all native species, from pine to oak and wild almond and fir, among others. In 1980, forests covered 30 percent of the entire country, but by 2011 this figure had fallen to just 13 percent.

In 2010, the Agriculture Ministry set the rather daunting target of achieving 20 percent forest coverage by 2020, which would represent the addition of some 2 million trees each year.

There are various organizations working alongside the ministry to develop Lebanon's forests, but is this 20 percent target achievable?

"The campaign to reach 20 percent forest cover is clearly an ambitious goal," says Richard Paton, project director for the Lebanon Reforestation Initiative, an organization funded by the U.S. development agency and created in 2010 to help the country reach this target.

Commending the recognition which the government has awarded the issue of reforestation, Paton believes the success of this "laudable reforestation goal" rests on the ability of the government to ensure critical financing.

"Mechanisms must be identified to attract longer-term funding – from the public and private sectors as well as from varied bilateral donor sources – that can finance future reforestation efforts and provide ongoing technical support," he says.

More effective coordination between the myriad reforestation efforts is also needed, Paton says, if the country is to reach this goal, as is greater work on the sustainability of such programs.

Elias Chnais, program assistant at the Association for Forests, Development and Conservation, a nongovernmental organization which worked alongside the government to create a National Forest Program, echoes this sentiment.



Important work is being undertaken to ensure the success of the various reforestation initiatives, but "more efforts are needed to set specific reforestation standards and priority areas as well as to avoid duplication of efforts," Chnais says.

It is essential, he says, for the Ministries of Agriculture and Environment to work together, alongside local municipalities, NGOs and donors to ensure cohesive reforestation is realized.

Chnais is not overly confident that the 2020 target will be met, labeling it a "huge task to accomplish."

If the current reforestation standards continue to be applied, without being developed and updated, "I believe it will take more time and money to achieve this target," he says, and that the same areas will need to be reforested time and time again, until the young trees survive at an acceptable rate.

Chnais also questions the 20 percent target itself. "Instead of spending so much time and effort to reach the supposedly ideal forest cover, why not allocate as much effort to better manage our existing forests and woodlands?" Chnais asks.

If the target can indeed be met, he also questions, "If we are not able to protect the forests we have now, will we be more efficient when this percentage increases significantly?"

While Paton admits that other obstacles to reforestation exist, such as, "adequate resource mobilization, greater administrative coordination, and effective responses to the ongoing threats of wildfires will continue," he is optimistic about the LRI achievements to date.

One of the biggest challenges involved in reforestation efforts in the past has been the survival rates for new seedlings, historically hovering at around 25 percent, Paton says.

But after just one year of growing efforts, which has seen LRI plant more than 200,000 native tree seedlings, the organization is seeing survivability rates of between 60 and 80 percent at its reforestation sites around the country.



The LRI's forestry specialists are, Paton says, "confident that the survivability rates will increase significantly country-wide as nurseries and reforestation groups continue to perfect the new approaches to seedling production and planting."

Benefitting from over 100 years of experience of the U.S. Forest Service, the LRI has introduced new growing technologies which promote the development of long-rooted seedlings, "that are well adapted to the harsh growing conditions of the region," Paton adds.

The organization is also working to create forest mapping applications, which, once completed, will be made freely available online, allowing all those involved in reforestation efforts in Lebanon to "help coordinate the future selection of priority reforestation areas," he adds, and to enable better monitoring of the different programs, which should help increase long term survivability, "one of the deficiencies of current reforestation efforts in Lebanon and elsewhere."

Regardless of individual successes in re-greening Lebanon, Paton, like Chnais, stresses that a long-term policy is essential.

"Reforestation is by its nature a long-term effort; early successes in planting and nurturing tree growth must be complemented by longer-term financing, coordination, and technical assistance mechanisms."

"Can Lebanon ever be green again?", Daily Star, 03/12/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=6444

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* Khoury calls for sustainable consumption

BEIRUT: Arab countries are using twice the natural resources that their own ecosystems can provide, an alarming statistic that needs to be addressed by national governments, Environment Minister Nazem Khoury said Thursday.

Speaking at the beginning of a regional environmental conference in Beirut, Khoury was commenting on a new report from the Arab Forum for Environment and Development

The two-day annual conference at the PhoeneciaHotel aims at reducing the ecological impact of Arab countries.

Over 500 delegates from around the region attended the event to exchange ideas about sustainable energy, reducing consumption and raising a warning about the dangers of environmental destruction.

The Arab region is on the edge of ecological bankruptcy, the report claimed, reporting that countries in the region have some of the largest ecological footprints in the world and don't have nearly enough local resources to support them.

An imbalance in resource supply and demand is leading to an economic crash and a disruption of its stability and security, chairman of AFED Adnan Badran said at the opening of the event.

To a large extent, the report and participants at the conference said, Arab countries are wasteful users and not using basic environmentally friendly practices like recycling.

Many states in the Arab world import the majority of their agriculture and Gulf states in particular are known for their extravagant use of energy resources because of their abundance of oil wealth.

"Arab countries are facing an urgent challenge: how to provide sustainable well-being for all inhabits and not simply seeking growth for the sake of growth at any cost," the report states.

Despite a wealth of ecological resources, Lebanon is facing a number of environmental degradation issues including large levels of pollution in its rivers, uncontrolled landfills and disregard by business for the country's environmental laws.

Khoury has worked to bolster the country's environmental legislation and awareness with a number of initiatives throughout the year, but waste and pollution reduction remain low on the government's priorities and recycling is still scarce.



Lebanon is not agriculturally sufficient, importing more food than it produces, putting it at the mercy of international price fluctuations.

The conference brought together a number of experts to discuss just how issues like that could be remedied region-wide.

Prime Minister Najib Mikati launched a wide-ranging new strategy for the country's environmental protection and green industry development several months ago at a conference in Rio de Janeiro.

The strategy was embraced as a positive step by some but also criticized by environmental activists for lacking any tangible commitments to ecological protection.

It didn't square with the economic and governmental realities in the country, they said.

"We can't have infinite growth using finite resources. If we continue as we do, we'll overshoot, and the environment will collapse. Business as usual won't work. Ultimately we need empowerment," said Ashok Khosla, a sustainable resource expert. "The oil and gas in the Mediterranean will only buy us five to 10 years. Oil and gas is limited,"

The conference also included a roundtable with youth environmental leaders to try and encourage the next generation of policymakers and environmentalists to make change.

"It's necessary to obtain a sustainable well-being," said AUB student Hadi Abi Abdallah, speaking about the need for cooperation in the region to achieve sustainable resource consumption in every nation.

"As citizens of one same region we have the right and need to overlap each other but the duty not to exploit each other," he said. – additional reporting by Brooke Anderson

"Khoury calls for sustainable consumption", Daily Star, 03/12/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=6452

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✤ Arab forum urges reduced ecological footprint

BEIRUT: The Arab Forum for Environment and Development wrapped up its fifth annual conference Friday, calling for countries to reduce the demand they place on their ecosystems.

The conference recommended that Arab countries reduce their ecological footprints by restoring degraded land, refilling depleted aquifers and fisheries as well as reducing pollution and generating less waste overall.

In addition to fighting against the damage already done, AFED also urged governments to invest in green development, suggesting that some of the region's oil wealth should be used for this purpose.

It added that this green development should be extended to energy efficiency in construction, transportation and industrial sectors.

In a region that is using up its natural resources – a problem the conference's report said would eventually have a major impact on economic competitiveness – AFED suggested regional cooperation and resource management as strategies to prevent further loss.

Over 500 delegates from 48 countries participated in the two-day meeting, and Friday's proceedings included a standing ovation of congratulations to Palestinian Environment Minister Youssef Abu Safiyyeh for Palestine's new status as a non-member observer state at the U.N.

Lebanon suffers from many of the same problems as the rest of the region, which AFED's report "Surviving Options: Ecological Footprints in Arab Countries" said in general do not have enough natural resources to account for their impact on the environment.

Lebanon has high levels of pollution, unchecked landfills and there is little respect or enforcement of environmental laws. Levels of recycling are low, and it imports more food than it produces.

Environment Minister Nazem Khoury warned Wednesday that national governments are using twice the natural resources their ecosystems can provide.

In the field of agriculture, AFED called on Arab countries to improve irrigation efficiency, promote organic farming and develop crops that have a high yield and are resistant to salt and drought.

There was also a financial aspect to this year's AFED recommendations: It called on development funds and banks to use "ecological accounting" in evaluating the grants and loans they provide.



AFED itself was urged to provide assistance to various economic sectors in understanding sound ecological accounting principles, meaning a consideration of the environmental impact of business decisions.

A Friday session was dedicated to how business can help reduce a country's ecological impact. It discussed several green corporate initiatives and included a panel discussion on how to incorporate ecological footprints into national budgets.

"Arab forum urges reduced ecological footprint", Daily Star, 03/12/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=6450

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* Divisions over aid as climate talks near end

Standoff between rich and developing countries remains as the COP18 talks in Qatar enter the final stretch.

UN climate talks are heading into the final stretch with a host of issues unresolved, including a standoff over how much money financially stressed rich countries can spare to help the developing world tackle global warming.

That issue has overshadowed the talks since they started last week in Qatar, the first Middle Eastern country to host the slow-moving annual negotiations aimed at crafting a global response to climate change.

A draft agreement was presented on Friday night, but there was disagreement on several key issues. Two members of the Arab Youth Climate Movement were taken away by UN police on Thursday after they held up a banner at the calling for Qatar to take a stronger leadership role [Youtube]

"Developing nations are hoping for firm commitments on aid from richer nations. Developed countries are willing to provide help but are unwilling to commit to specific targets because of the global financial turmoil," said Al Jazeera's Nick Clark, reporting from the talks in Doha.

"There's also a last-minute attempt to extend the Kyoto Protocol [climate treaty], which expires at the end of this year, in about three weeks' time," said our correspondent.

He said that the final day of the conference has gone into overtime and that and agreement is expected by 3 am [12AM GMT].

Developed countries, many of which face unpopular austerity measures at home, are being asked to show how they intend to keep a promise to raise climate funding for poor countries to \$100bn per year by 2020 – up from a total of \$30bn in 2010-2012.

Seyni Nafo, a member of the African group of negotiators, told Al Jazeera that the increase of "extreme weather events" such as floods and droughts mean "a catastrophe for Africa".

"What we were looking for when we came to Doha was means of implementation...because developed countries have made pledges to deliver on finance and pledges to deliver on the second



period of the Kyoto Protocol, which is the only legal instrument to curb developed coutries' emissions," said Nafo.

"This is right now, as we speak, not on the table."

'Promises upon promises'

Developing countries say they need at least another \$60bn between now and 2015 to deal with the fallout from climate change, such as rising sea levels, and convert to cleaner energy.

"We are not going to leave here with promises upon promises," said Gambia delegate Pa Ousman Jarju, who represents a group of least developed countries. "The minimum that we can get out of here is a demonstration that there will be \$60bn on the table moving onward."

The European Union and the United States have refused to put concrete figures on the table in Doha for new 2013-2020 climate funding, even as pledges have trickled in from individual EU member states.

National pledges by Germany, Britain, France, the Netherlands, Sweden, Denmark and the EU Commission in Doha totalled more than \$8.95bn for the next two years – more than in 2011-12.

"It has become very clear that the US delegation hasn't brought much on the table, bot on financing and mitigation reductions," said Martin Kaisar, Greenpeace spokesman.

"So President [Barack] Obama now has to move specifically on the financing part because developing countries are asking for \$60bn for the next three years. This enables those countries to make the transformation from oil and coal dependency towards renewable energy," Kaisar told Al Jazeera.

Only a handful of countries – Lebanon, the Dominican Republic, Belarus and Ukraine – set new goals for curbing greenhouse gas emissions during the Doha meeting.

Meanwhile, Greenpeace and five other activist groups accused rich nations of pushing the talks to the "brink of disaster," while a small group of warming sceptics appeared at a side event where they dismissed the entire process as a sham to transfer wealth to the poor world.



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A British activist even managed to slip into a conference hall where he addressed a plenary session, apparently mistaken for an official delegate. A tweet from the UN climate secretariat said he was "debadged and escorted out" of the venue "for impersonating a party" and violating the conference's code of conduct.

UN climate conferences, bringing together nearly 200 nations, are notorious for missing deadlines.

From the start, the Doha talks had low ambitions, so failure would be less spectacular than at a UN summit in 2009 when world leaders including US President Barack Obama fell short of a new, global package to combat climate change.

"Divisions over aid as climate talks near end", Al Jazeera, 07/12/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=6503

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Study: Seas rising faster than projected, low areas threatened

Sea levels are rising 60 percent faster than UN projections, threatening low-lying areas from Miami to the Maldives, a study said on Wednesday.

The report, issued during UN talks in Qatar on combating climate change, also said temperatures were creeping higher in line with UN scenarios, rejecting hopes the rate had been exaggerated.

"Global warming has not slowed down, (nor is it) lagging behind the projections," said Stefan Rahmstorf, lead author at the Potsdam Institute for Climate Impact Research that compared UN projections to what has actually happened from the early 1990s to 2011.

