

# NTS

# Newsletter

## Non Traditional Security



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## EDITOR'S NOTE

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The Indian subcontinent is blessed with large river systems. The Major ones being the Indus basin in the west and the Ganga-Brahamaputra-Meghna basin in the east. With China and Pakistan as neighbours, India has reasons to pay particular attention to its water security. China's planned south-to-north water diversion projects on the rivers that originate from the Tibet region, particularly on the Yarlung-Tsangpo, is creating a new front of ambiguity in China-Indian relations. Simultaneously India has to be sensitive to its lower riparian countries, Pakistan and Bangladesh. Ironically India as a lower riparian has no formal water treaty with China but as an upper riparian has treaties with Pakistan and Bangladesh.

The hydrological contours of India, both as an upper riparian and a lower riparian, will be at the center of new riparian politics and diplomacy over transboundary rivers. The tension in bilateral relations will increase if mutually acceptable bilateral or multilateral framework for cooperation to deal with integrated development of water resources is not effectively worked out. In such situations, many of the existing treaties will have to be re-validated and many treaties need to be framed based on new hydrological knowledge. India's riparian relation with its neighbours will become gradually weak with Pakistan, Bangladesh and Nepal raising concerns over regulating and sharing of river waters.

This issue of the NTS Newsletter focuses on the lower riparian fears, particularly the dam building spree undertaken by China on the rivers originating from the Tibetan plateau.

# ENERGY SECURITY

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## News Analyses

### National

#### Crude and not sweet at all

*August 6, 2013*

For some years now, energy insecurity has come to dominate the collective national psyche. Every pundit and observer has her own set of nostrums and homilies to deal with the country's energy vulnerability. A range of solutions is being touted and tried. None, however, has captured the public imagination as the acquisition of overseas oil equity in pursuit of energy security. That China has embarked on an aggressive acquisition spree of hydrocarbon assets in every corner of our planet seems to have convinced us that this is indeed the way to go and that we must 'catch up' with China if we are to be energy secure.

#### Misplaced perception

In the public perception, it is almost axiomatic that overseas oil assets constitute energy security. It assumes that ownership confers rights of unqualified access. There is a belief that if you own hydrocarbon assets in any corner of the world, it automatically and ineluctably entitles you to physically access those resources as and when you need them; in fact, especially when you need them in the event of a sudden disruption in global oil supply arising from natural disasters, terror strikes or political disturbances.

That may not be true, except under specific conditions and circumstances. It is instructive to note that neither ONGC Videsh Limited (OVL) nor its Chinese counterpart actually brings any significant quantities of oil from any of its overseas assets. Most of OVL's overseas oil production is sold in the local or international markets and the company is compensated in cash payments. As for gas, OVL does not bring to India even a molecule of gas produced in its own fields in Sakhalin, Vietnam or Myanmar although China fares better in this regard, primarily because it has had the foresight to build transnational gas pipelines.

While India does not have a single transnational gas pipeline yet and therefore cannot access its own equity gas, what about oil which is fungible and can be brought in tankers from anywhere? Why are we not bringing our own oil from our overseas acreages? Does mere ownership confer any degree of energy security on the country?

Many necessary and sufficient conditions must be satisfied before equity oil of our national oil companies translates into energy security. Firstly, not all assets in which OVL has invested are producing assets. Exploratory acreages can contribute to India's energy security only if and when there is an exploitable, viable discovery of hydrocarbons.

Secondly, even in the case of producing fields, equity participation is subject to certain contractual terms with the host government. Additionally, if you share your equity with other partners as in a consortium or joint venture, you would also be subject to the terms of the consortium or joint venture

agreement or the operating agreement between parties. Both these must contain provisions that allow you to take your share of production in kind.

### **Types of participation**

There are many types of participation in overseas oil fields: production sharing agreements, service contracts, production leases, concessions and so on. Not every type of contract envisages equity oil to be taken in kind. Service contracts, for instance, envisage only a pre-determined fee, not a share in production. Only production sharing contracts usually have an express provision with the host government wherein the foreign investor can take his share of production in kind. Even so, ownership of the mineral — in this case oil or gas — vests with the host government, except in the U.S. What this implies is that the host government can, and often does, in its national interest, impose Domestic Market Obligations where the operator is required to sell part or all the production to the local market. Sometimes, the domestic market has prior claim and only surpluses can be exported.

*Read more on <http://www.thehindu.com/opinion/lead/crude-and-not-sweet-at-all/article4992779.ece>*

## **Global**

### **MOGE Begins Long Process to Pick Burma's Oil, Gas Investors**

*August 1, 2013*

Negotiations have finally begun to select foreign investors to explore for oil and gas in the seas off Burma's coast, but it could be another eight months before any licenses are awarded.

The Myanmar Oil & Gas Enterprise (MOGE) and the Energy Planning Department (EPD) will hold talks with 61 companies that have been "shortlisted" as suitable candidates to bid.

The bidders include major international oil firms such as Shell, ConocoPhillips, ExxonMobil, Total and Statoil of Norway.

The list also contains numerous Asian firms from Thailand, South Korea, India, Japan and Australia, as well as China National Petroleum Corporation (CNPC), which has built two controversial oil and gas pipelines through Burma.

The Ministry of Energy has said the long process is intended to make sure bidders are able to make the right financial commitment and have the skills for deep-water exploration and drilling.

The ministry is also planning to offer sweeteners. These are expected to include a cut in tax on projects down to 25 percent, and a tax holiday extension from three years to five years, said industry analysts Platts in Singapore.

After the long delay in announcing the bidding terms, and given the urgency for Burma to tap into its potential energy resources to help fuel an expanding economy, it is unclear why the selection process may not be completed until the first quarter of 2014.

Bidding for these 30 licenses was due to take place last year but was postponed until April, supposedly because of foreign concerns about MOGE's murky past with the former military regime.

<http://www.irrawaddy.org/archives/41160>

## **Can Burma quench China's thirst for energy?**

*Aug 06, 2013*

On July 28, China and Burma inaugurated an oil and gas pipeline which will transport gas from the Bay of Bengal to Yunnan, in south western China. The pipeline was built by China National Petroleum Corporation (CNPC) in cooperation with six companies from China, Burma, South Korea and India. Planners say it will be able to transport 22 million tons of oil and 12 billion cubic meters of natural gas to China each year.

China Daily greeted the decision with fanfare: "trade and economic cooperation between China and Myanmar [Burma] have risen to a new level. The upcoming completion of the China-Myanmar oil and gas pipelines will significantly reduce the cost of China's energy imports and bring benefits to people in Myanmar."

NPC's website reports a statement dating back to 2011 according to which in April that year the company signed a letter of intent with Burma's Ministry of Energy to provide \$6 million to Burma to support health and education initiatives among local communities. In December of the same year, CNPC signed an agreement with Burma's Ministry of Health to help improve the medical conditions in local communities by offering assistance to 19 medical sub-centers. The company also claims it has paid substantial attention to local employment, hiring 2,505 local employees, accounting for more than 50% of the total recruitment.

A commentary on Xinhua – calling for an end to western criticism of the projects – argued that more than 220 local enterprises participated in the construction and that the project will create opportunities for people living in the area. It also claimed that companies running the pipelines "have so far donated 20 million U.S. dollars for use in education, medical treatment, health and disaster relief. Besides, 45 schools and 24 clinics have been built, which benefit nearly 1 million local people."

Local organizations paint a darker picture. In November 2012, a report by the Ta'ang Students and Youth Organization (TSYO) – an organization connected to the homonymous ethnic group – complained about safety and environmental issues, adding that information concerning the compensation for land confiscation was not correct and that the distribution was unfair.

Mai Amm Ngeal, a member of TSYO, reportedly said that "even though the international community believes that the government has implemented political reforms, it doesn't mean those reforms have reached ethnic areas, especially not where there is increased militarization along the Shwe Pipeline, increased fighting between the Burmese Army and ethnic armed groups, and negative consequences for the people living in these areas."

<http://asiancorrespondent.com/111560/can-burma-quench-chinas-thirst-for-energy/>

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## News Articles

### National

#### **Bodoland issue hampers Oil India production, Q1 net falls 34.5%**

*Aug 13 2013*

**New Delhi:** Production from state-owned **Oil India Ltd**'s fields in Assam is getting affected by renewed protests for a separate Bodoland state, taking a cue from New Delhi's nod for creating Telangana out of Andhra Pradesh.

With protests intensifying across Bodo areas and Karbi Anglong in Assam for a separate state, the state-run explorer whose entire production of 3.8 million tonnes comes from the state, is worried about the escalating tension impacting its production targets.

"The daily production from Assam is getting affected. The state is quite sensitive about the Bodoland issue. The strife seems to be escalating. Our entire production is concentrated in Assam," said **T.K. Ananth Kumar**, director, finance. "Last year production fell by around 5%. Till this time this year, there has been no improvement."

This comes in the backdrop of India's inability to meet domestic production targets and concerns about the production capabilities of state-owned firms and the need to find new reserves.

According to the petroleum ministry, as compared to a planned production of 41,309.502 million cubic metres (mcm) of gas in 2012-13, actual production was 40,676.670 mcm.

Similarly, of a targeted crude oil production of 40,046,000 tonnes last fiscal year, the country produced 37,865,000 tonnes.

Oil India has been unable to meet its targets due to several strikes and blockades in Assam. Of a gas production target of 2,919 mcm in 2012-13, it could only achieve 2,639.212 mcm. Of this, 2,424.653 mcm came from Assam. Also, of a production target of 3,950,000 tonnes of crude oil last fiscal year, the explorer produced 3,661,000 tonnes. Of this, 3,639,000 tonnes came from Assam.

