

Weblink: <http://www.hindustantimes.com/world/world-water-day-how-water-shortage-would-threaten-jobs-and-growth/story-X7xwQFVISyaJfUe2NXRYmO.html>

## World Water Day: How water shortage would threaten jobs and growth

Thomson Reuters Foundation, London

Updated: Mar 22, 2016 12:51 IST



A woman carries water pot past sand sculpture of artist Manash Sahoo on the eve of World Water Day on Puri beach. (PTI)

An estimated three out of four jobs globally are dependent on water, meaning that shortages and lack of access are likely to limit economic growth in the coming decades, the United Nations said on Tuesday.

About 1.5 billion people - half the world's workers - are employed in industries heavily dependent on water, most of them in farming, fisheries and forestry, the UN World Water Development Report 2016 said.

"There is a direct effect on jobs worldwide if there are disruptions in water supply through natural causes, such as droughts, or if water doesn't get to communities because of infrastructure problems," said Richard Connor, the report's editor-in-chief.

Research has shown investment in small-scale projects providing access to safe water and basic sanitation in Africa could offer a return equivalent to almost 5 percent of the continent's economic output, the report said.

In the United States, every \$1 million invested in the country's water supply and treatment infrastructure generates between 10 and 20 additional jobs, according to the report.

"Whether it's a water treatment facility or a system to bring water to fields to irrigate, you're not just funding that project," Connor told the Thomson Reuters Foundation.

"You're creating a multiplier effect: jobs are being created because water becomes available."

Fleur Anderson, global head of campaigns at charity Water Aid, said the high cost of water in many developing countries also affects jobs and economic choices.

In Papua New Guinea, for example, poor people have to spend 54 percent of their day's earnings to buy 50 litres of water, the amount the World Health Organization says a person needs every day for domestic use and to maintain health and hygiene.

This compares with as little as 0.1% of the income of someone earning the minimum wage in Britain.

"It means countries are not getting the economic benefits of their working population because people are spending so much of their money on water," Anderson said.

### **Water under pressure**

Demand for water is expected to increase by 2050 as the world's population is forecast to grow by one-third to more than 9 billion, according to the United Nations.

This in turn will lead to a 70% increase in demand for food, putting more pressure on water through farming, which is already the biggest consumer of water.

As climate change contributes to rising sea levels and extreme weather, at least one in four people will live in a country with chronic or recurring shortages of fresh water by 2050, the United Nations estimates, making it more important to focus on expanding rainwater harvesting and recycling wastewater.

Connor said funding for projects was still often based on "investment in pumps and pipes" rather than a more holistic view, taking into account water's key role in building a sustainable economy as part of the new global development goals.

More investment in renewable energy such as solar and wind, which use very little water, is also crucial in reducing demand for water, Connor said.

Weblink: <http://www.environmentalleader.com/2016/03/16/lockheed-martin-concord-blue-waste-to-energy-plant-moves-forward/>

## **Lockheed Martin, Concord Blue Waste-to-Energy Plant Moves Forward**

By: Jessica Lyons Hardcastle

A [waste-to-energy](#) facility, expected to be online next year, will process 50,000 tons of raw waste annually, reducing the need for landfill use and powering 5,000 homes and businesses in Herten, Germany.

Concord Blue has awarded [Lockheed Martin Energy](#) a \$43 million contract to proceed with all engineering, procurement and construction of the 5-megawatt bioenergy plant with a planned completion date in 2017.

The bioenergy facility will transform forestry waste to power using [Concord Blue's Reformer technology](#), which converts waste to energy through a process called advanced gasification. The company says its technology can convert nearly any kind of organic waste into renewable energy. Unlike other available processes that use hazardous incineration methods, Concord Blue's technology converts waste material using heat transfer, which the company says results in no harmful byproducts.

In 2014, the two companies announced plans to build the facility and have since completed all planning, simulation, supplier logistics and preliminary design. The construction marks phase 2 of the partnership between Concord Blue and Lockheed Martin.