The study said sea levels had been rising by 3.2 mm (0.1 inch) a year according to satellite data, 60 percent faster than the 2mm annual rise projected by the UN's Intergovernmental Panel on Climate Change (IPCC) over that period.

"This suggests that IPCC sea-level projections for the future may also be biased low," the authors from Germany, France and the United States wrote in the journal Environmental Research Letters.

The IPCC's latest report in 2007 said seas could rise by between 18 and 59 cm this century, not counting a possible acceleration of the melt of the Greenland and Antarctic ice sheets that could add more still water to the oceans.

In the last century, seas rose by about 17 cm.

Rahmstorf told Reuters his best estimate for sea level rise was between 50 cm and a meter this century, possibly more if greenhouse gas emissions surged. Higher temperatures would melt more ice on land and expand the water in the oceans.

That would leave low-lying regions — from Pacific island states and Bangladesh to Tokyo and New York — facing a greater risk of storm surges, erosion and, in a worst case scenario, complete swamping by flood waters.


The IPCC was criticized after it had to correct parts of its 2007 report that exaggerated the rate of melt of Himalayan glaciers and wrongly said they might vanish by 2035.

People skeptical that man-made emissions of greenhouse gases are stoking climate change also wonder if warming has flattened out. They note that 1998, 2005 and 2010 are tied as the warmest years since records began in the mid-19th century.

But the study said overall warming was in line with IPCC projections of a gain of 0.16 degree Celsius a decade from 1990 to 2011, after correcting for natural variations caused by volcanic eruptions, El Nino events that warm the Pacific and shifts in the sun's output.

Almost 200 nations are meeting in Doha from 26 November – 7 December as part of floundering efforts to work towards a UN deal to curb global emissions of greenhouse gases from 2020.

"Unless we reduce our carbon pollution rapidly, this study clearly shows we are heading for the nightmare world at the top end of the IPCC predictions," said Professor Mark Maslin of University College, London.

The IPCC says rising temperatures could cause more floods, droughts, heat waves, mudslides and desertification that would strain water and food supplies for a rising world population.

"The authors have stressed what many of us have thought for some time – the IPCC is far from alarmist in its projections," said Professor Sir Brian Hoskins, Director of the Grantham Institute for Climate Change at Imperial College, London.

"Study: Seas rising faster than projected, low areas threatened – Egypt Independent", 03/12/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=6458

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***** U.N. climate boss: No support for tough climate deal

RDOHA, Qatar: The United Nations climate chief is urging people not to look solely to their governments to make tough decisions to slow global warming, and instead to consider their own role in solving the problem.

Approaching the half-way point of two-week climate talks in Doha, Christiana Figueres, the head of the U.N.'s climate change secretariat, said Friday that she didn't see "much public interest, support, for governments to take on more ambitious and more courageous decisions."

"Each one of us needs to assume responsibility. It's not just about domestic governments," she said.

Her comments came as negotiators from nearly 200 countries were struggling to prepare draft agreements on how to move forward on greenhouse emissions cuts and climate aid for poor countries.

Some delegates worried that gains made at last year's climate talks in Durban, South Africa, were at risk of unraveling, as rich and poor nations bickered over how to pull the world away from a path of potentially dangerous warming.

"There is a mutual mistrust that is very clear," said Brazil's chief negotiator Andre Aranha Correa do Lago. "We need to get back to the spirit of Durban."

The slow-moving U.N. process has failed to deliver a global pact to rein emissions of carbon dioxide and other heat-trapping gases.

Such emissions, primarily from the burning of fossil fuels, have grown 20 percent since 2000, according to a recent U.N. report, which showed the gap is

growing between what governments are doing and what science indicates must be done to contain warming.



Research presented on the sidelines of the conference Friday indicated that some countries, including the U.S., are unlikely to meet their current, voluntary, emissions pledges unless they step up their climate efforts.

The Obama administration has already taken some steps to rein in emissions, such as sharply increasing fuel efficiency standards for cars and trucks and investing in green energy.

But the study from Climate Analytics, Ecofys and the Potsdam Institute for Climate Impact Research said U.S. policies won't be enough to meet its stated goal of reducing emissions by 17 percent by 2020, compared to 2005 levels.

Others said the U.S. will come pretty close to that goal with new standards affecting emissions from coal-fired power plants.

"I think we can get within spitting distance of the 17 percent," said Jake Schmidt, of the Natural Resources Defense Council.

In Doha, delegates are expected to extend the expiring Kyoto Protocol, an agreement limiting greenhouse emissions of some industrialized countries. The U.S. never ratified that agreement because it didn't include fast-growing developing countries including India and China, the world's top carbon emitter.

Delegates are also supposed to agree on a work plan for a wider pact that would include all countries. It's supposed to be adopted in 2015 and take effect five years later.

Figueres predicted that the conference would end with countries agreeing on a package of compromise decisions, "fully recognizing that whatever comes out of Doha is not at the level of ambition that we need."

Climate activists urged governments, especially from developed countries, to increase their commitments to fight climate change, which scientists say already is melting ice in the Arctic, raising sea levels and shifting weather patterns with impacts on floods and droughts.



"No developed country has come here and raised its emission-target as the science requires," said Mohamed Adow of Christian Aid.

Artur Runge-Metzger, the chief negotiator for the European Union, defended the EU's record on climate action, but admitted the pace of the talks was too slow.

"I'm often frustrated at the slow process," he said. "Still, I think it's worth investing (in these talks), because we invest for future generations."

"U.N. climate boss: No support for tough climate deal", Daily Star, 03/12/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=6460

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* ABB's water flow meter scoops industry award in Middle East

ABB, power and automation technology group, has been recognized at the 2012 H2O awards for its flow meter AquaMaster3 device that helps address water leaks, boost water efficiency and lower utilities' environmental impact. The technology won the 'Most Water Efficient product category' at the event which celebrates outstanding achievements of the Middle East and North Africa (MENA) water industry.

The technology heralds a new era in water leakage management and was designed in response to the industry's stringent demands for enhanced metering capability - enabling a more efficient and cost-effective operation and compliance with increasing legislative requirements.

The flow meter delivers measurement data from remote locations directly to customers via the Internet to a PC or mobile device - enabling key decisions to be made and relevant preventative action to be undertaken quickly.

ABB technology reduces environmental impact

The flow meter sets the standard for remote potable water measurement and delivers the best-in-class technology with essential operational and financial benefits. Measuring potable water is challenging due to measurement inaccuracies, costly chamber construction, flow interruptions, suspect product reliability, expensive installation, commissioning and maintenance - all further compounded by poor leak prevention.

Sivakumar Subramanian, ABB's global market development manager for Water in India, Middle East and Africa, said, "We are delighted to win this prestigious award which has set an exemplary standard for remote potable water measurement, delivering best-in-class technology combined with essential operational and financial benefits to the industry."

ABB provides the most economical and advanced instrumentation technologies for improvement of water efficiency and quality. "At the same time, ABB is taking giant leaps forward by embedding seamless smart integration with renewable power, utility information technology systems and communication technologies," added Sivakumar Subramanian.

ABB saves customer costs



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Additional benefits of the flow meter include no need for routine maintenance, lower installation costs and meter accuracy will not deteriorate through wear. To highlight the long standing commitment of ABB in the water industry and the recent recognition, ABB was also recognized through a global leadership award by Frost & Sullivan for its innovation in the sector of 'smart water networks/grids'.

ABB's commitment to the water sector with technology solutions was commended in the areas of automation and control, metering and utility hardware, design and engineering and information, communication technologies.

With several decades of global water and wastewater knowledge in applications ranging from pumping stations, desalination, treatment, distribution and the management of the entire water-wastewater cycle in Municipal and industrial customers, ABB is the preferred partner to the entire industry providing comprehensive portfolios of electrical, control and automation technologies in addition to industry specific turnkey solutions and life cycle services.

"ABB's water flow meter scoops industry award in Middle East", 06/12/2012, online at: <u>http://www.ameinfo.com/abbs-water-flow-meter-scoops-industry-321655</u>

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What Iran and Pakistan Want from the Afghans: Water

With a vast, empty desert as a backdrop, the militants recorded the execution of Khan Wali on video. As someone held a camera, the others encircled the condemned man to read out his sentence. "This is not brutality — this is justice," declared one of the executioners, who sported a black turban and a shaggy beard. "I swear to God that killing him with an 82-mm mortar is not enough. But the rest of our *mujahedin* would not agree on my recommendation — to kill him in a way that all can take part in the act."

And so it was decided to shoot Khan Wali with the 82-mm mortar. They forced him to kneel 36 m away from the portable cannon, a type often used in small battles in the war-torn country. A militant positioned behind the weapon then set it off; a massive thumping sound was followed by celebratory cries of *Allahu akbar* — God is great. "Be careful, don't get any blood on your clothes," said one voice as the other men, after jubilantly hugging one another, rushed to poke at Khan Wali's flesh splattered on the ground. "I enjoyed this very much," said one.

What was Khan Wali's crime? He was protecting one of <u>Afghanistan</u>'s most important resources: water. Khan Wali led a 60-man semiofficial militia tasked with defending the Machalgho dam in eastern Paktia province. Already two years behind schedule because of security concerns, the dam would irrigate about 16,000 hectares of land and produce 800 KW of electricity once completed. The government had pledged that if Khan Wali held his ground for two months, he and his men would receive weapons and cash. But Khan Wali lasted only 20 days into the mission.

His remains were recovered eight days after his savage execution, his nephew Agha Jan told TIME. His upper body was completely in pieces. "We recognized him from the tattoo he had and the shoes he had been wearing — his name was tattooed on his hand since childhood." The video of the brutal execution, which took place in mid-2011, was shared with journalists months later and uploaded to YouTube.

"With such bravery, he had tried to protect the dam — and they killed him so brutally," says Rohullah Samoon, a senior aide and spokesman of the governor of Paktia.



Water is a critical issue in Afghanistan — and for countries like <u>Iran</u> and Pakistan that are dependent on four of the five river basins that flow out of Afghanistan to irrigate their territories. Meanwhile, though the Afghans currently have enough water for their own needs, any perception of abundance is illusory, experts say. Indeed, the availability of water per capita is expected to decline by 50% in the next three decades, according to a U.N.-funded report. Afghanistan's extremely weak infrastructure and one of the lowest water-storage capacities in the world means that large parts of the country cannot make use of their own water resources. Frequent droughts, localized and national, further affect the population, causing food shortages and migration. In 2008, for example, wheat production declined by 40% to 55% because of lack of precipitation.

Water is key to strengthening the foundations of Afghanistan's mainly agricultural economy. But only about 5% of the massive international investment and aid in the past decade went to the water sector, according to the U.N. report. And, critics say, too much of that went to ad hoc small dams and schemes that had no long-term vision.

The geopolitical factors are such that Afghans are paranoid that both Iran and Pakistan are sabotaging their efforts to build dams and control their hydro resources — though the evidence is circumstantial and speculative at best. For example, there were broad hints that elements in Pakistan may have contributed to the death of Khan Wali. Says one local official in Paktia: "The price that our neighbors pay for a human life around here? It's 50,000 Pakistani rupees [about \$500]."

It is true, however, that Pakistan's energy crisis has furthered its dependence on Afghan water. Iran, the only country that Afghanistan has a water treaty with, is now taking up to 70% more water than agreed to, according to officials, and has built infrastructure on the incoming water without Afghanistan's consent. If Afghanistan tries to build major dams to hold more of its own water, both Pakistan and Iran are likely to object and to hold up the projects. Indeed, because diplomatic objections can create bureaucratic bottlenecks, major aid donors have increasingly shied away from funding water projects in Afghanistan.

An official at the Afghan Ministry of Energy and Water claims that the <u>World Bank</u> called off funding for a major project after it learned that it required clearance from Iran. The World Bank would not comment, saying only that it did not have projects in Afghanistan's water sector. "I think



our neighbors have better relations with the major donors — such as the World Bank," the official said accusingly. They lobby to get bigger loans for themselves but create hurdles on the way of such projects in Afghanistan, he says.

"Out of 57 billion cu m of average annual rivers flow, only less than 30% is consumed in Afghanistan; the remaining part of water flows out into neighboring countries," says Sayed Sharif Shobair, a water expert with several years of experience with national and international agencies in Afghanistan. "Attracting investment in the water sector from donor agencies may require us to resolve transboundary water issues first."

"The Afghan government, every now and then, announces the building of 20 dams or so. But it remains only plans on paper because they can rarely gather the funding for it," says Khwaga Kakar, an independent researcher who spent two years on the U.N.-funded report on Afghanistan's water resources. "There is a disconnect between 'we plan to do' and 'what the donors are giving us.""