In the first quarter ended 30 June production of crude oil was 0.903 million metric tonnes (mmt), as compared to 0.946 mmt in the corresponding period last fiscal year. However, natural gas production in the first quarter increased to 657 million metric standard cubic metres a day (mmscmd) from 626 mmscmd in the corresponding year-ago quarter.

"The decrease in crude oil production and sales quantity is due to certain bandhs and blockades, which affected operations in Q1 FY14," Oil India said in a statement on Tuesday.

Improvement in production from state-owned firms such as OIL is important given the limited supplies from India's domestic energy sources and the country's dependence on imports—as high as 80% for crude and 25% for natural gas.



India's energy demand is expected to more than double by 2035, from less than 700 million tonnes of oil equivalent (mtoe) today to around 1,500 mtoe, according to the oil ministry.

"We keep reviewing the situation and the security. Certain things are beyond our control," said Kumar.

India, China and West Asia will account for 60% of the world's energy demand by 2035, when the price of imported crude will be \$215 a barrel in nominal terms, the International Energy Agency (IEA) said in its World Energy Outlook 2012.

In a separate development, Oil India on Tuesday said its net profit in the three months to 30 June fell 34.5% to Rs.609 crore on account of its subsidy burden—for supplying crude at a discount to state-run oil marketing companies, amounting to Rs.1,982 crore—and low realization.

Oil India also registered a 14.3% drop in turnover for the quarter to Rs.2,097.77 crore from Rs.2,439.63 crore in the year-ago period due to a fall in crude oil prices.

Oil India's gross and net realization per barrel of crude was \$101.88 and \$45.88, respectively, compared with \$109.78 and \$53.78 a barrel in the year-ago period.

Oil India shares fell 0.91% to close at Rs.474.05 on BSE on Tuesday. The Sensex rose 1.49% to 19,229.84 points.

<http://www.livemint.com/Industry/pToMvLGiJ9e9QIKPhi3OVN/Bodoland-issuehampersOil-India-production-Q1-net-falls-34.html>

## **IOC to start work on its 1st LNG terminal by end-2013**

*13 Aug, 2013*

NEW DELHI: Indian Oil Corp will start work on its first liquefied natural gas (LNG) plant at Ennore in the east coast by the end of this year, its chairman said on Tuesday, as it sees a gradual rise in local acceptance of the costly imported fuel.

State refiners IOC, Hindustan Petroleum Corp and Bharat Petroleum Corp, also major gas users, have all unveiled plans to build LNG plants as local gas output falls, which will increase the share of the costly imported fuel in India's energy mix.

India's gas demand will rise to 466 million cubic metres a day (mcmd) in 2016/17 from 286 mcmd in 2012/2013, according to the government estimates, while its supply will be only half that.

IOC, India's biggest retailer of fuel for transport and industrial uses accounting for half of demand, aims to supply clients who want to replace fuel oil and naphtha with gas, R. S. Butola told a news conference.

"When it comes to a fully-grown (mature) market, who has got better spread than Indian Oil? ... In the long term there should be much wider acceptance of market prices for gas," Butola said.

The government in June took the unpopular step of raising domestic gas prices from April and linking them to global LNG benchmarks after keeping them frozen for three years.

IOC is in process of tying up customers for the Ennore LNG terminal, which is likely to be ready in 2016/17, said its head of business development, A. M. K. Sinha. IOC is in talks with global firms including Russia's Gazprom to source gas for the Ennore plant, he added. P

"We are in discussion with potential customers like Madras Fertiliser, Chennai Petroleum and some auto industries in the region. Day by day we are increasing our list," Sinha said.

IOC has also signed an initial deal with Dhamra Port Ltd to build a 5 million tonne/year LNG plant in eastern Orissa state.

It could annually use 2.5 million tonnes of LNG from the Orissa terminal for its planned 300,000 barrels per day Paradip refinery and its existing Haldia and Barauni refineries, Sinha said.

IOC along with subsidiary Chennai Petroleum Corp controls about 31 percent of the national refining capacity of 4.3 million bpd.

HPCL's head of finance, K V Rao, also said his firm would replace naphtha and fuel oil at its two refineries with gas from its planned terminal in western Gujarat state.

<http://economictimes.indiatimes.com/news/news-by-industry/energy/oil-gas/ioc-to-start-work-on-its-1st-lng-terminal-by-end-2013/articleshow/21807973.cms>

## **Eight apply for 25% stake in GSPC & Adani's Mundra LNG terminal**

*Mumbai August 9, 2013*

Eight entities have shown interest in acquiring a 25 per cent stake in Adani Enterprises and Gujarat State Petronet Corporation's liquefied natural gas (LNG) terminal in Gujarat.

A decision is likely in four months. Among those which have filed an Expression of Interest (EoI) are India Gas Solutions, the joint venture (JV) of Reliance Industries and BP; Oil and Natural Gas Corporation, GAIL India, Petronet-LNG, Indian Oil Corporation, Torrent Energy, Japan's Mitsui & Co and Toyota Tsusho Corporation.

The terminal is being set up under a JV of GSPC and Adani Enterprises Ltd (AEL) at Mundra in Gujarat's Kutch district. It has been scouting for a strategic investor for 25 per cent stake.

The Mundra terminal will be the third in Gujarat. The state has LNG terminals at Hazira and Dahej, with a total capacity of 13 million tonnes (mt) annually. GSPC formed GSPC LNG Ltd, a special purpose vehicle, in 2007 to set up the LNG terminal with AEL. GSPC's website says the estimated project cost is Rs 5,200 crore, to be financed in a debt to equity ratio of 70:30.

[http://www.business-standard.com/article/companies/eight-apply-for-25-stake-in-gspc-adani-s-mundra-lng-terminal-113080801034\\_1.html](http://www.business-standard.com/article/companies/eight-apply-for-25-stake-in-gspc-adani-s-mundra-lng-terminal-113080801034_1.html)

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## **Government to build strategic crude oil storage capacity at four new locations**

*Aug 7, 2013*

NEW DELHI: Minister of State for Petroleum & Natural Gas Panabaaaka Lakshmi told the parliament that government would set up an additional 12.5 million tonne strategic crude oil storage capacity in the country.

The project, which is being implemented by Indian Strategic Petroleum Reserves Ltd (ISPRL), will be set up in Bikaner, Rajkot, Chandikhol and Padur, she said.

ISPRL has conducted a detailed feasibility study for construction of additional 12.5 million tonne of crude oil storages in phase-II at the four locations, she said.

In the first phase, ISPRL is setting up storage facilities of 5.33 million tonnes of crude oil at Visakhapatnam (1.33 MT), Mangalore (1.5 MT) and Padur (storage capacity: 2.5 MT) to enhance India's energy security.

Laksmhi said the Integrated Energy Policy (IEP-2008) has recommended that India should have crude oil reserves for 90 days as buffer stock for emergency supplies. India imports more than 80% crude oil it processes and any disruption in imports would have adverse impact on its economy.

[http://articles.economictimes.indiatimes.com/2013-08-07/news/41167781\\_1\\_crude-oil-storage-capacity-ispri-indian-strategic-petroleum](http://articles.economictimes.indiatimes.com/2013-08-07/news/41167781_1_crude-oil-storage-capacity-ispri-indian-strategic-petroleum)

## **India's ONGC to get 3 blocks**

*07 August 2013*

NEW DELHI: India's public sector oil-and-gas behemoth ONGC is on way to be given three shallow gas blocks in Bangladesh for exploration.

That includes the country's first discovered offshore gas field Kutubdia, next month.

The production sharing contract is likely to be signed not before September but an initial agreement on the blocks may be done this month, a senior official of ONGC Videsh Limited, a subsidiary of the state-owned firm, said.

ONGC Videsh will be awarded blocks SS-04 and SS-09 as they were the sole bidders. It will also have the right to explore Bangladesh's first discovered offshore gas field, Kutubdia..

The gas field was discovered in 1977 and has recoverable reserves of around 45.5 billion cubic feet, according to Petrobangla estimates.

Kutubdia was offered under a "special package" as it was tagged to SS-04 in the bid process.

Bangladesh Petroleum Exploration and Production Company will have a 10 per cent carried interest stake in all the three blocks. The area of these blocks ranges from 4,463 sq km to 7,692 sq km at water depths of 3-200 metres.

Apart from ONGC and US-based ConocoPhillips all global majors that were keen during the pre-bidding stage had backed out of the bidding, citing lack of incentives to cover the offshore investment risks.

Bangladesh has disputed maritime boundaries with both India and Myanmar.

ONGC Videsh officials are upbeat that they will do justice to the Bangladesh blocks because they have extensive experience of exploring in eastern and northeastern India.

Though their experience of striking oil or gas in West Bengal has been dismal, the record in Tripura and Assam has been brilliant.

The officials said depending on the gas find, ONGC could invest in setting up power, fertiliser and petrochemical plants in Bangladesh.

Recently ONGC teamed up with Tripura government to set up a power company that built and will operate the 726-MW Palatana gas-fired power plant in Tripura.

Bangladesh helped the project by allowing transportation of all heavy equipment through Chittagong-Asuganj route.

Tripura chief minister Manik Sarkar has promised Bangladesh more than 100 MW of power from this project but the proposal is sitting in Delhi which has to clear it.

<http://energybangla.com/2013/08/07/2865.html>

## Global

### **NTPC arm to supply 250 MW of power to Bangladesh from next month**

*August 8, 2013*

In a big boost to cooperation in the South Asia region and marking the beginning of energy cooperation between India and Bangladesh, New Delhi will commence supply of 250 MW of power to Dhaka from next month onwards while the proposal for supply of 500 MW of power to Pakistan seems to have taken a backseat in the given circumstances.