The bioenergy facility — and future such projects the two companies build — addresses two global challenges, says Mo Vargas, director of Bioenergy at Lockheed Martin Energy: [clean energy](#) and [waste management](#).

Additionally, Lockheed Martin and Concord Blue signed a modification to the existing teaming agreement established in 2013 to extend the partnership ten years through 2026, with options for further extension.

The agreement enables Lockheed Martin to serve as Concord Blue's engineering, procurement and construction contractor for future bioenergy conversion projects and to continue serving as the exclusive manufacturing provider of the Concord Blue Reformer.

Weblink: <http://www.digitaljournal.com/pr/2871462>

## **Water Purifier Market Growth, Research, Analysis, Demands, Trends and Industry Development 2016**

Global Water Purifier Market 2016 Industry Analysis, Size, Share, Growth, Trends and Forecast

This press release was originally distributed by [SBWire](#)

Brooklyn, NY -- ([SBWIRE](#)) -- 03/16/2016 -- Water is the most intrinsic of all human needs and all forms of plant and animal life depend on it for survival. Even though geographically there exist massive bodies of water all around the globe, most of it is unfit for consumption owing to high saline content or high levels of pollution. This kind of water required efficient treatment before it can be consumed. Independent researchers from different parts of the world have been striving tirelessly to achieve the kind of efficient water purification that is fit for all forms of life.

This ongoing trend of innovation from all walks of life is what drives the water purifier market and is what will propel its growth in the coming years too. Here's a look at some of the key innovations in the [global water purifier market](#).

### **South Korea's Cuckoo Develops 6-Stage Filtration Water Purifier**

A household name across South Korea when it comes to rice cooker products, Cuckoo has developed a nano-positive water purifier. This six stage water filtration system promises to eliminate 99.99 per cent of bacteria and virus that contaminates water. This water purifier also removes other harmful contaminants such as heavy metals from the water and manages to preserve its mineral content at the same time.

### **Chemical Engineering Prof Creates New Desalination Technology**

A chemical engineering professor at the Jersey Institute of Technology Kamallesh Sirkar has developed an innovative process called direct contact membrane distillation, which offers much

promise. This distillation system seems to be highly efficient and produces around 80 liters of safe drinking water out of 100 liters of sea water. This is twice the amount produced by other desalination technologies existing today.

### Hand-held Water Purification Device for Backpackers

Hydro Photon has come up with an innovative hand held water purification device called Steri PEN, which uses ultraviolet light to eliminate harmful microorganisms from the water. It has been found that UV light can destroy 99.99 per cent of such contaminants and this device is designed for backpackers and travelers.

Weblink: <http://www.theguardian.com/global-development/2016/mar/22/water-for-everyone-pay-for-it-public-private-partnerships-kevin-rudd>

## If we want water for everyone, we're going to have to pay for it

[Kevin Rudd](#)

Nobody's keen to fund faecal sludge management; that's why we need public-private partnerships to pay for our water and waste disposal



📷 A communal tap in Harare, the Zimbabwean capital. Women and girls bear an unequal burden when it comes to collecting water. Photograph: Philimon Bulawayo/Reuters

More than [800 children](#) die each day from diarrhoea. About [663 million](#) people still use water contaminated by human waste and other pollutants. And [roughly 2.4 billion people](#) still lack access to a basic toilet. Open defecation presents a major, avoidable public health hazard.

Women and girls living in communities that lack basic facilities live in fear of sexual assault, because they need to go outside to go to the toilet.

Women and girls are also affected in other ways by water access. Often tasked with finding water for their families, they act almost as beasts of burden, carrying water vast distances. Collectively, women and girls spend roughly [125m hours](#) a day fetching water. The absence of basic menstrual sanitation also means [millions of girls are absent from school](#) for up to a quarter of the academic year.

Many people are uncomfortable even talking about these issues. We need to overcome this.