The anxieties about Iranian and Pakistani meddling are exemplified by the speculation around the long-stalled Salma dam, being built by India in the province of Herat in western Afghanistan, which borders Iran. The dam has the potential to irrigate nearly 75,000 hectares and produce 42 MW of electricity. However, the project is already four years behind schedule. Its cost has <u>doubled</u> and is expected to rise by another 50%. Some Afghan officials are astonished that Indian engineers, who have built highways in Afghanistan in record time, are taking so long to complete the dam. They hypothesize that Iranian diplomatic meddling has caused the delays.

The Indians, however, deny it. "Afghans tell us that Iran has created issues, but we haven't had to talk to Iran about it because we haven't had evidence linking them to insecurity there," says Gautam Mukhopadhaya, the Indian ambassador to Afghanistan, blaming the delay on cost escalation. "The Salma dam will be completed, no question about that."

Lack of data is the biggest hurdle, says senior Afghan diplomat Enayatullah Nabiel, who worked on the transboundary water issues for several years. And many Afghans look suspiciously upon the Iranian experts who moved in to fill the expertise gap by setting up the research center inside Afghanistan's Water Ministry tasked with gathering information and data on the country's water resources. The Iranian experts provide what other countries and companies no longer do because of



the fragile security within Afghanistan. But the result is increased suspicion. Says Nabiel: "The fact that Iranians are involved in running the research center inside the Ministry of Water is very dangerous — they have loyalty to their own country."

Some analysts say Afghanistan — given its already grave security issues — should seek nonconfrontational methods of solving its cross-border water problems. "It might be good if Afghanistan could move in some specific cases from water sharing to river-benefit sharing," says Shobair. "In Kunar River, for example, joint hydropower production could be one idea to look into. Afghanistan could convince Pakistan that is for their good as well."

But that process requires protracted negotiations with the neighbors. Margaret Vick, who advised the Ministry of Water and Energy on cross-border water laws, says the government has capable diplomats and negotiators but has to use them to deal with other crises. She adds that the ministry continues to have other deficiencies that have not been dealt with in decades. "Pre-Soviet invasion," she explains, "the government had an engineering branch to work on water and other infrastructure issues of national importance." Today, however, she says, "it's the depth of engineering capability that has not yet recovered."

"What Iran and Pakistan Want from the Afghans: Water", 02/12/2012,online at: <u>http://world.time.com/2012/12/02/what-iran-and-pakistan-want-from-the-afghans-water/</u>

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* Call for Int'l experts for KBD construction

BETTER water management should be adopted to resolve the water issue while a joint working group of international experts should be formed for the construction of Kalabagh Dam (KBD).

These views were expressed by the participants in Jang Economic Session on 'better water management and national economic interests.' The panelists were economist Dr Rafiq Ahmed, Ex-Chairman Wapda Tariq Hameed, Ex-Advisor Wapda Abdul Khaliq Khan, Ramzan Sheikh, former Punjab Irrigation Minister Sardar Arif Rasheed and FAP member Farooq Bajwa while the session was hosted by Sikindar Hameed Lodhi and Intikhab Tariq.

Dr Rafiq Ahmed said global conferences and seminars were being held on water issues while Pakistan had been facing water scarcity.

He said India was behind Pakistan's water scarcity and constructed dams in Indian Held Kashmir. He said Pakistan was not made for one province so the Kalabagh Dam should be constructed without any further delay.

Ex-Chairman Wapda Tariq Hameed said the water crisis could deepen in the next decade in Pakistan so dams should be constructed to avoid Somalia or Ethiopia-like situation in the country. He said the Kalabagh Dam was only viable solution to handle water situation in Pakistan while Neelam Jhelum was a hydro generation project, not water storage project.

Ex-Chairman Wapda Tariq Hameed said Pakistan had only 8 percent water storage capacity while India has 40 percent.

He said the Khyber Pakhtunkhwa (KPK) and Sindh would be real beneficiaries of the Kalabagh Dam while Sindh always benefited more whenever any dam was constructed.

He opined that the Kalabagh Dam should be constructed first followed by Bhasha and Munda dams.



Ex-Advisor Wapda Abdul Khaliq Khan said 2010 flood damages were result of non-availability of dams as the Kalabagh Dam had a storage capacity of 200,000 cusec water which could save the country from floods.

Ex-Advisor Wapda Abdul Khaliq Khan said world water experts had declared the KBD a viable project while objection to it should be removed on it.

Ramzan Sheikh said consensus development was difficult for construction of the Kalabagh Dam at time of election.

He said courts had given judgment for betterment of water resource utilization. He stressed the media to create awareness among the people for construction of the Kalabagh Dam.

Former Punjab Irrigation Minister Sardar Arif Rasheed said dam could be constructed at the Kalabagh Dam site as no other best site was available in the Khyber Pakhtunkhwa (KPK) for the purpose.

He said some politicians of the Khyber Pakhtunkhwa (KPK) were politicizing the project to deprive the Dera Ismail Khan people of its fruits.

Farooq Bajwa said all the five rivers of Punjab were divided and Punjab was facing a real water crisis that's why it was raising voice over the issue.

He said agriculture land of Punjab had been reduced to 14.5 million acre from over 20 million acre.

"Call for Int'l experts for KBD construction", 06/12/2012, online at: <u>http://www.thenews.com.pk/Todays-News-5-146762-Call-for-Intl-experts-for-KBD-construction</u>

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***** A voice against corruption in water and sanitation – Community video in India

In September 2011, in the slum of Mumbai, the heavy monsoon rains were filling up sewage pipes to breakage point. The dirty waste from the burst pipes flooded the streets at an accelerated pace because of the continuous and strong rain pour. The residents of the slum had no choice but to walk those filthy streets which represented a serious health hazard and increased the spread of diseases. Demands had repeatedly been made by the residents for the pipes to be fixed and properly maintained but no action was taken.

"A voice against corruption in water and sanitation – Community video in India", 05/12/2012, online at: http://www.indiawaterportal.org/node/33663

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✤ Monitoring water flow from China: Menon

India has kept a close watch on the water flow of the Brahmaputra river in Arunachal Pradesh to monitor Chinese claims that no structure was being built on their side to impact the volume of water coming into India, National Security Advisor, Shiv Shankar Menon said on

One of the major rivers in Northeast India and Asia, the Brahmaputra originates in Tibet and flows into Arunachal Pradesh and Assam before crossing the Bangladesh boundary.

Beijing has always claimed that a hydropower project on Brahmaputra river in Tibet was not obstructing the water flow to India as the dam wasn't big enough.

Speaking to Indian media hours before his departure, Menon said water was a sensitive and emotional issue for both countries.

"We are measuring flows," he said, adding that the question was whether the Chinese have a structure to control the flow of water. "No," he said was the answer from Beijing.

Flow of water, Menon said was relevant. It was important for India to monitor water flow as it could give an idea about, "...what could happen "if they (China) held water and released it suddenly?"

"It is hypothetical (situation) but possible they might do it. So far so good. So far the flows (of water) are what they were. They (China) said nothing we are doing affect the flows," the NSA said and added that China was sharing with India on the issue. "We will keep working with them at it, because it is a sensitive issue."

Menon had discussions with Chinese officials both on the potential conflict over water and the ongoing dispute over land boundaries before his two-day trip winded up Tuesday.

His trip ended prematurely after the Indian embassy cancelled a book release function on Tuesday evening to pay homage to former Prime Minister IK Gujral who passed away last week.

Like Chinese officials on Monday, Menon too said progress was being made in resolving the longstanding border dispute in a "fair, reasonable and mutually acceptable" manner.



"A common understanding" on the issue Menon said was reached during the six-hour talks with outgoing Chinese counterpart, Dai Bingguo.

The NSA said the talks were in the second stage of a three-stage process which had been agreed upon earlier. "The first stage was to work out the guiding principles. It resulted in the 2005 agreement on the political parameters and guiding principles for boundary settlement.

The second stage is aimed at working out a framework for boundary settlement.

"Once we have a framework we will proceed to the actual business of drawing boundary that is fair, reasonable and mutually acceptable," he said.

"We are in the middle of the second stage. What we try to do in the common understanding which we prepared was to say where we are today," he said.

"But today one cannot say we are at that final point. It is complex, it is an issue that has been there for some time; that is politically sensitive on both sides, we have to work our way towards it. But we have increased our area of understanding between us steadily, thanks to the special representative (SR) process."

On a recent media report that the border talks had crumbled, Menon called it "pure speculation and most of it factually untrue and misleading." Most of it is false," he said.

Menon played down Indian navy chief, Admiral DK Joshi's comment on Monday - while the Indian delegation was in Beijing - that the government could dispatch forces to South China Sea to protect Indian interests there.

"The Chinese also know how these things happen. Nobody raised it with me. Nobody mentioned that. I think they recognise the media plays a role. In the past they have complained about the role that the media has played," he said.

The Indian diplomat brushed aside a question on whether he was disappointed not to meet any one from the new leadership who had taken up Communist Party of China (CPC) posts at the end of the 18th National Congress of the Party last month.



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"Not at all. I actually got bumped up because I got to meet the chairman of the NPC Standing Committee (Wu Bangguo)," he said.

"Monitoring water flow from China: Menon", 05/12/2012, online at: : <u>http://www.hindustantimes.com/world-news/RestOfAsia/Monitoring-</u>water-flow-from-China-Menon/Article1-968459.aspx

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Solution Sector?

After completing installation of its second forward osmosis facility in Oman, Modern Water is now expanding eastwards with an agreement signed in China.

The UK-headquartered company has signed a Framework Agreement with Hangzhou Development Center of Water Treatment Technology (Hangzhou Water), in the People's Republic of China. The aim of the partnership will be to jointly identify and develop projects in China, including seawater desalination plants and other water-related opportunities.

In September Modern Water said it had completed commissioning of its 200 cubic metre per day forward osmosis desalination plant at Al Najdah in the Al Wusta region of Oman (see Water & Wastewater International magazine story).

Hangzhou Water is owned by National BlueStar (Group), which is part of the state-owned China National Chemical Corporation. Hangzhou Water specialises in membrane systems for industrial uses such as seawater desalination, industrial pure water preparation and <u>water reuse</u>.

The company owns four mainstream technologies-electro-osmosis (ED), reverse osmosis (RO), ultrafiltration (UF), and microfiltration (MF). It also has production lines for membranes of RO, NF, UF, and MF, and manufactures and sells 23 product lines in five sectors.

Hangzhou Water has won or been involved in approximately 60% of China's current or planned desalination projects. Hangzhou Water has engineer, procure and construct (EPC) contracts as well membrane manufacturing and fabrication facilities.

Improved membrane materials are now allowing large scale desalination facilities to come online, with the 444,000 m³/day Victoria desalination plant in Melbourne, Australia recently opening for business and the 510,000 m³/day Soreq plant in Israel expected soon (see WWi story).

While RO technology – requiring pressure to force seawater through membranes and leave behind contaminants – is gaining traction and confidence globally, forward osmosis is still in its infancy on a widespread, commercial scale in comparison.

The latter instead requires a draw solution to create a driving force for freshwater to pass through the membrane (see WWi explaining the technology).

Modern Water calls its process Manipulated Osmosis, with the first plant located in Gibraltar supplying water for public consumption from May 2009. The company claims that energy consumption can be up to 30% lower than conventional reverse osmosis.



Last year Modern Water's Monitoring Technologies division in the country contributed sales of more than £500,000 to the group.

Neil McDougall, executive chairman of <u>Modern Water</u>, said: "Sources estimating the industry in China will see new investment of up to RMB20 billion (US\$3.2 billion) over the next four years."

"Forward osmosis: is China next to shake up the desalination sector?", 04/12/2012, online at: <u>http://www.waterworld.com/articles/2012/12/forward-osmosis-is-china-next-to-shake-up-the-desalination-sector.html?cmpid=\$trackid</u>

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The Thirsty Dragon: Will China Run Out Of Water By 2030?

Via the China Daily Hong Kong, a report that China is running out of water, which could soon curb its growth unless immediate countermeasures are taken:

China's ambitions are high. By 2020, it aims to double its 2010 GDP and per capita income of urban and rural residents both. China's economic track record has been impressive. It now has a middle class population of more than 300 million and has experienced the fastest ever economic growth over the past 30 years. But it may not be able to maintain this momentum unless it overcomes one of its core policy challenges: water, both in terms of quantity and quality.

Economic growth is no rocket science. Abundant supply of cheap labor and energy powers a country's industrialization. Without affordable energy, however, energy-intensive businesses are driven out of the market and many factories are unable to produce goods at competitive prices. This link between economic growth and energy — the energy-growthnexus — is widely acknowledged. But most analysts and policymakers today ignore what really an energy industry is powered by: abundant and sustainable supply of water.

Indeed, China's economy runs on water. Water is needed at one stage or another to generate energy. China's industry is the second largest water consumer — it consumes 139 billion cubic meters of water a year — with only the agriculture sector consuming more. And by 2030, Chinese industry's water consumption is projected to increase to 265 million cubic meters.

Energy generating plants in China are the largest industrial users of water, consuming about 42 million cubic meters of water a year. Since China's installed energy capacity is projected to double by 2020, energy producers' share of water will continue to rise. This growing demand will not be matched by the availability of water. For example, the Water Resources Group, projects that if China carries on with business as usual, its demand for water will outstrip supply by 199 billion cubic meters.