State-owned NTPC Vidyut Vyapar Nigam (NVVN), a subsidiary of NTPC Ltd, is expected to start supplying power to Bangladesh from September 2013. NVVN has been nominated as the nodal agency for supply of power to Bangladesh.

The development comes close on heels of Bangladesh Joint Secretary (Power), Mohammad Anwar Hossain handing over the sovereign guarantee to NVVN, CEO Nand Kishore Sharma in Dhaka on August 7. A sovereign guarantee is an instrument of payment security against supply of the 250 MW for 25 years from various power stations of NTPC under the Power Purchase Agreement (PPA) signed between NVVN and BPDB in February last year. The energy agreement with Bangladesh is on similar lines with other neighbours like Bhutan, Nepal and Sri Lanka.

The Nawz Sharif government in Pakistan Government was very keen on entering into an agreement with India to supply of 500 MW of power in the first phase and expand the relationship later on. Pakistan is faced with a serious deficit of power and the country faces massive power cuts and load shedding. A delegation from Pakistan was expected to be in India this month for talks for purchase of 500 MW of power but in view of the fresh development on the Poonch border, this move is likely to take a backseat for the time being. India also plans to import nearly 5000 MW of power by 2020.

It is learnt that the Bangladesh Power Development Board (BPDB) has already entered into negotiations with the Indian authorities including the Power Ministry for supply of another 250 MW in the near future. The electrical grid interconnection between the two countries will be through a 1X500 MW HVDC back-to-back asynchronous link between Eastern region of India and Western Grid of Bangladesh would facilitate cross-border power transfer of 500 MW across the two countries.

The HVDC 500 MW unit has been established at Bheramara. On the India side, 400 kV switching station has been set up at Baharampur in West Bengal by loop-in-loop out of the existing 400 kV Farakka-Jeerat S/C line. The cross-border inter-connection has been established by Baharampur (India)-Bheramara (Bangladesh) 400 kV D/C line.

<http://www.thehindu.com/business/Industry/india-to-begin-supply-of-250-mw-of-power-to-bangladesh-from-september/article5003675.ece>

## **Why India can't sell electricity to Pakistan after all**

*Jul 11, 2013*

India may not be able to sell electricity to Pakistan, after all!

This was supposed to be the mother of all CBMs (Confidence Building Measures) for the United Progressive Alliance (UPA) led by Prime Minister Manmohan Singh. The UPA government planned to sell 500 mw of power to Pakistan, currently hit by unprecedented energy crisis.

The proposed move also gives an interesting and significant peep into the economies of the two nuclear-armed neighbours, traditionally infamous for their Tom- and-Jerry kind of relationship over the decades.

Fourteen years ago, Pakistan wanted to sell electricity to India. Many meetings had taken place between experts at that time when Atal Bihari Vajpayee and Nawaj Sharif were at the helm of the affairs in India and Pakistan respectively. Queerly, the quantum of the electricity to be sold was exactly the same: 500 mw.

The tables have turned now. Sharif, on his return to power as a record third time prime minister after a gap of 14 years, finds himself negotiating for a similar power load. The only difference this time is that today Pakistan is negotiating for "importing" 500 mw of power from India rather than exporting it to India.

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Now let's turn back to the original theme of this article after this meandering!

The Indian plan of selling power to Pakistan (whether 500 mw or whatever) is all set to be just a pipe dream. The reason? It's economics, stupid!

Even before Sharif's former installation as the third time premier of Pakistan, the UPA government in New Delhi had expressed a desire to bail out Pakistan from its current energy crisis by selling power at "commercial rates" which were presumed to be cheaper than the market rates anywhere else for Pakistan.

But this premise has gone awry.

Soon after Nawaz Sharif emerged victorious in the 11 May 2013 elections and well before his swearing in as prime minister, he expressed desire to revive the so-called energy talks. The only difference this time, as highlighted earlier, was that Pakistan was a wannabe importer of electricity from India, not exporter like a decade ago.

The Manmohan Singh government obliged him immediately and dispatched an official delegation to Pakistan, led by Joint Secretary (Power) Rita Acharya, to discuss broad contours of the proposed arrangement.

The Indian delegation came back with a report that was a reality check for both Manmohan Singh and Nawaz Sharif. It determined that a lot of homework, and expensive one, will have to be done before any such arrangement of selling power to Pakistan on "commercial rates" (as Indian government repeatedly stressed) were to be put in place.

The Indian Power Ministry has told the government that as per its "initial estimates", Pakistan government will have to spend Rs 700 crore on its side to build infrastructure like receiving stations, high-voltage direct current (HVDC) transmission line and a dedicated grid.

It determined that the Indian side too will have to shell out Rs 100 crore to transmit electricity from Patti grid in Punjab to Wagah border. The monetary burden on Pakistan is all the more as all the monies discussed in the Indian Power Ministry report to the Government of India are in Indian Rupees, a stronger currency than the Pakistani Rupee.

Moreover, the Power Ministry report made it clear that it will take at least three to four years to set up the technical pre-requisites before Indian exports of electricity to Pakistan actually start.

Perhaps the most damning dampener to have come from the Indian Power Ministry's preliminary talks with the Pakistani government is that the cost of electricity per unit would come to a minimum of Rs 14.

But wait! Even if the two governments were to okay it, the cost of India-exported electricity for Pakistani citizens would be much more than Rs 14 per unit. Why? Because given the political distrust between India and Pakistan, India would be averse to a government-to-government dealing in this business of electricity exports!

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The Indians laid a pre-condition that Pakistan will have to purchase the electricity through an Indian contractor, who will purchase electricity on form the Power Grid Corporation (PGC) and then transmit it to Pakistan.

Thus, the Manmohan Singh government's plans to strike an emotive chord in the hearts of Pakistani citizens by bailing out their country from its worst-ever energy crisis have hit a wall. As per official estimates of Pakistan, the country has lost Rs one lakh crore due to load-shedding over the last five years.

Now the current status of the Manmohan Singh's government's ambitious Pakistan diplomacy is as follows. The Power Ministry has written to the government and inquired if the project is of strategic importance, it will devise ways and means of finding a way out.

*[http://www.firstpost.com/economy/why-india-cant-sell-electricity-to-pakistan-after-all-947277.html?utm\\_source=author\\_widget](http://www.firstpost.com/economy/why-india-cant-sell-electricity-to-pakistan-after-all-947277.html?utm_source=author_widget)*

## News Analyses

### Global

#### At the Crossroads of Climate Change and Global Security

Recent extreme events witnessed around the world are drastically visible reminders of ongoing environmental perturbations on our planet, many of which are linked to global climate change. The last decade has seen an exceptional number of extreme heatwaves with resulting severe consequences. The 2010 Russian heatwave is estimated to have cost the lives of 55,000 people and destroyed 25 per cent of the country's annual crop. In the United States, the drought in 2012 has been the most severe since the 1930s, impacting about 80 per cent of agricultural land. Hurricane Sandy was yet another stark showcase of the forces of nature and our vulnerability in the face of destabilized weather and climate patterns.

It fits this picture that 2012 has been the warmest year in the contiguous United States since record keeping began in 1880 while, globally, all 12 years to date in the twenty-first century have ranked among the 14 warmest ever recorded. Some changes in the Earth system are occurring at faster rates: the extent of the Arctic sea ice during summer plummeted to a new minimum in September 2012, almost 50 per cent below the long-standing average, whereas sea levels are rising faster than expected, fuelled in part by the accelerated melting of the Greenland ice sheet.

While natural variability plays a big role in those complex phenomena, the human influence has become a decisive driver on the planetary scale. Beyond reasonable scientific doubt, global climate change is caused by emissions of greenhouse gases from human activities, notably CO<sub>2</sub> from the combustion of coal, oil and gas. Despite efforts to curb emissions at the local, national and international levels, the aggregate global total reached yet another record in 2012 and keeps on increasing. In early May 2013, news went around the world that carbon dioxide levels in the atmosphere have climbed above 400ppm, a concentration probably not realized for at least 3 million years. As it stands, the world is on a course for an increase in global mean temperature of around 4° C (7.2° F) by the end of the century as compared to pre-industrial times.

The consequences would be severe, as pointed out by a recent World Bank flagship report authored by scientists of the Potsdam Institute for Climate Impact Research: sea levels will likely rise by 0.5 to 1 metre by the year 2100, with several metres of additional surge over the coming centuries, thereby putting the livelihoods of hundreds of millions of inhabitants of low-lying and coastal areas at risk. In addition, the need to increase agricultural production to feed a growing population will be counteracted by a rising risk of crop yield reductions as the world warms: non-linear effects, so-called "tipping dynamics", could seriously impair global food and water security and reverse recent development advances in poorer countries. In fact, largely unchecked global warming puts in question the very possibility of adapting to changes, particularly in regions where livelihoods already depend on fragile ecosystems under heat and water stress.



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The prospect and possible consequences of such a world matter for all of us, and not only in an altruistic perspective: the projected impacts on food production, water availability and ecosystems integrity are increasing the pressure for large-scale displacements of populations and heightening the challenges for global human security in a still fragmented and increasingly unequal world. It is conceivable that the benefits of international integration through trade and the exchange of people and ideas would be threatened by multiple environmental stresses and their destabilizing societal effects, leading to increasingly inward-looking and isolationist perspectives.

Indeed, the past offers a number of lessons which should make us cautious when looking into the future. All too often, human successes have collapsed once certain limits to self-preservation were approached. In the case of climate change progressing unchecked, the aggregation of impacts are likely to eventually involve social tipping points, leading to heightened tensions within and across societies. A vicious circle of decreasing propensity to cooperate in the international arena may unfold, with global mean temperatures rising in lockstep.