#### **World Water Day quiz – are you a fount of wisdom?**

As the recent multilateral meeting of the [global partnership on Sanitation and Water for All](#) in Addis Ababa reminded us, the cost of building the infrastructure to deal with the problem can be prohibitive. The World Health Organisation calculates it is [\\$11.3bn \(£7.9bn\) a year](#) beyond current investments. But this presents an insuperable problem only if we see public finance – through national governments, international development banks and national development agencies – as the only source of capital.

There is also a critical role for domestic private finance and international private investment, although creating such financial partnerships can be difficult. Businesses require monetary returns on their investments; projects must be “bankable.”

Access to clean water and basic sanitation is a human right and a public good. But those declarations alone do not solve the financing problem. [Water](#) and sanitation services must therefore be paid for, with tariffs adjusted according to the ability of local communities and individuals to pay. For the poorest of poor communities, this will mean zero tariffs or simple public water provision until social and economic conditions improve.

A new generation of [public-private partnerships](#) (PPPs) is helping the response to these challenges.

Such partnerships are sometimes deeply flawed, failing to balance financing and social needs effectively, and this has given them a bad name. But the answer lies in the legal and financial design of each contract: from the smallest, village-level agreements to larger, nationwide projects.

Partnerships involving small-scale private operators are growing in developing countries, partly through donor-sponsored PPP projects for water and sanitation. As these projects are implemented and scaled up, they engage new local operators who take them forward as external support fades. Such partnerships are enjoying success from Latin America to Africa and beyond.



**Papua New Guinea has world's worst access to clean water, says WaterAid**

We must now begin to do this at scale. Suggestions on filling the global funding gap for water, sanitation and hygiene, not least in the critical area of faecal sludge management, should be welcomed.

The principle is clear: no money, no progress. Without finance, the sustainable development goals agreed by UN member states in September are just laudable normative statements of what the world should look like, lacking the means to make it that way.

The social, economic and business case for a quantum change in investment patterns in water, sanitation and hygiene is clear. The World Health Organisation calculates that [every \\$1 invested in water and sanitation has a return of at least \\$4](#) in lower health costs, more productivity and fewer premature deaths. Yet the sector has arguably been the slowest to adapt to the harsh new financial world in which we live, where the constraints of domestic public finance and foreign aid are becoming sharper each year.

Weblink: <https://www.yahoo.com/news/india-home-worlds-highest-number-without-clean-water-030155305.html?ref=gs>

## India has the most people without clean water, report says

KATY DAIGLE March 22, 2016



A water man or locally called as 'bhari' leaves to deliver water to houses after filling from a roadside hand pump while in Kolkata, India, Tuesday, March 22, 2016. A report says India has the world's highest number of people without access to clean water. The international charity Water Aid says 75.8 million Indians or 5 percent of the country's 1.25 billion population are forced to either buy water at high rates or use supplies that are contaminated with sewage or chemicals. (AP Photo/ Bikas Das)

NEW DELHI (AP) — India has the world's highest number of people without access to clean water — imposing a major financial burden for some of the country's poorest people, according to a report released Tuesday.

The international charity Water Aid says 75.8 million Indians — or 5 percent of the country's 1.25 billion population — are forced to either buy water at high rates or use supplies that are contaminated with sewage or chemicals. That accounts for more than a tenth of the 650 million people worldwide without clean water access — more than any single country in Africa or China, where 63 million have no access.

The situation worldwide has improved since 1990, with 2.6 billion people gaining access to clean water since then. But the report urged more action in "a world where one in 10 people are trapped in a cycle of poverty and disease for want of a safe, affordable water supply of their own."

Poor Indians without water access are forced to spend an average of about 72 cents to buy 50 liters (13 gallons) of water a day, the amount recommended by the World Health Organization, according to the report. That's nearly 20 percent of their typical daily income, according to the report. By comparison, people in Britain spend about 10 cents a day for 50 liters.