What exacerbates this shortage is the vicious circle of energy and water — if power-generating plants need water then water treatment and supply facilities need energy. The Third World Centre for Water Management estimates that the water sector consumes as much as 25 percent of the electricity



generated globally. Though China's water sector is not yet among the country's most energyintensive industries, it will gradually become so with new hubs of growth emerging in the waterscare western region and the increasing demand for wastewater treatment. Already, about 52 percent of China's economic output comes from water-scarce regions.

Unfortunately, China does not have much water to begin with. It is home to almost 20 percent of the world's population but has only 7 percent of its freshwater reserves. Water is one of its scarcest resources. And it is extremely inefficient in the use of water and a world leader in water pollution.

China is the world's largest producer and consumer of coal, which meets more than 70 percent of its energy needs. The country produced 3.8 billion tons of coal in 2011 — almost half of the world's total. Coal may be considered a cheap source of energy, but the air and water pollution caused by the mining and use of the mineral is devastating. According to Greenpeace, 2.5 tons of water is polluted for each ton of coal produced. About 25 percent of all wastewater in China comes from washing coal, and it contains large amounts of chemicals and heavy metals that are almost impossible to recycle. All this makes the true cost of coal in China as high as 1.7 trillion yuan (\$272.82 billion), or about 7 percent of its GDP.

So what can the country do to combat these problems? As a first step toward tackling water pollution, China needs to rapidly reduce its reliance on coal. A more ecological alternative could be shale gas. According to the US Energy Information Administration, China has the world's largest shale gas reserves — up to 36.1 trillion cubic meters. And China does want to increase its shale gas production to 6.5 billion cubic meters by 2015.

Natural gas emits 45 percent less CO2 per unit of energy produced compared to coal. And though hydraulic fracturing, the technique used to exploit shale gas, requires about 4.5 million gallons of water per well, it is equal to what a 1,000-megawatt coalfired power plant consumes in just 10 hours. Fracturing, nevertheless, could contaminate groundwater. No wonder, France banned hydraulic fracturing in 2011. The use of shale gas, therefore, may not result in cleaner water in China.



If China takes the water-energy-growth nexus into account, it would most certainly seek a more balanced energy mix and not focus solely on exploiting shale gas, for its planned rapid exploitation of shale gas may reduce its CO2 footprint but it will also exacerbate its water shortage.

Admittedly, Chinese policymakers are taking the water problem seriously. But water is still isolated from the country's energy and growth policies. China aims to reduce its water intensity by 30 percent during the 12th Five-Year Plan (2011-15) period. It has also set new pollution-reduction targets, particularly for the agriculture sector.

The country must adopt a coordinated approach to water, which will gradually price in the external costs of shale gas or coal. Yet there is no sign of China recognizing that water has to be managed cross- sectorally. Its latest plans do say that "water is the source of life, production and ecology", but it does not have a coordinated policy approach to manage water, energy and economic development holistically, without which it will not be able to fuel its economic growth indefinitely because it will run out of water.

"The Thirsty Dragon: Will China Run Out Of Water By 2030?", 06/12/2012, online at: http://www.waterpolitics.com/2012/12/05/the-thirsty-dragon-will-china-run-out-of-water-by-2030/

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The Saraswati: Where lies the mystery

Climatic change and geotectonic movements have led to migration and abandonment of several rivers and drainage systems. Some of them are 'lost' because of the overburden of silt. But several evidences left by them usually help in proving the existence of a geomorphic feature in a particular location, which attract the attention of the interested people to discover the past. In India, the river Saraswati reflects such a fascinating history, supported by geological, hydrological and archaeological evidences as well as the records of the most modern tools, such as remote sensing and GIS. With the aid of remote sensing through orbiting satellites, the mystery of the river is more or less solved.

Geological record indicates that during the late Pleistocene glaciation, the water of the Himalayas was frozen and that in the place of rivers, there were only glaciers, masses of solid ice. When the climate became warmer, the glaciers began to break up and the frozen water held by them surged forth in great floods, inundating the alluvial plains in front of the mountains. The melting of glaciers has also been referred in Rig Vedic literature, in mythological terms. It was the first interglacial period in Holocene marking the break-up of glaciers and release of the pent-up waters that flowed out in seven mighty river channels referred as the 'Sapta Sindhu' in the Rig Veda, traced from east to west. The 'Sapta Sindhu' refers to the rivers Saraswati, Satadru (Sutlej), Vipasa (Beas), Asikni (Chenab), Parosni (Ravi), Vitasta (Jhelum) and Sindhu (Indus). Among these, the Saraswati and the Sindhu were major rivers that flowed from the mountains right up to the sea. The hymns in praise of the Saraswati are probably some of the oldest, composed more than 8000 years ago.

For 2000 years, between 6000 and 4000 B.C., the Saraswati flowed as a great river. R. D. Oldham (1886) was the first geologist who argued logically pointing to the great changes in the drainage pattern of the rivers of Punjab and western Rajasthan converting a once fertile region into a desert. According to geological and glaciological studies, the Saraswati was supposed to have originated in Bandapunch massif (Saraswati-Rupin glacier confluence at Naitwar in western Garhwal).

The river, which had originated from Kapal tirith in the Himalayas in the west of Kailash, was



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flowing southward to Mansarovar and then taking a turn towards west. Even today the Saraswati flows from the south of Mana pass which meets river Alaknanda, 3 km away in the south of Mana village. Descending through Adibadri, Bhavanipur and Balchapur in the foothills to the plains, the river took roughly a southwesterly course, passing through the plains of Punjab, Haryana, Rajasthan, Gujarat and finally it is believed to have debounched into the ancient Arabian Sea at the Great Rann of Kutch. In this long journey, the Saraswati is believed to have had three tributaries, Shatadru (Sutlej) originating from Mount Kailas, Drishadvati from Siwalik Hills and the old Yamuna. They flowed together along a channel, presently known as the Ghaggar River, which is known as Hakra River in Rajasthan and Nara in Sindh. Some experts consider these two rivers as a single river whereas others consider the upper course of the Saraswati as Ghaggar and the lower course as the Hakra River, while some others call the Saraswati of the weak and declining stage as the Ghaggar.



Ancient courses of Saraswati river in Bahawalpur province (Cholistan desert)

The river was obliterated within a short span, in the Quarternary period of the Cenozoic era, through a combination of destructive catastrophic events. The decline of the river appears to have commenced between 5000 and 3000 B.C., probably precipitated by a major tectonic event in the Siwalik Hills of Sirmur region. Geological studies reveal that the massive landslides and avalanches were caused by destabilising tectonic events which occurred around the beginning of Pleistocene, about 1.7 million years ago in the entire Siwalik domain, extending from Potwar in Pakistan to Assam in India. Those disturbances, linked to uplift of the Himalayas, continued intermittently. Presumably, one of these events must have severed the glacier connection and cut



off the supply of melt water from the glacier to this river; as a result, the Saraswati became nonperennial and dependent on monsoon rains. The diversion of the river water through separation of its tributaries led to the conversion of the river as disconnected lakes and pools; ultimately it was reduced to a dry channel bed. Therefore, the river Saraswati has not disappeared but only dried up in some stretches.

Evidences supporting Palaeochannels

- Hydrogeological evidences Lunkaransar, Didwana and Sambhar, the Ranns of Jaisalmer, Pachpadra, etc. are a few of the notable lakes, formed as a result of the changes; some of them are highly saline today, the only proof to their freshwater descent being occurrences of gastropod shells in those lake beds. Mr. Oldham accepted that there have been great changes in the hydrography of Punjab and Sind within the recent period of geology. Wilson has mentioned about the Sotar valley where "the soil is all rich alluvial clay such as is now being annually deposited in the depressions which are specimens of those numerous pools which have given the Saraswati its name, 'The River of Pools'; and there seems little doubt that the same action, as now goes on, has been going on for centuries".
- Archaeological evidences Most of the archaeological sites of the-then civilisation are located on the Saraswati river basin. There are four Harappan and pre-Harappan sites in Punjab, in addition to the sites in Rajasthan and U.P. These sites are located at Rupar (present Ropar), Nihang Khan, Bara and Sirsa valley. Harappan culture flourished in the western part of Punjab around 2500 B.C. It is believed that the Harappans entered through the Indus Valley into Kalibangan valley on the left bank of Ghaggar (erstwhile Saraswati) and spread to Punjab along the Saraswati River. Carbon dating of the material at Kalibangan suggests that Harappan culture flourished around 2500 B.C. in India and existed for 1000 years. So the present day geomorphologic set up did not exist till 1500 B.C. and the Indus, the Sutlej and the Beas followed independent courses to the sea.
- Evidences from Remote Sensing and GIS A remote sensing study of the Indian desert reveals numerous signatures of palaeochannels in the form of curvilinear and meandering courses, which is identified by the tonal variations. The Saraswati River could be traced through these palaeochannels as a migratory river. Its initial course flowed close to the



Aravalli ranges and the successive six stages took west and northwesterly shifts till it coincides with the dry bed of the Ghaggar River.



It is found that the course of the river Saraswati in the states of Punjab, Haryana and Rajasthan is clearly highlighted in the LANDSAT imagery by the vegetation cover thriving on the rich residual loamy soil along its earlier course. Digital enhancement studies of IRS-1C data (1995), combined with RADAR imagery from European Remote Sensing satellites ERS 1/2, identified subsurface features and recognised the

palaeochannels beneath the sands of the Thar Desert. A study of NRSA, based on satellite derived data, has revealed no palaeochannel link between the Indus and the Saraswati, confirming that the two were independent rivers; also, the three palaeochannels, south of Ambala, seen to swerve westwards to join the ancient bed of the Ghaggar, are inferred to be the tributaries of Saraswati/Ghaggar, and one among them, probably Drishadvati. Digital enhancement techniques using high resolution LISS-III data of IRS-1C satellite, together with pyramidal processing, identified two palaeochannels trending NE-SW in Jaisalmer district of Rajasthan, which are presumed to be the lost river Saraswati. In a study, NRSA used Indian Remote Sensing Satellite (IRS-P3) Wide Field Sensor (WiFS) data covering the Indus river system to study the palaeodrainage in northwestern India. The image elements such as tone, colour, texture, pattern, association of WiFS image reveals very faint trace of the river Saraswati/Ghaggar while in the SIR-C/X-SAR image, the connectivity of the palaeochannel could be easily established due to the presence of dark irregular shaped features associated with wetness.

Missing of a prominent river from the map is not a mystery; it is quite natural as the natural phenomena evolve through environmental changes. A part of the river Saraswati till now exists as Ghaggar in Haryana, the rest of it has disappeared in the fringes of the Marusthali or the Thar Desert. Bhabha Atomic Research Centre, Mumbai has made a breakthrough in its research for the existence and probable location of the mythical Saraswati river. The Rajasthan Ground Water



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Department undertook the task to 'unearth' the river with the collaboration of BARC and Physical Research Laboratory, Ahmedabad (a wing of ISRO) in 1998. If the effort is successful, the people living in the desert belt of Rajasthan will be hopefully supplied more than 3500 year old water derived from palaeo-channels, believed to be the mythical Saraswati.

"The Saraswati: Where lies the mystery", 06/12/2012, online at: http://www.gsbkerala.com/saraswati.htm

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Mekong Dam May Cause Food Security Threat, Study

The planned hydropowered dams on the Mekong River could jeopardize food security for 60 million people, according to a study.

AsianScientist (Dec. 3, 2012) – The planned construction of hydropowered dams on the Mekong River in South-East Asia could jeopardize livelihoods, water access, and food security for 60 million people across Cambodia, Laos, Thailand, and Vietnam, according to a study.

The study reports that dams will block fish migration routes and decimate fish supplies in the lower Mekong region.

As fish dwindle, communities will have to look for alternative sources of protein, such as livestock and poultry. Raising these will require more land and water, and be prohibitively expensive.

"People talk about food security in relation to dams but we need to put the numbers to what that really means," says Stuart Orr, freshwater manager at World Wildlife Fund (WWF) International and co-author of the study published in the October issue of *Global Environmental Change*.

Orr presented the study at the Third Mekong Forum on Water, Food and Energy, convened by the Consultative Group on International Agricultural Research's (CGIAR) Challenge Program on Water and Food (CPWF), in Hanoi, Vietnam, this month (November 13-14).

Orr says that if all 88 planned dams were developed, Mekong communities would be faced with sourcing close to 40 percent of lost fish protein from other sources.

And to replace fish protein with domestic livestock protein would require up to 63 percent more pasture lands and up to 17 percent more water, the study says.

The Mekong is one of Asia's longest rivers, running from its source in China through Myanmar, Laos, Thailand, and Cambodia, to the Mekong Delta in Vietnam. It is home to more than 850 freshwater fish species, a livelihood source for some 60 million people living in the river's environs.