Climate change poses new risks and is a potential amplifier of hazards that existed before. It is striking that those countries that contributed the least to global greenhouse gas emissions, and have the fewest resources for adaptation measures, are likely to be hit hardest by the impacts of climate change. This is not just about poverty. Regions that already experience stress from migration or water scarcity might see this pressure increase under continued climate change. This, in turn, affects ethnic tensions which, again, are well known today, but might intensify going forward. Thus, man-made global warming has the potential to fuel smoldering conflicts.

However, the risks we are facing are not a foregone conclusion. The choice about the future we want is there and the choice is real. Mankind can control emissions of greenhouse gases so as to limit global warming to no more than 2° C, the threshold agreed by the international community, thereby avoiding the worst consequences posed by unchecked climate change. We can do so at an affordable cost to our economies while reaping a host of co-benefits arising from the development and deployment of new technologies.

To be sure, the path towards climate stabilization also comes with uncertainties concerning, among other things, the sensitivity of the Earth system to further human influences, the exact magnitude of climate impacts and their distribution over time and space, the future of energy demand, and the availability of greenhouse gas mitigation options. However, these uncertainties can be handled within a risk management perspective. Risk is defined as damage multiplied by probability. If the potential damages are high, and they are, even a low probability would result in a high risk that should be avoided.

The biggest factor in limiting our exposure to risk in the future is the timeliness of political decisions and the progress of international cooperation to address the climate challenge. Science is unequivocal in this regard: if we—citizens, elected officials and corporate leaders—decide to rise to the challenge, we should do so without further delay to minimize cost and to maximize our chances for sustainable prosperity.

Realizing this vision and shaping the future in a conscious way can be likened to a Kantian mega-project. In fact, a modern day version of the German philosopher Immanuel Kant's categorical

imperative translates into a call for much deeper cooperation on climate protection across borders and a commitment of individuals and states to do what is necessary, even though others may still be dragging their feet. Success in the cooperation challenge on climate change would not only avert human hardship and suffering on a momentous scale, but would actually pave the way for deeper integration and coordination in a host of other policy fields demanding global action. In this sense, averting the climate crisis may become the bedrock for making progress on global security and securing peace in the world.

<http://www.un.org/wcm/content/site/chronicle/home/archive/issues2013/security/atthecrossroadsofclimatechangeandglobalsecurity>

## **Today's Climate Change Proves Much Faster Than Changes in Past 65 Million Year**

*August 2, 2013*

The climate is changing at a pace that's far faster than anything seen in 65 million years, a report out of Stanford University says.

The amount of global temperature increase and the short time over which it's occurred create a change in velocity that outstrips previous periods of warming or cooling, the scientists said in research published in today's *Science*.

If global temperatures rise 1.5 degrees Celsius over the next century, the rate will be about 10 times faster than what's been seen before, said Christopher Field, one of the scientists on the study. Keeping the temperature increase that small will require aggressive mitigation, he said.

If the Earth stays on its current course without reversing greenhouse gas emissions, and global temperatures rise 5 degrees Celsius, as scientists say is possible, the pace of change will be at least 50 times and possibly 100 times swifter than what's occurred in the past, Field said. The numbers are imprecise because the comparison is to an era 55 million years ago, he said.

"The planet has not experienced changes this rapid in 65 million years," Field said. "Humans have never seen anything like this."

Field, in the school's Department of Global Ecology with the Carnegie Institution for Science, and Noah Diffenbaugh, an associate professor of environmental Earth system science, reviewed and synthesized existing research on climate change for a special issue of *Science*: "Natural Systems in Changing Climates."

They looked at climate events or major transitions that have happened on Earth since the extinction of the dinosaurs. Those include the period when the Earth emerged from an ice age. Temperatures then increased between 3 and 5 degrees Celsius, similar to the amount scientists say is possible with ongoing climate change. But that change happened over about 20,000 years, the scientists said, and not decades as is happening now.

They also looked at a period when global temperatures dropped 11 to 12 degrees over a period 52 million to 34 million years ago.

“That’s a larger change in global temperature than what’s likely to occur over the next century, but it happened over 18 million years,” Diffenbaugh said. “So it was a high-magnitude but relatively low-rate event.

“We find periods of Earth’s history where the global temperature change was of similar magnitude, but the rate was an order of magnitude slower.”

### **Ecosystems shifting a yard a day**

The changes that are expected ahead will happen much faster than the rate at which species and ecosystems typically are able to adjust, Field said.

Plants and animals essentially would need to move about 1 yard each day farther north or higher in elevation to maintain the conditions they prefer, Field said. While farmers and others can shift where they grow crops, Field said, it’s different for a butterfly or a maple tree.

“Maple trees are not good at moving,” Field said, adding, “You don’t have forests moving over long distances very, very fast.”

Trees can shift over time when seeds are blown and squirrels carry acorns, but it typically is not that rapid, he said. The fastest that trees have had to move in the past was tens of meters per year. That’s known from pollen records, he said.

[http://www.scientificamerican.com/article.cfm?id=todays-climate-change-proves-much-faster-than-changes-in-past-65-million-years&WT.mc\\_id=SA\\_WR\\_20130807](http://www.scientificamerican.com/article.cfm?id=todays-climate-change-proves-much-faster-than-changes-in-past-65-million-years&WT.mc_id=SA_WR_20130807)

## **News Articles**

### **National**

#### **Himalayas to be warmer over next century**

*August 12, 2013*

The river systems fed by the glaciers of the Himalayas and the Tibetan plateau are a vital source of water, food and energy for hundreds of millions of people downstream.

Trying to predict the impact of climate change on glaciers in such a large and inaccessible area as the Himalayas – with research made more difficult by bitter intra regional rivalries – is no easy task.

While some studies say rising temperatures in the mountains and the melt of glaciers will lead to falling river levels downstream and drought in what is one of the most densely populated regions on the planet, other reports paint a more sanguine picture.

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In a study in the journal *Nature Geoscience*, scientists say that in two of the region's most important river basins – the Ganges and the Indus – water levels are unlikely to drop over the next century, reports London-based Climate News Network.

This contrasts with earlier studies – including one by the same authors – suggesting water levels in these rivers would drop significantly by 2050, threatening the livelihoods of millions.

The new report, *Rising river flows throughout the twenty-first century in two Himalayan glacierised watersheds*, says that in some parts of the Himalayan region, river flow losses as a result of less glacial meltwater will be compensated by an increase in monsoon rains.

The lead author of the report is Dr Walter Immerzeel, a mountain hydrology and climate change specialist at Utrecht University and at present a visiting scientist at the International Centre for Integrated Mountain Development (ICIMOD) in Nepal.

Four years ago Immerzeel and his colleagues published a report predicting a considerable drop in water levels in the same rivers by 2050.

“We are now using a more advanced glacier model that takes into consideration how slowly glaciers respond to climate change” says Dr Immerzeel.

Marc Bierkens, professor of Hydrology at Utrecht and a report co author, says the modelling research shows the size of the glaciers in the watershed of the Indus and the Ganges will decrease during the 21st century.

“Yet, surprisingly enough, water discharge in this region is increasing, rather than decreasing. The reasons vary greatly from one watershed to another.

Bierkens told Climate News Network that the latest research findings were the result of using a more sophisticated ice model together with a new set of climate models and the fact that, especially in the western Himalayas, the increase in rainfall with height is larger than previously thought.

To understand the impact of climate change on river discharge, researchers created computer models of glacier movements and water balance in both the Indus and the Ganges watersheds. The models indicated that in the eastern watershed – in Langtang in Nepal where the Ganges has its source – the relatively smaller glaciers melt quite quickly but an increase in monsoon rains leads to a growth in water discharge.

In the western watershed – in Baltoro in Pakistan where the Indus has its source – the climate is dryer and colder and has much larger glaciers. The models show discharges in the area are increasing, mainly as a result of more glacial melting. Such melting, says the study, will peak around 2070 and thereafter drop but will be compensated for by an increase in precipitation.

“While the results of the research predict a somber future for the Himalayan glaciers, they offer some good news for water and food security in India, Bangladesh and Pakistan,” says a report summary.

<http://www.dhakatribune.com/environment/2013/aug/12/himalayas-be-warmer-over-next-century>