The study comes amid <u>ongoing debate over the environmental and social implications of construction</u> <u>of the Xayaburi Dam</u> on the Lower Mekong in Laos. The US\$3.5 billion funded dam is expected to be completed by 2019, and will export 95 percent of its electricity to Thailand, which is funding its construction.

While there are four dams in the Upper Mekong basin in China, Xayaburi is the first of 11 planned dam projects on the main stem (downstream river segment), and there are plans to construct another 77 dams in the basin by 2030.



Larry Harrington, CPWF's research director, tells SciDev.Net: "It's one thing to build one dam and understand its consequences. But if you have several in different locations, that's another matter entirely."

Orr acknowledges that countries in the Mekong area need hydropower to drive growth. However, he also suggests that policymakers in the region should consider food security losses and how this will squeeze natural resources.

Kam Suan Pheng, a senior scientist at the WorldFish Center, Malaysia, agrees with the study's findings.

"There will be repercussions [from building the dam] and they are going to cost money," says Kam, alluding to the higher prices that people will have to pay for alternative protein sources.

Given this scenario, the WWF has urged the Lower Mekong countries to delay a decision on dams in the area for ten years – enough time to gather and analyze critical data. It also advises them to prioritize dams on tributaries that will have lower impacts and risks.

Harrington says the challenge is for researchers to provide evidence that the dams will not hurt ecosystems and communities of neighboring countries in the Mekong.

"Mekong Dam May Cause Food Security Threat, Study", 03/12/2012, online at: <u>http://www.asianscientist.com/in-the-lab/mekong-dam-may-cause-food-security-threat-2012/</u>

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Cauvery water for western parts of City

The Bangalore Water Supply and Sewerage Board (BWSSB) is all set to supply Cauvery water to the western parts of Bangalore under the Cauvery Water Supply Stage IV phase II scheme.

Under the Greater Bangalore Water and Sanitation Project (GBWASP), the Board has completed the laying of feeder mains for supplying water. The feeder mains will supply water from the various ground level reservoirs, following the availability of additional water under Cauvery Stage IV.

Accordingly, water will be drawn from the Hegganahalli ground level reservoir for supply to consumers in Pattanagere, Kenchahalli, Javaregowdanahalli, Krishna Garden and Halagevaderahalli village areas.

Water will also be supplied to Mariyappanapalya, Jnanabharathi Layout, Nagadevanahalli and Valgerahalli blocks, Bhuvaneswarinagar Layout, Jagajyothinagar Layout, Upadhyaya Layout, Gajanananagar and Hegganahalli cross roads, parts of Srinivasanagar and surrounding areas, Karimsab Layout, Ramaiah Layout and GKW Layout.

Areas in Rajarajeshwarinagar, Ganapathinagar, Paravathinagar, second and third phases in second stage of Peenya Industrial Area, Shivapur and Laggere will also get Cauvery water. The BWSSB has appealed to the consumers to apply through 'Sajala' application forms. For additional details, the sub-divisional offices at Rajarajeshwarainagar can be contacted on 28611826 /9740984165.

"Cauvery water for western parts of City", 01/12/2012, online at: <u>http://www.deccanherald.com/content/295729/cauvery-water-western-parts-city.html</u>

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* In Windhoek, Integrated Urban Water Management is Key to Closing the Water Loop

The city of Windhoek is probably best known for the fact that it is the world pioneer of drinking water reclamation from purified sewage effluent.

Windhoek lies in the heart of Namibia, the most arid Country in Sub Saharan Africa. All existing water resources are optimally utilized in a number of different ways. Integrated Urban Water Management (IUWM) lies at the heart of these approaches, both in using water that is fit for purpose and in diversifying water sources.

As long ago as 1969, the world renowned Goreangab Reclamation plant was commissioned, which supplied between 10 and 15 percent of the city's daily demand for potable water. This plant was upgraded several times and the capacity reached 10 Ml per day by 1992. A new plant was commissioned in 2002, enabling the city to, at any given time, supply up to 35% of daily demand from direct potable reclamation. Just four days ago, 25 percent of the water in our drinking water distribution was raw sewage.

During 1993, Windhoek installed a dual pipe system to ensure that all municipal parks, gardens and sports fields, are irrigated with semi-purified sewage effluent. This replaces between 5 and 7 percent of potable water demand.

Windhoek started implementing Water Demand management back in 1994. Pioneering work was done, and the success thereof can be seen in that we currently have a water demand of 25 million Cubic meters per annum, compared to a low scenario projection of 46 million cubes per annum. We have also investigated and successfully implemented artificial aquifer recharge, a project that started in 1997 and is being implemented in phases as funding permits. This project will enable the city to survive for two years without any surface water from our ephemeral rivers. In Windhoek, the saying of Benjamin Franklin, the value of water will not be known until the well

runs dry, has been proven many times over. We have indeed closed the water loop.

Ms. Elaine Trepper is the former Mayor of Windhoek, one of the cities piloting IUWM. She will be discussing her city's experiences and lessons learned during the AfriCities event in Dakar on December 6. Windhoek's experience is part of a larger IUWM effort funded by the <u>World Bank's</u> <u>Water Partnership Program</u> (WPP). Over the past 3 years, the WPP has supported the promotion of <u>IUWM approaches on a global level</u>, funding pilot approaches in several large cities in Latin



WATER RESEARCH PROGRAMME -Weekly Bulletin-

America and the Caribbean and Europe and Central Asia. The dissemination of the lessons from pilots has sparked interest by several cities such as Nairobi and Sao Paulo which are planning to use World Bank funds to incorporate IUWM principles into pilot projects."

"In Windhoek, Integrated Urban Water Management is Key to Closing the Water Loop", 05/12/2012, online at: <u>http://blogs.worldbank.org/water/in-windhoek-integrated-urban-water-management-is-key-to-closing-the-water-loop</u>

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Mining saps Gobi lifeline

ULAANBAATAR - The Oyu Tolgoi copper-gold mine in the southern Gobi desert in Mongolia has become a symbol of a looming crisis: a limited water supply that could be exhausted within a decade, seriously threatening the lives and livelihoods of the local population.

Oyu Tolgoi is one of the world's largest copper deposits and has attracted major investors over the years, from Robert Friedland of Ivanhoe Capital Corp to the mining giant Rio Tinto, which now holds a majority stake in the investment, while the Mongolian government controls just 34% of the project.

Local communities fear that returns on investments will take precedence over their own subsistence, while simultaneously heightening the regions acute water shortage.

A 2010 World Bank water assessment report for the southern Gobi region projected a "lifespan" for water resources based on the number of mining projects in the pipeline, as well as a study of the region's growing population whose primary occupation is herding and rearing livestock.

The sparsely populated region, which consists of three aimags (provinces) occupying a combined area of 350,000 square kilometers, is home to 3.8 million livestock: 120,000 camels, 260,000 horses, 100,000 cows, and 3.4 million sheep and goats. Together these animals require an estimated 31,600 cubic meters of water daily.

Human consumption among the 150,000 residents in rural and urban settings across the southern Gobi is estimated at 10,000 cubic meters per day.

Subsistence herders must share a limited water supply with numerous mines. A 2009 World Bank report found that mining exploration licenses cover 55% of this area. Omongovi province, for instance, "has 63 licenses issued for extraction and 400 licenses for exploration".



Though not all these licenses will be granted, the copper extraction process guzzles so much water that locals have good reason to worry: the World Bank assessment found that in 2010, Oyu Tolgoi used about 67,000 cubic meters of water a day, while the government-owned Tavan Tolgoi coal mine consumed 76,000 cubic meters daily.

D Enkhat, director of the Ministry of Environment and Green Development, told IPS that Oyu Tolgoi's water usage is closely monitored and does not exceed the maximum allowance of 870 liters per second for the construction phase. But the fact remains that each mine's water consumption was more than double that of all the livestock in the entire region.

Basing its projections on the total number of mines in the area, World Bank researchers concluded that current known water resources could last just 10 to 12 years, unless additional sources are promptly located and utilized.

Another option would be to divert water from the Orkhon River, considered a "partially renewable" source, experts say. The environment ministry has clarified that the "first priority is for drinking water supply for locals, herders and mining workers", but others fear that the mines will consume more than all these three combined.

Alternative water sources

In 2003, managers of the Oyu Tolgoi located a saline aquifer some 35 kilometers away from the mine. The pipeline connecting this aquifer to the project is already going through the commissioning stage.

Mark Newby, principal water resources advisor for Oyu Tolgoi, said that national authorities gave the miners permission to use just 20% of the water over a 40-year period, thus ensuring that 80% of the aquifer remains, as per regulations set by the Mongolian Water Authority. The aquifer is not expected to impact the shallow herder wells that dot the desert, nor the large fresh-water aquifer on which the nearby town of Khanbogd relies.

The government-owned Tavan Tolgoi, on the other hand, does not have access to a saline aquifer and



might initially use fresh water sources such as Lake Balgas, also used by herders, or rely on the river diversion project until other sources are located.

A recent mining and human rights conference held last month in the capital, Ulaanbaatar, provided a platform for herders, NGOs and local officials in the southern Gobi region to voice their concerns about the project to the central government.

Chondmani Dagva, governor of the Dungovi province, which lies directly north of the Omnigovi aimag, lamented his inability to halt the rapid clearance of mining licenses. He complained that local authorities have little power to protect their constituencies, given that mining licenses are issued in the capital.

Herders, whose voices have been almost completely silenced in the rush to develop the region's mining sector, simply expressed disbelief at the scale and possible impact of the projects. One herder, representing 4,000 people from his soum, or sub-district, where four mines are operating, said he fears not being to retain his camels and his livelihood.

"If that fifth mine opens, there will be no more livelihoods in my soum," he said.

Sara Jackson, a PhD candidate in geography at the Toronto-based York University who is researching the impact of the Oyu Tolgoi on herders, said that a herder had told her that "the mining companies are telling us to have fewer animals, so basically they are telling us to be poor".

Herders have also hinted that corruption affected relations between local authorities and the mining companies. In 2011, Transparency International ranked the country 2.7 out of 10, two places away from "highly corrupt".

But the mines are lucrative enough to drown out locals' concerns. Oyu Tolgoi alone is expected to contribute about 30% of Mongolia's gross domestic product by the time the project is up and running in 2013.



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It is unlikely that residents in the southern Gobi region will share in the spoils of these extraction projects. Khanbogd, the soum located closest to Oyu Tolgoi, is very poor in comparison to Ulaanbaatar, which has been the recipient of generous government funding.

According to local researchers, Khanbogd receives the smallest revenue from the central government of any soum or aimag.

"Mining saps Gobi lifeline", 06/12/2012, online at: http://www.atimes.com/atimes/China_Business/NL06Cb02.html

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Illegal gold miners pollute water supplies in Indonesia

In Indonesia, thousands of illegal miners who are trying to cash in on a gold rush, are risking their health and that of others by using toxic chemicals like mercury and cyanide to extract gold from rocks.

The run-off ends up in rivers, one of which supplies some of Jakarta's drinking water.

Some of the miners have clashed with the police in Maluku in western Indonesia during an attempt to close down mining operations there, but in East Java, thousands of illegal miners are going about their business, relatively undisturbed.

Correspondent: George Roberts **Speakers:** Uci Sanusi, miner; Hari Widjajanto, manager of Antam Pongkor Mine; Amir Syamsudin, Indonesian Justice Minister

GEORGE ROBERTS: High on a jungle slope, the miners huddle under a tattered tarpaulin to avoid the rain.

(Sound of thunder and men talking)

UCI SANUSI (translated): It's hard working up here because there are no girls to keep us warm (laugh).

GEORGE ROBERTS: Uci Sanusi and his friends risk landslides and their mines collapsing in order to get gold.

UCI SANUSI (translated): Of course we're worried. I think everyone is worried imagining a disaster happened to us but what else can do for living? It is part of the risk we take for the job.

GEORGE ROBERTS: Working in the cramped, damp burrow they chain smoke as they chip away the rock.

UCI SANUSI (translated): Last time a land slide happened it killed 42 people. They lost their lives trapped inside the tunnel.

GEORGE ROBERTS: They lug their rocks for miles to a valley that's humming with thousands of processing plants.

The rocks are smashed up in tumbler machines and mercury or cyanide added to dissolve the gold.

Over the hill the part state-run, part Australian stock market listed Antam Pongkor Mine is drilling deep under the ground.


The mine's manager Hari Widjajanto says the illegal miners aren't just risking their lives.

HARI WIDJAJANTO (translated): They are doing mining without considering safety for themselves and others.

Also when they do processing, they use hazardous chemicals and they dump the waste directly into the river. With the increase in cyanide and mercury in the river, people can no longer use the water for bathing and washing.

GEORGE ROBERTS: The same river feeds Jakarta's water supply.

Amir Syamsudin is Indonesia's justice minister.

AMIR SYAMSUDIN (translated): There are cases in which violations occur, as you said. It is not a common thing to happen. It's merely a case-by-case situation and there are regulations and legal process that are being enforced and applied to whoever violates the regulations set by the government.

GEORGE ROBERTS: Hari Widjajanto says police have failed to enforce the regulations.