# WATER SECURITY

## News Analyses

### Global

#### China and India 'water grab' dam

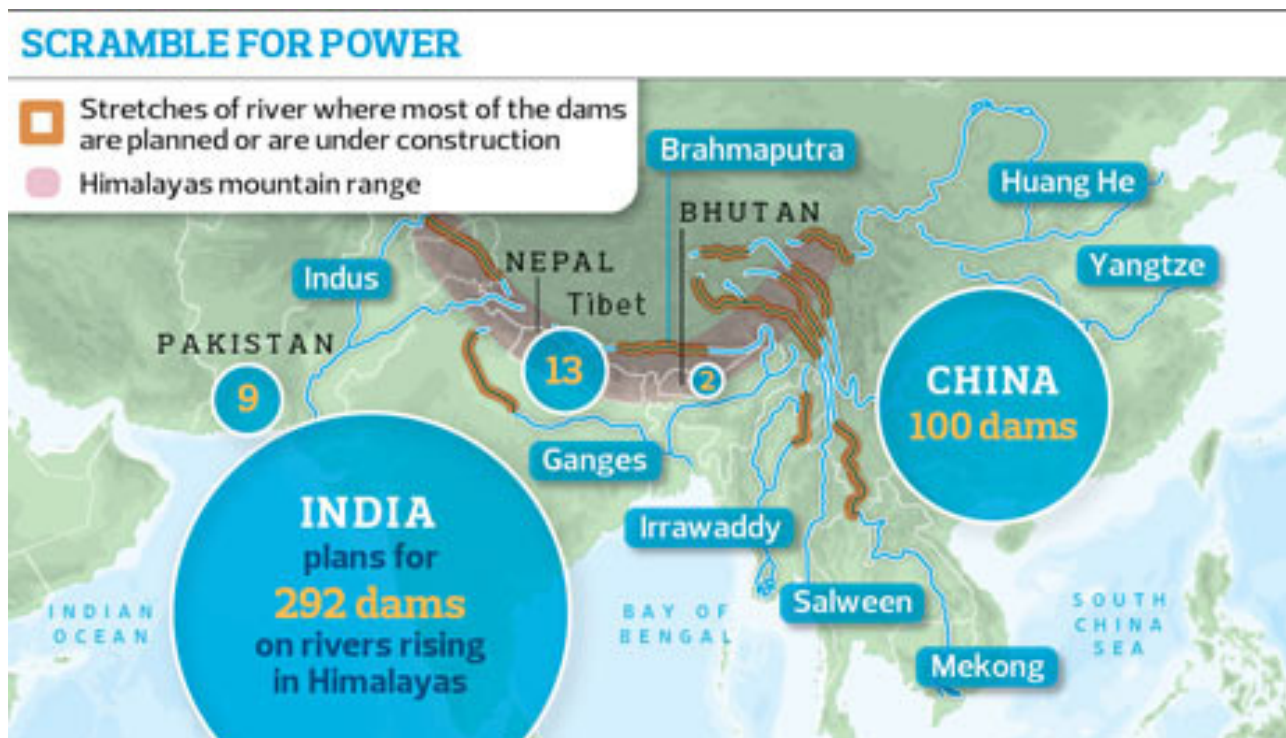
10 August 2013

The future of the world's most famous mountain range could be endangered by a vast dam-building project, as a risky regional race for water resources takes place in Asia.

New academic research shows that India, Nepal, Bhutan and Pakistan are engaged in a huge "water grab" in the Himalayas, as they seek new sources of electricity to power their economies. Taken together, the countries have plans for more than 400 hydro dams which, if built, could together provide more than 160,000MW of electricity – three times more than the UK uses.

In addition, China has plans for around 100 dams to generate a similar amount of power from major rivers rising in Tibet. A further 60 or more dams are being planned for the Mekong river which also rises in Tibet and flows south through south-east Asia.

Most of the Himalayan rivers have been relatively untouched by dams near their sources. Now the two great Asian powers, India and China, are rushing to harness them as they cut through some of the world's deepest valleys. Many of the proposed dams would be among the tallest in the world, able to generate more than 4,000MW, as much as the Hoover dam on the Colorado river in the US.



The result, over the next 20 years, “could be that the Himalayas become the most dammed region in the world”, said Ed Grumbine, visiting international scientist with the Chinese Academy of Sciences in Kunming. “India aims to construct 292 dams ... doubling current hydropower capacity and contributing 6% to projected national energy needs. If all dams are constructed as proposed, in 28 of 32 major river valleys, the Indian Himalayas would have one of the highest average dam densities in the world, with one dam for every 32km of river channel. Every neighbour of India with undeveloped hydropower sites is building or planning to build multiple dams, totalling at minimum 129 projects,” said Grumbine, author of a paper in *Science*.

China, which is building multiple dams on all the major rivers running off the Tibetan plateau, is likely to emerge as the ultimate controller of water for nearly 40% of the world’s population. “The plateau is the source of the single largest collection of international rivers in the world, including the Mekong, the Brahmaputra, the Yangtze and the Yellow rivers. It is the headwater of rivers on which nearly half the world depends. The net effect of the dam building could be disastrous. We just don’t know the consequences,” said Tashi Tseri, a water resource researcher at the University of British Columbia in Canada.

“China is engaged in the greatest water grab in history. Not only is it damming the rivers on the plateau, it is financing and building mega-dams in Pakistan, Laos, Burma and elsewhere and making agreements to take the power,” said Indian geopolitical analyst Brahma Chellaney. “China-India disputes have shifted from land to water. Water is the new divide and is going centre stage in politics. Only China has the capacity to build these mega-dams and the power to crush resistance. This is effectively war without a shot being fired.”

According to Chellaney, India is in the weakest position because half its water comes directly from China; however, Bangladesh is fearful of India’s plans for water diversions and hydropower. Bangladeshi government scientists say that even a 10% reduction in the water flow by India could dry out great areas of farmland for much of the year. More than 80% of Bangladesh’s 50 million small farmers depend on water that flows through India.

Engineers and environmentalists say that little work has been done on the human or ecological impact of the dams, which they fear could increase floods and be vulnerable to earthquakes. “We do not have credible environmental and social impact assessments, we have no environmental compliance system, no cumulative impact assessment and no carrying capacity studies. The Indian ministry of environment and forests, developers and consultants are responsible for this mess,” said Himanshu Thakkar, co-ordinator of South Asia Network on Dams, Rivers and People.

China and India have both displaced tens of millions of people with giant dams such as the Narmada and Three Gorges over the last 30 years, but governments have not published estimates of how many people would have to be relocated or how much land would be drowned by the new dams. “This is being totally ignored. No one knows, either, about the impact of climate change on the rivers. The dams are all being built in rivers that are fed by glaciers and snowfields which are melting at a fast rate,” said Tsering.

Climate models suggest that major rivers running off the Himalayas, after increasing flows as glaciers melt, could lose 10-20% of their flow by 2050. This would not only reduce the rivers' capacity to produce electricity, but would exacerbate regional political tensions.

The dams have already led to protest movements in Uttarakhand, Himachal Pradesh, Sikkim, Assam and other northern states of India and in Tibet. Protests in Uttarakhand, which was devastated by floods last month, were led by Indian professor GD Agarwal, who was taken to hospital after a 50-day fast but who was released this week.

"There is no other way but to continue because the state government is not keen to review the dam policy," said Mallika Bhanot, a member of Ganga Avahan, a group opposing proposals for a series of dams on the Ganges.

Governments have tried to calm people by saying that many of the dams will not require large reservoirs, but will be "run of the river" constructions which channel water through tunnels to massive turbines. But critics say the damage done can be just as great. "[These] will completely shift the path of the river flow," said Shripad Dharmadhikary, a leading opponent of the Narmada dams and author of a report into Himalayan dams. "Everyone will be affected because the rivers will dry up between points. The whole hydrology of the rivers will be changed. It is likely to aggravate floods.

<http://www.theguardian.com/global-development/2013/aug/10/china-india-water-grab-dams-himalayas-danger>

## News Articles

### National

#### **New Indian dams condemned**

*July 30, 2013*

LAHORE: Water experts at the Engineers' Study Forum (ESF) have strongly condemned India's construction of a number of power producing dams at the Chenab river.

These include the 50 MW Ratta hydro project and the 1,000 MW Pakaldul dam. The forum said that these projects adversely affect the Chenab's flow to Pakistan in violation of the Indus Water Treaty of 1960, which does not allow storage of water on the Chenab and Jhelum rivers and allows full use of the two rivers' waters by Pakistan.

The ESF urged the federal government to move the International Court of Justice and the World Bank to intervene to persuade India against violation of the Indus Water Treaty. It said the government should demand that international donor agencies refuse to fund the construction of the dams being constructed to obstruct flow of water in the Chenab and Jhelum rivers into Pakistan. A

notice of damages should also be served on India in case of blockage of water supplies in the Chenab and Jhelum rivers, the ESF said.

<http://www.thenews.com.pk/Todays-News-3-193071-New-Indian-dams-condemned>

## **Dams not villains, but victims of Uttarakhand floods: Jindal Power MD**

*August 4, 2013*

Dams across the Ganga were not villains in the Uttarakhand flood tragedy which claimed about a thousand lives and left several thousand missing, but victims, said Jayawant Kawale, managing director of Jindal Power, in the Goa capital.

Kawale, whose special area of operation at the firm relates to hydro and renewable energy, was addressing policymakers and regulators during a retreat for them organised Saturday by the Independent Power Producers Association of India (IPPAI).

According to the top official, the way ahead for India was to tap hydel power and not coal, which he said was both polluting and expensive.

“Uttarakhand was an extreme weather event that turned into a disaster owing to rampant deforestation, failure to reforest, unbridled construction and poor disaster response. They (the floods) were not caused by or worsened by the hydro projects. Instead they were mitigated by the Tehri Dam project,” Kawale said in his presentation.

He however blamed other factors like fast urbanisation, illegal constructions, deforestation and slack administration for the tragedy in Uttarakhand, which started with unprecedented floods and cloudbursts June 16, and worsened because of poorly planned and rampant construction on the hills and sloppy administrative response to the tragedy.

Dams, Kawale said, were expensive to construct and early infrastructure costs were high, but the investment paid off in the long run.

“With coal, owing to rising import costs, the cost of power generated would only go up,” he said.

[http://www.business-standard.com/article/news-ians/dams-not-villians-but-victims-of-uttarakhand-floods-jindal-power-md-113080400076\\_1.html](http://www.business-standard.com/article/news-ians/dams-not-villians-but-victims-of-uttarakhand-floods-jindal-power-md-113080400076_1.html)

## **Watershed management ensures livelihood security for farmers in drought-hit Central India**

Development Alternatives (DA), an organisation working to regenerate natural resources in Bundelkhand began promoting watershed management in the 80s as a way to secure water resources in the region.



Over the last 30 years, DA has rejuvenated about 25,000 hectares of land through integrated soil and water conservation programmes and facilitated the construction of more than 120 water harvesting structures like checkdams, gabions etc.

Check-dams are small barriers built for water harvesting across the direction of water flow on shallow rivers and streams.

These small dams retain excess water flow during monsoon rains in a small catchment area behind the structures.