Back up on the rainy slippery hillside Uci Sanusi explains that police take bribes to let them keep mining.

UCI SANUSI (translated): Yes, that happens occasionally if we met the police. Usually the guys who carry our rocks get stopped by police patrols.

But it has a good side to it, you see. This is harsh mountain territory with many thugs and criminals around so the presence of armed security personnel is good.

GEORGE ROBERTS: For now, then, the gold rush goes on.

"Illegal gold miners pollute water supplies in Indonesia", 06/12/2012, online at:

http://www.radioaustralia.net.au/international/radio/program/connect-asia/illegal-gold-miners-pollute-water-supplies-inindonesia/1056996

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Serman govt plegdes \$10m for water recycling

The German government's GIZ programme has pledged \$10 million support towards recycling water from Khami Dam for industrial use in Bulawayo.

Report By Pamela Mhlanga Own Correspondent

Speaking during a visit by Germany Economic Cooperation and Development minister Dirk Niebel to Bulawayo yesterday, GIZ deputy programme manager Axel Ulmer told NewsDay GIZ had invested \$10 million for the Khami project.

"GIZ signed a memorandum of understanding with the Bulawayo City Council to reduce the water challenges facing the country and is dedicated to sponsor the water projects," he said.

Bulawayo mayor Thaba Moyo said the city appreciated the GIZ initiative "to take up projects especially given the short notice and the need for emergency interventions."

"As part of the city's short to medium-term interventions, identified in our water and waste water master plan, you will today be visiting Khami Dam, which GIZ is interested in sponsoring," he said.

Moyo also said one of the reasons why Khami Dam was decommissioned in 1989 was that it was being affected by the flow of effluent from the Southern Area Sewer Treatment Works (SAST), "and reluctantly the city had to desist from using the dam".

"In our master plan, we have developed ways and means to ensure that the inflows from SAST will be diverted from the dam to ensure that the water is potable," he said.

Moyo blamed successive governments since 1976 for failing to build supply dams for Bulawayo. Speaking at the same event, Niebel said: "It is very important to address water and sanitation issues so as to improve the living conditions of people in Bulawayo".

"German govt plegdes \$10m for water recycling", 03/12/2012, online at: <u>http://www.newsday.co.zw/2012/12/03/german-govt-plegdes-10m-for-water-recycling/</u>

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The Intersection Of Climate And Security: Global Warming, Migration, And Conflict In South Asia



As the effects of climate change gain increased attention due to recent natural disasters and the international climate talks taking place in Doha, the Center for American Progress released a new report, "<u>Climate Change, Migration, and Conflict in South Asia</u>," which examines the role of climate change as it intersects with migration and security broadly at the national level in India and Bangladesh.

This report zeroes in more closely on northeast India and Bangladesh to demonstrate the interlocking tensions that might face the population in the future, there and writ large across all of South Asia. It also discusses three policy collaborations that the United States can initiate with South Asian partners



as these complex crisis scenarios unfold in the wake of climate change: high-level climate-vulnerable cities workshops, an open dialogue on migration, and ecological infrastructure development.

Recent disasters in South Asia demonstrate what could be a more frequent reality for the region. Floods in September 2012 displaced 1.5 million people in the northeastern state of Assam, while Cyclone Aila in 2009 displaced 2.3 million people in India and almost 850,000 in Bangladesh. The <u>Asian Disaster Preparedness Center</u> recently reported that Bangladesh "is already under pressure from increasing demands for food and the parallel problems of depletion of agricultural land and water resources from overuse and contamination. Climate variability and projected global climate change makes the issue particularly urgent."

South Asia will be among the regions hardest hit by climate change. Higher temperatures, more extreme weather, rising sea levels, increasing cyclonic activity in the Bay of Bengal and the Arabian Sea, as well as floods in the region's complex river systems will complicate existing development and poverty reduction initiatives. Coupled with high population density levels, these climate shifts have the potential to create complex environmental, humanitarian, and security challenges. India and Bangladesh, in particular, will feel the impacts of climate change acutely.

The Asian Development Bank 2012 report "Climate Change and Migration in Asia and the Pacific" concludes that while uncertainties exist on where, how, and how many will be displaced by climate change impacts, it is imperative to begin aggressively examining emerging climate challenges to avoid future complex crisis scenarios. The extreme vulnerability of South Asia raises concern of potential changes and increases in both internal and international migration across the subcontinent. In areas of existing conflict in South Asia, added stressors of climate change and changing migration patterns could be a security concern.

Thomas Fingar, chairman of the National Intelligence Council, testified to the U.S. Congress that climate change will <u>exacerbate poverty and increase social tensions</u>, leading to internal instability and conflict, and giving parts of the global population additional reasons to migrate. As discussed in the Center for American Progress's framing report of this issue globally, "<u>Climate Change, Migration</u>, <u>and Conflict</u>," we assert that climate change, migration, and security should be understood as three distinct layers of tension and assess scenarios in which the three layers will overlap.

In the <u>new CAP report</u>, specific to South Asia, the Indian border state of Assam is analyzed as a case study on where the three factors converge in South Asia because of the overlap of climate, migration, and security concerns in the northeast Indian province.



The internal and temporary displacement of people in this region will probably account for the bulk of migration that takes place in the face of environmental changes and degradation. People may move within country for a couple days, weeks, or months, or even years to a new location before trying to resettle in their home towns and cities. Rural-to-urban migration has taken place throughout India and Bangladesh and could be more sought after if climate change threatens rural livelihoods, particularly in the agriculture sector.

International migration may also be an option, particularly to areas in which historical, familial, and cultural ties exist across borders, either through a legal or unauthorized process aided by porous and unguarded international borders. As the Asian Development Bank reports, substantial and established flows of migration takes place between India and Bangladesh, particularly to the Indian states of West Bengal and Assam. <u>The bank's report</u> goes on to say, "It has been suggested that this is the largest single international migration flow, with more people involved than estimated for top-ranked Mexico-United States migration flows."

No reliable numbers exist on Bangladeshi emigration. But any change in existing migration patterns from Bangladesh into India could have security consequences, particularly in Assam where the issue of unauthorized immigrants routinely becomes an issue during elections in Assam and has sparked conflict. Even more importantly, the *perception* that there has been an increase in immigrants has the potential to stoke tensions over immigration in Assam.

Back in the 1980s a group called the All Assam Student's Union began a movement calling for the deportation of all supposed unauthorized Bangladeshi immigrants, asserting that the immigrants were influencing their economy, security, and political system, as well as their local demographic structure. It became known as the Assam movement and lasted until 1985, causing up to 7,000 deaths.

More recently, members of the Bodo tribe and the Muslim community clashed in Assam over building a mosque. As the conflict escalated, members of the Bodo tribe and a section of politicians <u>began to blame</u> the incident on the increasing number of unauthorized Bangladeshis in the region. Following rumors that Muslim groups were planning attacks on Assamese residents living in other parts of India, particularly in the southern cities of Bangalore and Chennai, thousands of people native to the Northeast Indian region boarded overflowing buses and returned to the region. This incident resulted in close to 100 deaths and the displacement of over 400,000, who fled to relief camps in the area and as of October 2012, <u>133,000 were still in relief camps</u>. In the days following



the conflict, many in Assam resorted to public demonstration and protests against unauthorized immigrants from Bangladesh demanding their identification and deportation, similar to the fervor during the 1980s Assam movement.

Climate change and potential displacements from storms and other disasters internally and internationally could exacerbate existing tensions in Assam. Both actual and perceived migration changes in the region have the potential to cause upheaval. As the United States shifts its strategic focus to the Asia Pacific, a clear understanding of climate change and human mobility will be central to development and security goals in the region and for this reason, the United States can initiate three policy collaborations with South Asian partners as these complex crisis scenarios unfold in the wake of climate change: high-level climate-vulnerable cities workshops, an open dialogue on migration, and ecological infrastructure development.

The United States has much to learn and offer in the way of best practices as climate change worsens in the decades to come. Large cities in the United States, such as New York and Miami, will be hit hard with extreme weather in very similar ways as South Asian megacities such as Dhaka and Mumbai. The high-level climate vulnerable cities workshop this report recommends should focus on these cities as they will be a priority as urbanization continues in India and Bangladesh and as extreme weather challenges the resilience of U.S. urban centers.

The goal should be to zoom in and have detailed discussions about resilient infrastructure, disaster relief logistics, and preparedness best practices across countries and government levels. The workshop would be ideally coordinated at a federal level through the U.S. Agency for International Development and the U.S. Department of State with governor and mayor level participants.

Discussion of mutual concerns between the United States and India on immigration would also be beneficial to both sides as climate change adds an additional layer of complication to a system that is already struggling with issues that include charting a legal path to citizenship and finding a way to help new residents assimilate despite linguistic and cultural differences, while also managing border disputes and deportation proceedings for those who enter the country illegally. Since many of these questions are expected to be addressed in the United States over the next four years, during a second Obama administration, the time is ripe for the U.S. to enter into an open dialogue with India on the challenges presented by immigration should future extreme weather events exacerbate already thorny domestic issues experienced by both countries.



Lastly, natural landscapes that mitigate the consequences of flooding, water salinization, and erosion may be both cost effective and more resilient than traditional infrastructure, such as levies and pumps. Residents of India and Bangladesh have been innovators in using this type of ecological infrastructure due to lack of formal structures in many areas. As in the cases of city adaptation and immigration, a U.S. partnership with India and Bangladesh on ecological infrastructure would create a rich depository on adaptation strategies while informing U.S. diplomacy and development programs on the ground.

Analyzing South Asia through the prism of climate, migration, and security in Assam and the surrounding region provides useful insights into the underlying trends shaping the entire region and the risks posed by current long-term trajectories. While the precise influence of climate change on migration is still the subject of scientific inquiry and debate, the range of issues facing the region calls for a comprehensive assessment of climate change, migration, and their impact on both traditional and human security. We hope the assessment will be a jumping-off point for more empirical research establishing the realities of climate driven migration in South Asia.

Michael Werz is a Senior Fellow at the American Progress, where his work as member of the National Security Team focuses on the nexus of <u>climate change</u>, <u>migration</u>, and security; Arpita Bhattacharyya is a Research Assistant to Distinguished Senior Fellow Carol Browner at the Center for American Progress; and Christina DiPasquale is an Associate Director for Press Relations at the Center for American Progress.

"The Intersection Of Climate And Security: Global Warming, Migration, And Conflict In South Asia", 05/12/2012, online at: <u>http://thinkprogress.org/climate/2012/12/05/1284631/the-intersection-of-climate-and-security-global-warming-migration-and-conflict-in-south-asia/?mobile=nc</u>

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* As water risks rise, good infrastructure and governance are key

DOHA (AlertNet) –Efficient infrastructure work and good governance will be key to reducing the impacts of worsening climate-linked flooding around the world, water experts and officials told a water management conference at the UN climate talks.

Faulty construction and poor governance systems so far have multiplied the impacts of disasters, causing avoidable loss of lives and livelihoods, they said.

Mats Eriksson, programme director at the Stockholm International Water Institute, said that decisionmaking, transparency and accountability needed to be improved in order to reduce flooding risks through better planning, construction and maintenance of flood mitigation infrastructure.

Climate and water-induced disasters have shown a sharp rise in number since the 1980s, he said. Over the last 30 years, floods have been the most frequent disaster communities around the world have had to battle, he said.

Eriksson said there was an urgent need to build disaster-resistant water storage structures around the world to better manage water. And he warned that inaction would only exacerbate already growing damage from flooding, a problem that will intensify as climate change impacts unfold in decades to come.

"Inadequate monitoring and maintenance of water storage structures (has) ... one of the highest destructive potentials," he said. Dams for irrigation, for instance, need to be rebuilt to make them resilient to disasters, he said.

One problem is that infrastructure development spending is often vulnerable to corruption, he said.

"Currently, 5 to 20 percent of construction costs (\$18 billion a year) are lost to corruption," Eriksson told AlertNet.



Fred Boltz of the Alliance for Global Water Adaptation (AGWA) said that the connections between water and climate change remain little explored by many for-profit institutions and discussions of climate change in the private sector largely have been focused on mitigation measures rather than adaptation.

"The realisation that water is embedded across energy, transport, agriculture, and infrastructure networks means that climate impacts on the water cycle potentially expose many new and hard-to-foresee threats," he said. He noted that climate change's private sector impacts have been masked as energy shortages, infrastructure failure, and supply chain gaps.

Boltz told AlertNet it is crucial that water expertise and water management knowledge is readily available to face the new threats and to inform decisions in programmes and mechanisms under the United Nations Framework Convention on Climate Change (UNFCCC).

Building resilience in managing fresh water will be key, Boltz said. In most countries he has seen, he said, water infrastructure and resource management have been designed for today's climate or what is imagined just ahead.

Instead a variety of different climate scenarios must be considered when constructing water-related infrastructure, he said. That means building in resilience to different economic and ecological scenarios.

At a country level, national adaptation plans have - in many cases - resulted in increased investments in water infrastructure by governments, he said. But poor governance and corruption mean some projects have led to worsening, rather than reduced, risks. For instance, cataclysmic floods may breach poorly build embankments, worsening the risks topeople who felt they were safe inside them.

Including the voices of local communities in projects can improve governance and lead to more sustainable maintenance of larger water-related infrastructure, he said.



Karin Lexen, director and focal point for international cooperation on climate policy processes at the Stockholm International Water Institute (SIWI), said that water is a cross-cutting resource, critical for almost all functions of society. But it has no special place in the UNFCCC process.

She said it was crucial that water perspectives are made part of all adaptation decisions and measures under the UNFCCC.

She said that water management must be integrated in any possible programme on agriculture under UNFCCC and also integrated into National Adaptation Plans (NAPs) and Nationally Appropriate Mitigation Actions (NAMAs).

Water as a resource and a hazard also should be explicitly recognised in proposals to create a work programme under the UNFCCC on "loss and damage" from climate impacts, and made a priority in the Green Climate Fund and other financial mechanisms, she said.

But Pervaiz Amir, a negotiator for Pakistan at COP18, said he had little hope that water problems would be taken seriously at the deadlocked UN climate talks in Doha.

"By supporting and developing sustainable water management plans and integrating them into climate adaptation plans, we can develop resilience against the impacts of climate change. Thus, it is really central that water management perspectives become an integrated part of climate frameworks on all levels – from policy down to implementation.

"As water risks rise, good infrastructure and governance are key – expert", 06/12/2012, online at: http://www.trust.org/alertnet/news/as-water-risks-rise-good-infrastructure-and-governance-are-key-experts/

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* Transboundary management in the Buna/Bojana catchment

The preparation of the Buna/Bojana Transboundary Integrated Management Plan aims to assist in identifying steps towards the reduction of pollution and the preservation of biodiversity in the area. Through multi-stakeholder consultations, the Plan will identify problems and issues in this basin shared between Albania and Montenegro. The Plan is prepared in the framework of the GEF MAP UNEP MedPartnership Programme by UNEP MAP PAP/RAC, GWP Mediterranean and UNESCO

The Bojana or Buna is a 41 km long river in Albania and Montenegro which flows into the Adriatic Sea. The Bojana system is 183 km long because it has quite a large watershed, covering 5,187 km², as the whole drainage area of Lake Scutari, the largest lake in southeastern Europe, is also part of it. Also, thanks to the waters from the Great Drin, the Bojana / Buna ranks second place among all tributaries to the Adriatic.

A team of local experts from the two countries is engaged under the guidance of the Albanian Ministry of Environment, Forestry and Water Management and the Montenegrin Ministry of Sustainable Development and Tourism. GWP Mediterranean, among other tasks, has undertaken to elaborate the Stakeholder Analysis and the Public Participation Plan of the catchment and coastal area.

During field missions in September and October 2012, GWP Mediterranean carried out consultations with local stakeholders in the municipalities of Bar and Ulcinj in Montenegro and the communes of Ana e Malit, Berdicë, Bushat, Dajç and Velipojë. The consultation employed a variety of different methods of Participatory Appraisal, such as open and semi-structured interviews, focus groups, mapping and visualisation.

The activities carried out served for understanding how and what local people perceive as issues related to the natural resources management in the river basin and coastal area, and which solutions they propose to address these. Valuable input was attained regarding the characteristics of the stakeholders, which will be used for the Stakeholders Analysis and Public Participation Plan. The final products of the work should be completed by the beginning of 2013.



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The activities in Buna/Bojana also sought to understand how stakeholders perceive public participation in the framework of an integrated management plan. Such findings are important in the overall context of GWP Mediterranean's work on public participation, stakeholders' engagement and participatory management. Related activities, analysis and plans have been implemented or are on-going by GWP Mediterreanean for the Sava River Basin, the Dynaric Arc Aquifer System, the Drin River Basin, the Nestos River Basin, etc.

"Transboundary management in the Buna/Bojana catchment", 04/12/2012, online at: <u>http://www.gwp.org/en/gwp-in-action/Mediterranean/News-and-Activities-GWP-Mediterranean/Transboundary-management-in-the-BunaBojana-catchment/</u>

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From Doha to Dakar, Food Insecurity is the Norm

DOHA, Dec 4 2012 (IPS) - Qatar may be one of the richest countries in the world, but it has something in common with its African counterparts – food insecurity.

This Middle-Eastern oil-producing nation imports 90 percent of its food because it is a dryland country.

"Food is very expensive here," an immigrant Ghanaian taxi driver who opted to remain anonymous told IPS.

"Here, a litre of petrol is cheaper than water," said the driver who spent the last week transporting the delegates at the 18th Conference of the Parties (COP 18) to the United Nations Framework Convention on Climate Change to their venue.

While Qatar's issues of food insecurity stem from its terrain, African countries are struggling with food insecurity because of poverty and erratic weather patterns that have dramatically reduced agricultural production over the years, Emmanuel Seck, programme manager at the Dakar-based Environment and Development Action in the Third World, told IPS.

As African countries struggle to make use of their vast land resources to improve food production because of climate change, Qatar, like other Gulf States and emerging economies such as China, is leasing and buying land in Africa, said Seck. According to a 2012 report by the Oakland Institute, investors in the United States and Europe are the leaders in foreign land acquisition.

But developing countries such as Swaziland are already aligning their policies towards producing and supplying food for Qatar, and the two monarchies have established diplomatic relations.

"We have vast virgin land in our country and we can use it to produce food for Qatar to drive our economy," head of Swaziland's COP 18 technical mission, Mbuso Dlamini, told IPS.

Swaziland, however, is not producing enough staple food for its citizens, importing most of it from neighbouring South Africa. Swaziland's largest foreign exchange earner is sugar.

According to the latest report from Worldwatch Institute, of the 70.2 million hectares of land leased or bought all over the world in the last decade, 34.3 percent is in Africa. Qatar and other Gulf States have acquired a combined 6.4 million hectares of land in developing countries.



Bruce Campbell, programme director at the Consortium of International Agricultural Research Centres (CGIAR) Research Programme on Climate Change, Agriculture and Food Security (CCAFS), said that a balance needed to be struck in order to ensure that poor communities that are dependent on subsistence farming are not kicked off their land to make way for agricultural developments by foreign governments and multinational companies.

"Countries need to put in place mechanisms that will ensure that the leasing of land does not disenfranchise communities," Campbell told IPS.

He said that leasing land might not necessarily be a bad idea as some people are moving away from subsistence farming to finding jobs. Campbell said that the guidelines on the Responsible Tenure of Land, Fisheries and Forests in the Context of Food Security spearheaded by the U.N. Food and Agriculture Organisation would help countries strike that balance.

Tanzanian researcher from the University of Dar es Salaam Emma Limenga warned African governments against leasing out land for long periods. Normally, land lease agreements last for 99 years, which Limenga said could jeopardise the food security of future generations.

"Remember, future generations are not responsible for the decisions that we make now," Limenga said in an interview with IPS. "A 10- to 20-year lease agreement is reasonable."

She said that leasing land and justifying the practice by saying that it would create jobs was neither right nor wrong. She pointed out that while poor communities may have access to land, they might not be able to buy food because of unemployment.

"Some communities are not even cultivating the land because of the erratic weather patterns ... Access to jobs helps people to be able to buy food," said Limenga.

Burger Patrice, the executive director of the NGO Centre d'Actions et de Realisations Internationales, told IPS that Africa's poverty should not be an excuse for "land grabbing".

Patrice explained that the rehabilitation of dryland was the solution to land grabbing and food insecurity.

"Drylands are a result of climate variations over many years," he said. "It is cheaper to rehabilitate the land through the use of fertiliser and ecological agriculture than to let it continue to deteriorate."



"It is in the interest of countries like Qatar to start producing their own food because at some point they will run out of oil and will not afford the high costs of importing this basic need," said Patrice.

He said that although land has experienced the greatest impact of climate change, the negotiations in the Qatari capital of Doha have overlooked that aspect. And he maintained that the U.N. Convention to Combat Desertification was a poor cousin in the U.N. system because land was not given the prominence it deserved.

"From Doha to Dakar, Food Insecurity is the Norm", 04/12/2012, online at: http://www.ipsnews.net/2012/12/from-doha-to-dakar-food-insecurityis-the-norm/

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***** US holds to climate goals despite poor nations' pleas

DOHA — The United States resisted pledging steeper cuts in greenhouse gas emissions by 2020 on Monday despite calls by poor nations at the start of a UN conference for tougher action to avert storms, droughts and rising seas.

About 200 nations met for annual UN talks on global warming with little prospect of a breakthrough and recriminations over how to keep alive hopes of a new, global UN deal to fight climate change meant to start up in 2020.

"We're sleepwalking off a cliff," Alden Meyer of the Union of Concerned Scientists said. There was a lack of ambition to confront rising world greenhouse gas emissions at the two-week meeting, the first in an OPEC nation, he said.

US deputy climate envoy Jonathan Pershing said that President Barack Obama was sticking to his 2009 goal of cutting emissions by 17 percent below 2005 levels by 2020. That target was not approved by the US Senate.

"I do not anticipate that the United States will modify the commitment we have made," he told a news conference. Washington was taking aggressive action to cut emissions and its national emissions may have peaked, he said.

Obama has said that he will focus more on climate change in his second term.

China's chief delegate Su Wei insisted that the rich should extend the UN's Kyoto Protocol, the existing plan that binds developed nations to cut emissions by at least 5.2 percent below 1990 levels between 2008 and 2012.

"If there is not agreement on a second commitment period of the Kyoto Protocol ... I think that would be disastrous for talks on future enhanced action after 2020," he said, referring to plans for a global UN pact meant to be agreed by 2015.

"If we cannot agree on immediate actions, how can anyone agree on future actions?" he said, urging the rich to do more.



Unimaginable scale

A group of more than 100 developing nations also said developed countries should do more to avoid damage on a "previously unimaginable scale."

China has overtaken the United States as the top emitter, ahead of India and Russia.

The European Union has also said that it has no plans to increase its goal for cutting emissions, to 20 percent below 1990 levels by 2020, in Doha. The US goal corresponds to a cut of 3-4 percent below 1990 levels by 2020.

Pershing said that extreme weather, including Super storm Sandy and widespread droughts in the United States "are certainly changing the minds of Americans" who have often been skeptical about the need for more action on climate change.

A UN study last week said the world was on target for a rise in temperatures of between 3 and 5 degrees Celsius (5.4 to 9F) because of increasing emissions.

A U.N. conference two years ago agreed to limit any rise in temperatures to below 2 degrees Celsius (3.6F) above pre-industrial times. But greenhouse gas levels hit a new record in 2011, despite the world economic slowdown.

Christiana Figueres, head of the UN Climate Change Secretariat, said countries need to act now to keep down costs of confronting climate change.

"All reports say that it is much more preferable to act now because it is safer and much less costly," she said.

Most countries favor extending the 1997 Kyoto pact. But Russia, Japan and Canada have pulled out, meaning that Kyoto backers are down to a core led by the European Union and Australia that account for about 14 percent of world emissions.

Drop-outs say it is meaningless to extend cuts under Kyoto when big emerging countries have no curbs on rising emissions. The United States never ratified Kyoto, for similar reasons.



"For world emissions to peak we need an agreement that is applicable to all nations," Pershing said.

Developing countries and Kyoto backers say it is vital that developed nations lead the way towards the new worldwide accord meant to be negotiated by the end of 2015 and to start in 2020.

Failure to extend Kyoto would leave only national actions, with no legally binding UN framework.

Also at the talks, Qatar rejected criticisms of its own record. Its emissions, three times those of Americans, are the biggest per capita in the world, due to oil and gas production.

"We should not focus on the amount per capita but on the total per country," conference president Abdullah bin Hamad al-Attiya said. He said Qatar was working to cut emissions.

"US holds to climate goals despite poor nations' pleas", Egypt Independent, 03/12/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=6454

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* The Climate Question: Degrees of Change

As delegates gather in Doha for COP18, we examine communities on the front line of global warming.

[more of Al Jazeera's detailed Doha coverage, with video on Al Jazeera page]

Climate change has become one of the biggest, most complex issues of our time. And the warnings from some of the world's leading scientists are getting louder.

But sceptics remain. Despite the data, many are unconvinced that the science is on target.

So, we ask: Is climate change man-made and, if so, what can we do to stop it?

From the crumbling ice caps of the Arctic to the shifting sands of the Arabian Gulf, Al Jazeera takes you around the world to see first-hand the impact mankind is having on our planet.

Against the backdrop of a major UN climate change conference in Qatar, join Nick Clark as he looks at the efforts that have been made to address climate change, the failures of previous agreements and the challenges that lay ahead.

Who will save Planet Earth? - by Nick Clark

Think of Planet Earth viewed from outer space. In the cosmic vastness, you see a brilliant blue speck – our home.