The initial investment made can easily be recovered in the first few farming seasons through an increase in agricultural production.

“The seawater harvesting structures have helped in preventing soil run-off, regenerating natural vegetation, harvesting rainwater and recharging groundwater. Agricultural productivity has doubled and migration has reduced in all the villages in which Development Alternatives has implemented its watershed management programmes”, says Dr.Murari, an agricultural scientist working with the organisation.

For Ram Singh from Chopra village, increase in water availability as a result of a check dam built near his village has translated into a 20 percent increase in his wheat crop yield and an additional 6,000 rupees in income terms.

With the potential impacts of climate change bearing down on this already fragile region, watershed management will become even more crucial for ensuring food and livelihood security. (ANI)

<http://www.aninews.in/newsdetail2/story124819/watershed-management-ensures-livelihood-security-for-farmers-in-drought-hit-central-india.html>

## Global

### China to regulate water supplies amid water diversion

*8<sup>th</sup> August 2013*

BEIJING - A draft regulation concerning water that is supplied to areas that are part of a south-to-north water diversion project was published for the purpose of soliciting public opinions on Friday.

The draft was posted on the website of the Legislative Affairs Office of the State Council.

The draft will regulate the way water is supplied by a water diversion project that will divert water from South China to the arid north, according to a statement from the Legislative Affairs Office.

Water supply plans for different regions should be sanctioned by the State Council, the draft says.

Regions that benefit from the project should strictly regulate groundwater exploitation, improve their local environments and eliminate or restrict the development of industrial, agricultural or

construction projects that consume large amounts of water or create large amounts of pollution, it says.

The regions should also strengthen water quota management in order to save water, according to the draft.

The draft says water sources and regions along the project's supply routes should enhance pollution treatment so as to ensure the quality of their water.

It stipulates criteria for the demarcation of water conservation areas, as well as measures for water pollution prevention and treatment regarding industry, agriculture and water-based transportation near water sources and along diversion routes.

The draft also covers the responsibilities of maintenance units.

The south-north water diversion project was conceived by former Chairman Mao Zedong in 1952. The State Council approved the ambitious project in December 2002 after debates that lasted nearly half a century.

The project, which will be built at an estimated cost of 500 billion yuan (\$81 billion), has aroused global concerns over land use, possible regional climate changes, environmental damage, impact on agriculture and suffering caused by massive relocation efforts.

The project is expected to divert 44.8 billion cubic meters of water annually from the Yangtze River and relieve water shortages in North China by 2050.

Construction on the project's 1,467-km eastern route began in December 2002. The route is expected to supply water to north China by the end of 2013.

[http://www.chinadaily.com.cn/business/2013-08/10/content\\_16885283.htm](http://www.chinadaily.com.cn/business/2013-08/10/content_16885283.htm)

## **Mekong-Ganga Dialogue: Learning to manage river basins**

If we want to be more efficient in dealing with contemporary water conflicts in the Ganga and Mekong basin, it is time to recognise that the human tragedies caused by dispute over entitlements, apportionment and competing demands for water are controlled by a complex alloy of political-sociological and economic forces. To a significant extent the nation's failure to provide social leadership that has clear vision, political will to undertake cooperative action with riparian countries and linear calculation of river efficiency dividends can be held responsible for the water challenge that both the basins face today.

Mainstreaming 'human and environment centric' approach to river basin management, Observer Research Foundation and M-POWER embarked upon an inter-regional initiative in New Delhi-India, 2012 in pursuit of continual exchange of experiences, practices and knowledge in managing two of the major river basins of the world - Ganga and Mekong. The second meeting of this endeavour took place along the Mekong River in Laos and Thailand from 24th to 28th June, 2013.

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## **Models of Regional Cooperation**

Mekong-Ganga Dialogue deliberated upon a framework of political and social restructuring which accommodates the interests of all stakeholders in the two basins. Mr. Hans Guttman, Director of Mekong River Commission Secretariat, in his opening speech stressed upon the role and significance of multi-stakeholder Track II initiatives. Meaningful dialogues have the potential to circumvent complex deadlocks in case of difficulties and stalemate situations between riparian nations. While, it may be difficult to assess the effectiveness of such dialogues in reducing conflicts, they definitely have provided new platforms of interactions, illustrated best practices and influenced water-governance from narrow national security concerns to a holistic regional perspective. Mr. Guttman presented the objectives and functionality of cooperation in Mekong - a model that can be improvised in the Ganga basin. He highlighted the success of Mekong River Commission in fostering collective actions to better manage the natural resource. A parallel regional knowledge network - Mekong Program on Water, Environment and Resilience (M-POWER), presented an overview of issues and challenges faced by members from all the regions that encompass the territory, ecosystems, people, economies and politics of Mekong river basin.

## **Water issues in silos?**

While contemplating on the “nature of development”, it was felt that the “nature of problem” itself lacks clarity, said Dr. Rohan D’Souza, Jawaharlal Nehru University, India. Multi-faceted and multi-level set of challenges have begun to overwhelm the Ganges and Mekong river system. Both basins are comparably characterized by intense population density, high levels of pollution, declining fisheries, energy poverty, gender inequity, degrading biodiversity and several other socio-ecological vulnerabilities. Potential resource-led conflicts involving river flow entitlements have also come to the fore, hampering regional cooperation. However, the current development policies and processes have been downplaying relations of inequality and contradiction within the dominant economic systems. Such crisis, as was argued, raised the question of whether solutions lie in finding correct tools and mechanisms that feed into the decision making processes. To gain deeper insight into the politics of policies, programs and their implementation, Dr. Tira Foran, convinced participants to take a critical political economy approach, which addresses power and complexity of competing demands in order to first re-conceptualize water-energy-food nexus before delving into absolute solutions.

## **Improve the tools and mechanisms of decision making**

It is clear that the current decision-making tools in both the basins lack capacity and understanding to optimize river-efficiency dividends. Cost-benefit analysis, an economic tool which presents the opportunity to calculate social and environmental cost of production of developmental project was disputed to be insufficient to understand the trade-off between environmental impacts and economic growth. Assessing the scope of cost-benefit analysis, Dr. D’Souza and Sonali Mittra, Observer Research Foundation, India suggested the need for different economics, co-existence models and putting communities of natural flow regime at the central focus of water policies.

Bushra Nishat, hydrologist, Bangladesh shed light on advanced hydrological prediction tools and suggested integrating these into the management and decision making process, and developing expertise at the national level. She made a case for using appropriate analytical tools to better understand the implications of regionally important investments. A knowledge base for sharing data and information can be instrumental towards regional cooperation and participatory planning between riparian countries to support flood management, agreed all the experts.

### **Democratization and social equity**

Besides the tools of decision-making, mechanisms for water conflict resolution were discussed at large by Dr. Jianping Wang, China. Her study on comparative case studies drawn from rural communities in Northern Thailand and Southern Yunnan, China elaborated on how local institutions adapt to challenges emerging from intensive water use, greater integration into the market economy and many socio-economic changes. She concluded that accountable, adaptive and inclusive local institutions equipped with good social capital, clear property rights and strong enforcement have great potential in effective water governance. The study particularly reiterated the focus on local communities, institutions and micro-governance mechanisms - a long time focus of Ganga researchers and Non-Governmental Organizations (NGOs).

The day focussed not only on democratic institutions but also a democratic source of water - Groundwater. Dr. Paul Pevelic and others, Laos, provided evidence of a growing groundwater economy in Laos. A surging number of new donor sponsored research and development initiatives, if successful and harnessed correctly, should be able to address many technical and institutional challenges and constraints. Effective realization of the investments made in this sector was said to be of critical importance. The view was slightly contested by Ganga experts. Experience of Ganga basin suggested that regulation of groundwater use is extremely difficult given the easy accessibility and ownership rights. Citing examples of Haryana and Punjab, they recommended a thorough investigation of this lesser known resource and implementation of strict liability rules for its usage and conservation, in order to avoid errors made by the Ganga states.

Dr. Sengamphone, Mekong River Commission illustrated her work aimed at improving the management Namxong river, Laos and livelihood of people in its catchment area by integrating gender aspects. She highlighted the role and scope of gender mainstreaming in water management for achieving equitable social development. It was suggested that inclusive participation and effective consultation can lead to maximum advantages and reduction in conflict among competing sectors. Can this be a case in Ganga which is characterised by high level of social, especially gender inequity? It was settled that gender analysis and responsiveness is essential in water management and conservation across all basins of Asia.

<http://strategicstudyindia.blogspot.in/2013/08/mekong-ganga-dialogue-learning-to.html>

## **Water a Key Issue as Developing Countries Drive Growth in Global Food Production**

*2<sup>th</sup> august 2013*

Developing countries will account for much of the world's growth in agricultural production, demand, and trade during the next decade, as production growth in developed countries slows, according to reports from leading food policy organizations. The shift will pose challenges for the quality and abundance of water supplies in regions like South America, Asia and Africa.

### **Reports' Key Water Findings**

#### **OECD-FAO Outlook**

- Global agricultural production is projected to grow at 1.5 percent annually, down from 2.1 percent in the past decade. The trend reflects rising input costs, as well as scarcer resources like water and land.
- Low food stocks will increase the risk of price volatility. Droughts and other weather shocks, combined with low stocks, could raise crop prices 15-40 percent.

#### **IFPRI 2012 Global Food Policy Report**

- Droughts in Central Asia, Eastern Europe and the United States played a large role in volatile food prices in 2012.
- The idea of a "green economy" received more attention at international meetings like the 2012 Rio+20 conference. The goal is to create sustainable development and eradicate poverty.