Zoom in to a remote island community deep in the Arctic, not far from the North Pole, called Qerqetat. It is spectacularly located on the edge of the Greenland ice sheet. Glaciers sweep down into the sea like snowed-up freeways; icebergs with their azure underwater blues stand sentinel in a perfect flat ocean; Arctic terns soar and dip into abundant waters.

Ashore, a dozen ramshackle wooden houses in varying shades of rusts and yellows straddle high ground. Strips of meat hang from wooden frames, drying in the sun. On the beach a hunting party has just returned and Inuit are passing around small squares of thick Narwhal skin, a delicacy called Muktak.

This is a scene that has been played out for thousands of years. And it was a scene that we filmed earlier this year in August 2012.

"Our high tide is higher than we've ever seen it The shacks we live in never used to be reached by the waves but now we have to move them further inland."



- Jaloo Kiguktak, a resident of the Canadian Arctic

But it is a scene that, before long, may disappear forever. And from Bangladesh to Amazonia that is a recurring 21st century story; climate change is changing the way people live.

Given that fact, why does it seem that the majority of the world's leaders do not care? Climate change was not even mentioned in the US presidential debates. And then, almost immediately, along came Perfect Storm Sandy to give us a hurricane-force reminder that the weather is acting up and perhaps we should take notice.

Meanwhile, media coverage of climate change has crashed. In the years since the false hopes of Copenhagen in 2009, it has simply gone off the agenda. But that has got to change. Hold the front page – weird stuff is happening! And whether you believe mankind is responsible or not, it is affecting us all.

The natural order

When we filmed in the Arctic this summer, I met Mads Ole Kristiansen, one of a continuous line of Inuit hunters going back generations. We filmed him tossing bloody hunks of seal meat to his baying sled dogs.

"Without my dogs, I am nothing," Mads said. "Without his dogs, the hunter is nothing."

But this Spring, Mads had to shoot four of his dogs because the sea ice melted so early that he was unable to hunt for food.

This is a man who knows and understands the environment that provides his livelihood. And he is noticing change – big change.

In the lead-up to COP18 negotiations in Doha, join the debate as experts discuss solutions to global warming

He gestured high above his head to demonstrate how deep into the ice he used to have to dig to hunt seal.

"And now, just 10 years later?" I asked.

He measured from the ground to his hip.



The natural cycles of the Arctic seem to be changing, and fast. There are reports of mosquitos being seen further north than ever before and sightings of birds that the locals do not recognise – red-breasted Robins for example.

We sailed across Baffin Bay and made landfall in Grise Fjord in the Canadian Arctic. Here we found a community aware that their beach is not as big as it once was.

"Our high tide is higher than we've ever seen it," said resident Jaloo Kiguktak. "The shacks we live in never used to be reached by the waves but now we have to move them further inland."

So how does that affect the man in Manhattan or in countless cities around the world where global warming seems a distant irrelevance?

Well, the Arctic is a global weather-maker. Mess with that and who knows what will happen? Sealevel rises are already being encountered around the world. It is possible they could reach catastrophic levels, which might just take a city dweller's focus away from the daily bagel – to say nothing of warming ocean currents being stopped in their tracks, the resulting desertification, the impact on food supplies and, not least, the very security of nations.

It has happened before

The Earth's cycles have seen countless ice ages and thaws, warming and coolings. Check out the New Scientist's fascinating article and you will see how just 120,000 years ago, a blink of an eye in the scheme of things, ice covered a large percentage of the planet. Sea levels were 120 metres lower than they are now.

Then came the thaw, just 20,000 years ago.

And this coincided with mankind beginning to settle in warmer climes where small agricultural communities were formed. Indeed you could say global warming made us who we are today.

The difference this time is the rate of change; temperatures are climbing so rapidly that most scientists now agree mankind is at least partly responsible for what is taking place. And therefore something has to be done.

Which brings us to the latest Climate Change Conference, COP18, taking place in Doha. From Copenhagen to Cancun and Durban, all that has been achieved has pretty much been an agreement to meet again the following year.

And this time around, there is already a sense of resignation that this will be yet another talking shop – where delegates, environmentalists and politicians will speak that impenetrable climate language of



CO2 sequestration, anthropogenic (human) interference and carbon offsets and credits. And make little progress.

In Qatar, an enormous convention centre has been prepared. The venue has more than 120 meeting areas. In addition there are two vast halls which will house 2,000 delegates each and 5,000 staff will be on duty round-the-clock.

In total there will be 17,000 delegates from 194 nations.

On the tiny island of Qerqetat way up in the Far North, they will not much care about COP18. But COP18 needs to care about Qerqetat and the thousands of communities like it around the world that are on the front line of global warming.

Think of that blue speck – our home. It is the only one we have.

"The Climate Question: Degrees of Change", Al Jazeera, 05/12/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=6481

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✤ Gulf states quiet on climate change pledges

The wealthy states have not yet pledged to cut emissions, but green energy projects are blooming in the oil-rich region.

Doha, Qatar – Over the course of millions of years, heat and pressure deep underground blessed this sweltering nook of the Middle East with some of the biggest fossil fuel deposits in the world.

Depending on one's point of view, it's either ironic or a propos that the pint-sized state of Qatar – whose hydrocarbon reserves have made it among the richest countries in the world – is hosting this year's annual UN climate change conference.

The massive meet-up is sparking closer scrutiny of Qatar and other Gulf countries' stances on climate change.

Several Gulf states announced renewable energy targets in the months leading up to the climate talks in Doha, Qatar's capital.

But so far, pledges – either voluntary or binding – to reduce greenhouse gas emissions in the near-term have not been forthcoming.

And with a new study released on Wednesday, finding sea levels could likely rise by more than one metre by the end of the century, the low-lying Gulf could be especially vulnerable to climate change – in which greenhouse gas emissions, especially carbon dioxide, play a major role.

'Cruel joke' or exciting development?

The choice of Doha miffed some environmentalists: one called it a "cruel joke", noting that Qatar had the highest carbon dioxide emissions per capita in the world.

In absolute terms, the United States is the world's second biggest carbon dioxide emitter, and the Gulf countries are far down on the list.

Per capita numbers tell a different story, however: US residents emitted about 17 tonnes of carbon dioxide per person in 2009, compared with almost 32 tonnes in the the United Arab Emirates (UAE) and 40 tonnes in Qatar. (Meanwhile, Nigerians emitted less than a tonne each, on average.)

The conference's choice of president, Qatari Deputy Prime Minister Abdullah bin Hamad Al-Attiyah, has also been criticised: he's a former president of oil cartel OPEC, and received the Petroleum Executive of the Year award in 2007.



WATER RESEARCH PROGRAMME -Weekly Bulletin-

But many at the climate talks were thrilled a Gulf country was chosen this year. Dr Thani Al Zeyoudi, the United Arab Emirates' Director of Energy and Climate Change at the Ministry of Foreign Affairs, told Al Jazeera that Doha provided "a chance for us to start shifting the stereotype" that the Gulf countries "[do] nothing when it comes to climate change and environment".

Mariam Allam, who works with the Arab Youth Climate Movement – an environmental group founded just ahead of the conference this year – is glad the talks are being held in the Gulf. Accordingly, though, she expects countries in the region to make ambitious pledges to cut emissions. "They have the money. They have the financial capacity," she told Al Jazeera.

So far, that hasn't happened.

Under the Kyoto Protocol climate treaty, only a few dozen highly developed states are currently required to cut CO2 output. Classified as "developing countries" when the treaty was first being written, none of the six Gulf states have been required to cut emissions.

Gulf governments have not signed up to binding emissions cuts under a second commitment period to Kyoto, and have not yet made voluntary pledges to cut emissions by a specific number, either.

Greening the Gulf

Majid Al Suwaidi, the UAE's lead negotiator at the climate talks, said that although his country hadn't made pledges, "we feel like we're doing voluntary actions more than we're required to" by investing heavily in renewable energy projects.

This year, several Gulf countries have set goals to boost the amount of energy they get from renewable sources, especially solar. As PV panels become steadily more economical, this is an increasingly appealing proposition in the sun-soaked region.

Qatar wants to produce ten per cent of its electricity from solar by 2018. Kuwait and Oman have expressed similar ambitions. And Saudi Arabia says it hopes to attain a third of its power from the sun by 2032.

The UAE hosts the new International Renewable Energy Agency, and its capital Abu Dhabi – which wants to get seven per cent of its power from renewables by 2020 – is home to Masdar City. Projected to cost \$19bn when completed, the development is being billed as a zero-emission, car-free city featuring state-of-the-art green architecture.

Efficiency programmes could help cut emissions, too: Ali Haider, Kuwait's deputy director-general for environmental monitoring affairs, told Al Jazeera that his country had recently made big cuts in the wasteful flaring of natural gas.



Does it matter?

"The problem is not how many solar panels can Saudi Arabia have. The problem is: how much of the fossil fuel that Saudi Arabia has is going to go to the whole world?"

- Pablo Solon, former Bolivian climate negotiator

However, Nathan Hultman, a professor at the University of Maryland who specialises in environmental policy, points out that more renewable energy in the Gulf doesn't preclude an overall rise in the region's greenhouse gas emissions, given how fast total energy consumption is growing.

Pablo Solon, Bolivia's former chief negotiator for climate change and now the executive director of Focus on the Global South, thinks green energy projects in the Gulf could be insubstantial as long as the region continues to export fossil fuels to other countries.

For instance, given Saudi Arabia's wealth, it could conceivably finance its transition to a green economy at home, but it would still fuel climate change by exporting oil abroad, he said.

"The problem is not how many solar panels can Saudi Arabia have," he told Al Jazeera. "The problem is: how much of the fossil fuel that Saudi Arabia has is going to go to the whole world?" A recent International Energy Agency study found that two-thirds of fossil fuel reserves should stay in the ground if the world hopes to fend off dangerous levels of warming.

Hultman doesn't expect the Gulf countries to voluntarily reduce their fossil fuel exports in the near future. "The reality is," he explained, "this is their industry right now. The international community should not expect that they're just going to give up on this domestic industry in a very short period".

He is, however, still optimistic about the Gulf's role. "They can have a huge amount of leverage" in the fight against climate change, he says, by using their wealth to fund technological innovation in poorer, less developed countries.

Lying low

With the prospect of peak oil already affecting some Gulf countries, diversification to renewable energy sources could deliver economic benefits.

"If we are moving to an economy that is not as reliant on fossil fuels," said Pamela Chasek, executive editor of the Earth Negotiations Bulletin, "it is best to jump on the bandwagon early rather than fight it constantly."



WATER RESEARCH PROGRAMME -Weekly Bulletin-

The capitals of five of the six Gulf nations (Saudi Arabia being the exception) are located on the coast, and if sea levels were to rise by one metre by 2100 - a possible scenario according to scientists – thousands of kilometres of Gulf coastline could be submerged.

Tariq Al-Olaimy, a member of the Adopt a Negotiator group which tracks countries' climate negotiators at the conference, says his native Bahrain – the only island state in the Gulf – "has traditionally been 'passive' in previous negotiations".

Bahrain, he told Al Jazeera, "should be more ambitious in actually tackling climate change issues" such as reducing emissions and adaptation. "Because Bahrain is so vulnerable to climate extremes."

"Gulf states quiet on climate change pledges", Al Jazeera, 05/12/2012, online at: http://mideastenvironment.apps01.yorku.ca/?p=6479

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* North Africa: In the Arab World, Building Fridges to Live in an Oven

Doha — In the last three decades, 50 million people in the Arab world have been affected by natural disasters, many of them extreme climate events, according to a new report by the World Bank. The report projects the horrific scenario of temperatures regularly rising over 50 degrees Celsius by the turn of the century, which experts fear could lead to countless more disasters.

The disasters of the last three decades have cost at least US\$12 billion, according to the report. "This number does not really account for other enormous losses which unfold over a period of time," said Junaid Kamal Ahmad, the World Bank's sustainable development head.

And even this could be a gross underestimate. "The costs of damages are reported for only 17 percent of disasters and rarely capture the suffering that follows the loss of lives and livelihoods," Ahmad said.

Drought and flood victims account for 98 percent of all people affected by climate-related disasters in the region, according to the report.

Dire predictions

The long-term climate-change trends are foreboding, according to the report. Temperatures are projected to rise by three to four degrees Celsius in the Arab world - which includes countries in the Middle East, North Africa and the Horn of Africa - by the end of the century. Such an increase would be 1.5 times faster than the global average, meaning people in the region would be regularly living with temperatures around of 54 to 55 degrees Celsius.

2010 was already the warmest year since records began in the late 1800s, with 19 countries setting new highs. Five of these were Arab countries, including Kuwait, which set a new record at 52.6 degrees Celsius that year; it was topped by 2011's high of 53.5 degrees Celsius.

The region is home to the world's biggest emitters of greenhouse gas: Qatar and Saudi Arabia.

"Someone mentioned we will have to build fridges to live in the oven," quipped Rachel Kyte, World Bank Vice president for sustainable development, during the Doha press conference announcing the report's release.

"North Africa: In the Arab World, Building Fridges to Live in an Oven", 05/12/2012, online at: http://allafrica.com/stories/201212060929.html

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