The growth rate of world agricultural production is set to slow overall when compared to the growth rate of the past decade, but developing countries will continue to outpace developed countries, according to the 2013-2022 Agricultural Outlook released in June by the Organization for Economic Cooperation and Development (OECD) and the Food and Agriculture Organization of the United Nations (FAO). Average world food production will increase 1.5 percent annually, compared to the 2.1 percent annual growth seen from 2003-2012. The slowdown is a result of rising costs for agricultural inputs, such as oil and fertilizer, as well as the increasing scarcity of key resources like water and land. Climate change could also play a role by exposing crops to more severe droughts and floods and rising temperatures.

Least Developed Countries—defined by the United Nations as "low-income countries suffering from the most severe structural impediments to sustainable development"—have the greatest potential for increasing food production in the next decade. These countries are expected to exceed the world average in agricultural growth, at a rate of about 2.75 percent through 2022, while the agricultural sectors of Brazil, Russia, India and China will grow by 1.5 percent per year. In developed countries, on the other hand, farm output will increase just 0.75 percent annually over the next decade.

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## Organization for Economic Cooperation and Development

As Circle of Blue found in India, even countries with abundant water supplies face scarcity issues due to this lack of management and conservation. Some countries, like Vietnam, that subsidize water for farmers have removed even the small irrigation service fees following the recent spate of food price crises, Ringler said. Other regions face a combination of high demand, natural scarcity, and “pollution-induced” water scarcity.

“In some developing countries, the pressure on the environment is really high,” Ignacio Pérez, of the OECD’s Trade and Agriculture Directorate, wrote to Circle of Blue. “For example, China has a fifth of world population but only 5 percent of its productive agricultural surface. Obviously, industrialization and closing the gap to western diets in these countries poses a real challenge.”

### Steps Toward “Green Growth” in Agriculture

- **Increasing productivity growth through public-private partnerships.** “It is important to encourage investment, diffusion of knowledge and research to help farmers close productivity gaps, especially in developing countries, where they are large.”
- **Reducing food waste.** “Especially along the food supply chain in developing countries, which is particularly large. Investment in infrastructure is crucial.”
- **Creating an enabling environment.** “Key institutions such as markets need to provide the right signals (e.g. prices that reflect the scarcity value of natural resources) and establish and enforce secure property rights, in particular for marine resources, land and forests, greenhouse gas emissions, and air and water quality. Growth in developing countries needs also to take these factors more into consideration in the future.”
- **Trade.** “The global population has not recently grown according to land or water availability. Trade among countries that is responsible, and not distorted, will encourage the most efficient use of resources.”

### Read more: OECD

While agricultural growth provides developing countries with an opportunity to improve water management, many are facing the same pollution and water depletion problems that have occurred in developed countries.

“Avoiding some of the adverse impacts on surface and groundwater supplies by developing countries will be a challenge,” Ringler said. “For now the situation looks already much worse in many developing countries—for example, the groundwater depletion in the U.S. is bad, but it’s much worse in large parts of India where more than 50 percent of food is produced from groundwater. To turn things around in the developing world requires a re-focus of investments into institution building and demand management as well as into agricultural research for better crops.”

### **Overcoming Water Supply Issues**

In order to meet the water-agriculture challenge—in terms of water supply—countries are turning to a number of solutions. The development of multi-purpose dams for storing irrigation water, the implementation of advanced irrigation technologies, and research into crops that can tolerate droughts and floods, are all methods being pursued by developing countries to secure water and improve agricultural yields, according to Ringler.

“Green growth for food and agriculture is not only desirable and achievable, it is also essential if the food and nutrition requirements of future generations are to be met,” Pérez said. “The specific approach varies by agro-ecology, farming system and market conditions but consistently will involve increasing the conservation and sustainable use of natural resources in agricultural production systems, as well as the reduction of waste and pollution associated with inefficient input use and degraded ecosystems.”

*<http://www.circleofblue.org/waternews/2013/world/draft-water-a-key-issue-as-developing-countries-drive-growth-in-global-food-production/>*

# FOOD SECURITY

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## News Analyses

### National

#### How Chhattisgarh's Food Security Law Works

The long-awaited national food security law is expected to be debated in Parliament this week, if passed it would guarantee very cheap food to up to 70% of India's 1.2 billion people.

The food security ordinance, similar to an executive order, was passed by the Congress-led government in early July as a temporary law. Parliament must now pass the legislation on food security in the coming five weeks if it is to become a permanent. If it's passed, state governments will be responsible for ensuring that the food reaches its destination without leakages and theft which have beset the current system, which funnels about 30 million tons of subsidized food grains annually.

Chhattisgarh, a state in central India, already has its own food security law and has been praised for reducing the amount of grain lost to pilferage and through corrupt practices.

In an emailed interview with The Wall Street Journal, Raman Singh, chief minister of Chhattisgarh, explained how his state's food security system works and how they've managed to get the grain to the most needy.

#### Edited excerpts:

**The Wall Street Journal: What percentage of the population in your state have you managed to cover under the state food security law?**

**Raman Singh:** Almost 90% population of the state has benefited from cheap food grains under The Chhattisgarh Food and Nutrition Security Act 2012. Entitlements are provided to each household and the eldest woman in the family is regarded as the head of the household.

We have covered 55% of households of landless laborers, small marginal farmers with less than two hectares of land, construction workers and those in the urban informal sector.

One in four families with particularly vulnerable members, such as those who are terminally ill or physically challenged, have benefited from the law so far.

**WSJ: Did you take any particular steps to improve delivery of food grains through the public distribution system, which suffers from leakages because of theft in many states?**

**Mr. Singh:** Yes. We de-privatized the ration shops by shifting the management of the public distribution system outlets from private licensees to community-based organizations such as gram panchayats (village councils,) female self-help groups and co-operative societies.

We organize a Chawal Utsav (Rice Festival) at each ration shop during the first week of every month, which helps to ensure that all food items are adequately stocked in each shop by the last day of the previous month.



Food items are delivered direct to the doorstep of ration shops by yellow government and private trucks to help curtail diversion and ensure timely stocking of food items in shops.

To make the ration shops financially viable, and reduce the chance of leakage, we increased the commission paid to shop owners and gram panchayats from 8 rupees (13 cents) to 45 rupees for 100 kilograms of food.

We provided an interest-free loan of 75,000 rupees to all shops allocated to female self-help groups and gram panchayats.

The public distribution system was computerized in 2007 to ensure strict monitoring of movement of stocks and inventory levels at all warehouses and shops in the state. The ration cards have also been computerised and only centrally printed ration cards are distributed to the beneficiaries.

The state government started a toll-free public distribution telephone helpline and also took various transparency measures to involve the community in the process of monitoring.

**WSJ: Will the Chhattisgarh government be able to give more grains to people if the federal food security law is passed by Parliament this session? How would your existing system change in this case?**

**Mr. Singh:** The government of Chhattisgarh has made a provision in its Food Security Act, to provide for entitlements in either the state or federal law, whichever is more. Only 33% households in Chhattisgarh were entitled to free grain from the government of India under the national public distribution system. Whereas, the state food security act is providing entitlements to 90% of households.

If the national food law is passed then 78% of households will be entitled to cheap grains from the government of India's public distribution system. However the entitlement will come down to 22.5 kg from 35 kg per household – less than under the state system.

Passage of the national food law does not lead to any adverse impact on implementation of the state system. Hence, no major change is required to the existing system.

**WSJ: Do you plan to expand the scope of the food security law beyond grains to other items such as lentils and edible oils? If so, please describe your plan for expanding the coverage.**

**Mr. Singh:** We already provide pulses and iodized salt to vulnerable households and those families of landless laborers and construction workers. The Act also has special entitlements for children, pregnant and lactating mothers, people living with hunger, destitute, homeless, migrants and for persons affected by emergency and disasters.

**WSJ: Is the state government planning to contribute from its own revenues for expanding the food security law in your state? If so, how much do you plan to spend annually, over and above what the federal government allocates?**

**Mr. Singh:** The state government expanded the coverage under public distribution system in 2007 under the Mukhyamantri Khadyanna Sahayata Yojana (meaning the chief minister's food aid

program). Since then, the government has been spending to the tune of 6 billion rupees (\$ 99 million) to 8 billion rupees, every year, from its own resources on food security.

In light of the provisions of the state food law passed in December, budget provision has been made for 17 billion rupees for the financial year 2013-14. The total annual expenditure from state's own resources, over and above that provided by the government of India, is estimated to increase to 21 billion rupees as we extend the coverage of the subsidy to 4.2 million households from 3.5 million households.

<http://blogs.wsj.com/indiarealtime/2013/08/12/how-chhattisgarhs-food-security-law-works/>

## News Articles

### National

#### The shaky geopolitics of India's food security

Whatever the disagreement on the Food Security Ordinance (FSO), either on the political expediency which drove it, the size of the fiscal burden the government has to shoulder, or the criteria used to identify its beneficiaries, one aspect is beyond question: to fulfil the Ordinance's mandate, governments would need to procure a lot more food grain than they do currently from Indian farmers and perhaps, through imports. If India intends to be self-sufficient in meeting food security requirements, our farmers must have an incentive to produce more, reflected in higher procurement prices and access to better farming inputs. At the same time, the Rangarajan Committee — constituted by the Prime Minister's Office to "review" the National Advisory Council's version of the law — has suggested India should procure only 30 per cent of the country's total production from farmers. Anything more, the committee has warned, will result in a "distortion of food prices in the open market." But unless our food production capacity somehow dramatically improves in the next few years, procuring 30 per cent from farmers alone will not meet the FSO's requirements. In the interim, therefore, food imports are a reality.

During this period, the government needs to compensate farmers well, support the domestic agricultural sector *and* gain access to cheap food imports. If it fails in these objectives, the FSO will not only ratchet up India's trade and fiscal deficit, but also fail to boost our own production capacity. This vicious cycle will eventually render the ordinance (by then a law, presumably) unsustainable.

#### Compensation for farmers

There's only one problem: imports come cheap thanks to the heavy subsidies the West offers its agribusinesses. These subsidies must go if India's farmers are to have any chance of competing against imports. What's more, India's commitment to the WTO prevents it from raising its Minimum Support Price to farmers by a high margin. With a view to ensuring food security, therefore, the 'G33' group of countries at the WTO — in which India has played a leadership role — has sought an exception to this rule. If the G33's proposal were to be accepted, developing countries would retain the right to pay most of their farmers "above the market" (ATM) rates for procuring and stockpiling food grain.

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Ironically, the UPA is yet to pay market rates, let alone above them, to farmers from whom it buys grain. For all its claims to make food security a priority, the government's Minimum Support Prices for farmers in recent years have been well below those prevailing in the open market. Even so, if one were to give the UPA the benefit of the doubt and assume it will raise compensation for farmers now that the FSO is in place, the G33's proposal is unlikely to gain traction at the WTO. The proposal to grant ATM rates to marginalised farmers in developing countries has been called a "trade distorting subsidy." On the other hand, the West is nowhere near close to agreeing on a gradual reduction and eventual elimination of the massive subsidies it offers to large agri-businesses.

The UPA, racing to the 2014 election with blinders on, has finally realised its Food Security Bill cannot work without resolving both these concerns. But its hectic, eleventh hour efforts to curry favour at the WTO may not be successful: the G33 proposal will likely be staunchly opposed, especially by the United States, at the Bali ministerial meet this December. The group has now been offered a piecemeal "interim mechanism" that will allow specific countries to raise support prices for their farmers. But this is a temporary measure: sans the WTO's green signal in December, India cannot incentivise its farmers without falling foul of its international commitments. If it still goes ahead, the West is entitled to retaliate with crippling trade countermeasures. Unless developed countries agree to cut their agro-subsidies, India will also see cheap food imports muscling domestic farmers out of business. What does this deadly combination of factors mean for the long-term viability of the Food Security Ordinance? Frankly, who cares? For the UPA, after all, the future is between now and May, 2014.

### **Safeguards**

The issue of farming subsidies is particularly crucial in the context of the Indo-EU Free Trade Agreement (FTA). Under the FTA, trade tariffs for agricultural products will be brought down dramatically. Once the floodgates open, food and dairy products from Europe — that have long enjoyed the EU's political patronage — will easily displace the indigenous market, severely denting our agrarian sector. This is not to say the FTA should be abandoned altogether. The agreement is crucial for India to access better technology (in agriculture) and gain entry into Europe's lucrative markets in other sectors. But before the FTA is inked into existence, India should incorporate safeguards for its farmers, at least keeping food security in mind. If our farmers stand no chance against the massive production capacity of agri-businesses in Europe, the government can kiss self-sufficiency goodbye.

Prime Minister Manmohan Singh and his government have hastily materialised a populist, but much-needed legislation, without laying the foreign policy foundations for its continued existence. WTO rules need to be renegotiated to accommodate higher procurement rates for India's farmers. Wrinkles in the Indo-EU Free Trade Agreement need to be ironed out, if our agricultural sector is to be strengthened. These objectives require hard-nosed bargaining and adept diplomacy from New Delhi. They certainly cannot be achieved in a few months — unless these measures are in place, the FSO will whimper to a slow death in a matter of years. Food security, a national imperative of enduring significance, cannot be relegated to a legislation that refuses to see beyond the next general election.

## **Food security law's WTO complication**

### **Cheaper subsidy plan could soon breach global trade rules; India and others in G-33 bloc hope for break on this at Bali meet**

The recently promulgated National Food Security Ordinance (NFSO) might breach the global trading rules on agriculture under the World Trade Organization (WTO) if there is diversion of the subsidised foodgrain for export.

The NFSO aims to provide five kg of foodgrain a month for each person covered, at a highly subsidised price. About two-third of the country's population would be eligible for the benefit.

Trade economists and experts say even if the ordinance is aimed at giving subsidies to this many for consumption, it is a subsidy. And, these are prohibited if the product in question is traded, under the WTO norm as trade distorting or Amber Box subsidies in the parlance.

The subsidy in question is being given to consumers, not farmers. However, there is no mechanism to monitor a leakage between the two categories. It is also a reason why India is among the main countries in the so-called Group of 33 (G-33), spearheading a proposal on food security at the WTO which seeks to legalise these Amber Box subsidies.

Consensus on the G-33 proposal, it is argued, would remove the asymmetry in the Agreement on Agriculture in respect of food security and domestic food aid at the WTO. And, a positive stroke for removing hunger.

"WTO rules have to respond to the emerging reality that developing countries require flexibility and policy space for addressing the food security needs of their population, in a manner consistent with their development priorities," said Abhijit Das, head of the Centre for WTO Studies, Insian Institute of Foreign Trade.

India has never exported rice from its public stockholding. However, in certain exceptional circumstances, it has exported wheat.

### **Why**

WTO's Agreement on Agriculture allows countries to provide an unlimited amount of direct food aid to sections in need. Developed countries have done so. The US, for example, has subsidised to the extent of \$94 billion during 2011. On the other hand, developing countries, being short on cash, are unable to use the provision on direct food aid.

Instead, they acquire and hold stocks of food products and subsequently release it at administered prices to the target population in need.

"Smooth implementation of the food security law might require tweaking of the WTO agricultural subsidy regime. India and several other developing countries have proposed amendments to the regime to ensure we are above board. Considerable efforts would have to be put to ensure the

forthcoming WTO ministerial meeting in Bali is able to seal a deal on this issue,” said Biswajit Dhar of the Delhi-based think tank RIS.

In the aftermath of the global food crisis, developing countries have become more vulnerable than developed countries because of differences in productivity, scale and financial means to cope with problems besetting agriculture. Agricultural sectors in developed countries are equipped with advanced technologies, large financial resources and support systems to provide secure incomes to their farmers, and to manage quick shifts in the market and in environmental conditions.

In contrast, many developing countries are not able to provide services, infrastructure and support to small farmers or to deal effectively with volatility in agricultural markets, due to a lack of institutional and financial means.

### **Way out**

The issue of agricultural subsidies has been one of the most contentious issues in the Doha Round of the global trade talks which began in 2001. After protracted negotiations, a draft text of outcomes was released in December 2008. While this has not been finally approved because the Doha Round itself has been in limbo since then, there is a broad measure of consensus around the proposed outcomes.

“The problem is because the Doha Round has not been finalised, this remains a draft proposal. Meantime, our subsidies have been rising and could cross the permissible De minimis levels. If that happens, it would amount to a violation of our WTO commitments and some country could possibly bring a WTO dispute against us,” said a Geneva-based trade economist, who refused to be identified. De minimis is the level beyond which subsidies cannot be given under global trading rules.

The G33 proposal at the WTO seeks a decision on this issue in the Bali Ministerial. The December 2008 text on agriculture states: “Acquisition of stocks of foodstuffs by developing country members with the objective of supporting low-income or resource-poor producers shall not be required to be accounted for in the AMS (Aggregate Measurement of Support).”

### **Issues**

While the US is against such a proposal, European countries are ready to discuss the issue and find a solution. The US feels any agreement on this issue will give unprecedented flexibility to China, which gives much more of subsidies as compared; their procurement levels are also much higher.

An agreement on this proposal is crucial for India, as almost all its farmers fall under the ‘low-income or resource-poor’ category. More, the government is concerned that public procurement would soon overshoot the De minimis level. The current threshold is 10 per cent of the total value of output in agriculture that can be given as subsidy. The agriculture ministry has already said this could be breached in the near future.

*[http://www.business-standard.com/article/economy-policy/food-security-law-s-wto-complication-113080300501\\_1.html](http://www.business-standard.com/article/economy-policy/food-security-law-s-wto-complication-113080300501_1.html)*

## Global

### Less waste means better food security

*August 9, 2013*

The first beef hamburger cultivated in a laboratory has been cooked and eaten in London. The science and its purpose, to enhance food security by increasing production in an environmentally sustainable manner, must be acclaimed.

It is hoped that this source of protein can become a viable alternative to meat from livestock.

By some estimates, laboratory-grown meat would reduce greenhouse gas emissions by 80 per cent and water usage by 90 per cent, compared to conventional stock farming. The development of the test-tube meat was financed by Google co-founder Sergey Brin, who invested in the project because he was concerned about the welfare of animals.

The next step must be to ensure the long-term safety of the product and that its perceived benefits significantly outweigh any unforeseen costs. Only then will the many legitimate concerns — sparked by previous food safety scares — be put to rest and the products receive the consumer support necessary to succeed.

Until then, there is much that can be done to increase food security and reduce world hunger, simply by making better use of existing resources and eliminating waste. According to reports from a recent Asia-Pacific Economic Cooperation forum on food security, while it is difficult to significantly increase harvests, it is easier to reduce losses during food processing.

The United Nations Environment Programme, among others, estimates that one of every four calories produced by global agriculture is lost or wasted.

At the same time it is estimated that the world will need about 60 per cent more food calories in 2050 compared to 2006. Halving the current rate of waste would increase food security as well as generate savings in water, energy, and chemicals.

The growing global population and increasing living standards is placing unsustainable demands on the earth. Science may once again come to the rescue, but there is always the danger of unintended consequences. Improvements in technology to produce and distribute food to markets, as well as more sustainable lifestyles, must also benefit from increased research and development.

<http://gulfnnews.com/opinions/editorials/less-waste-means-better-food-security-1.1218471>

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