"Poor management of water resources is the biggest problem holding India back," the report said. "Misappropriation in planning and execution of water supply projects is another key factor. And projects often use inadequate sources, or pipelines do not reach habitations."

The alternative to buying supplies — using dirty water — comes with sober consequence, sickening countless people every year. About 315,000 children die from diarrheal diseases each year, with 140,000 those deaths happening in India.

India already faces chronic water shortages and drought, as rivers become increasingly polluted and groundwater reserves rapidly decline thanks to the unchecked use of water pumps by farmers and villagers. The problem is set to worsen as global temperatures rise and rain becomes more erratic with climate change.

Within 15 years, the country is expected to have only half the water it needs to meet competing demands from cities, agriculture and industry.

Some Indian cities, including New Delhi and elsewhere in the northern state of Rajasthan, are rolling out water kiosks in drought-prone areas. Others, including Nagpur, in the central state



of Maharashtra, are experimenting with privatization schemes to try to improve service. The breadbasket state of Punjab, which produces the vast majority of India's grains, has set up public water filtration units to clean groundwater contaminated by sewage and agricultural chemicals, including pesticides and fertilizers.

"We don't handle public goods well," said environmental economist Pavan Sukhdev. "You need public management systems to manage public goods, and there are no market lessons to help guide that management."

Experts worry the water crisis could exacerbate community conflicts or regional tensions, and have urged authorities to impose strict regulations on water pumping and water use.

India's Supreme Court "has already held that the fundamental right to clean water is a right to life," said court advocate Satya Tripathi, adding that it's only a matter of time before the issue comes back before the court. "The government really has to pay attention. Water is the one thing that can tear this country apart."

While India has the most people lacking clean water access, the much smaller countries of Papua New Guinea, Equatorial Guinea, Angola, Chad and Mozambique topped the list of countries with the highest population percentages lacking clean water. And in Papua New Guinea, the 4.5 million without access — or 60 percent of the Southwest Pacific island country's population — spend more than 50 percent of their typical income on average on water each day, according to the report.

Rising seas and more frequent extreme weather events — both consequences of ongoing climate change — "will make water supplies, and life in general, ever more fragile," it said.

TAKING THE PLUNGE

# India Inc Looks to Ease Maha Water Crisis

From supplying water tankers to constructing check dams, corporates are going the extra mile to help drought-hit regions

**Devina Sengupta & Sreeradha D. Basu**

**Mumbai:** As the threat of a water shortage looms larger with each passing year, India Inc's biggies aren't just focusing on improving their own consumption efficiency. The Tata Group, Godrej Industries, Bisleri, Hindustan Unilever, SAB Miller India and RPG Enterprises have become increasingly active in helping to ease the crisis in drought-prone regions.

Last year-end, a team representing Tata Motors, Tata Power, Indian Hotels, Tata Consulting Engineers and Tata Communications headed to the drought-affected districts of the Marathwada region in Maharashtra to conduct a needs assessment survey, interacting with villagers and senior government officers to get a firsthand understanding of the on-ground situation.

The team then decided to adopt an integrated approach towards relief work to be carried out in three districts of the region — Latur, Beed and Osmanabad.

About 15,000 villages in Maharashtra, a majority of them in Latur, Beed and Osmanabad districts, are in the grip of an acute water shortage. Below-average rainfall for two consecutive monsoons has depleted water levels in reservoirs, affecting irrigation and drinking water supplies and impairing planting of crops and electricity generation.

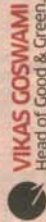
Rallis India is running an on-going Jal Dhan programme in Beed, Latur,

Akola and Chiplun in Maharashtra and Voltas has rolled out its Drought Response Programme across Osmanabad and Latur districts, focusing on supplying water tankers.

Tata Technologies, Tata Auto-Comp Systems and Tata Toyo Radiators have planned to repair and construct rainwater harvesting structures in the villages of Osmanabad district.

In addition, Tata Motors has provided tanks to store drinking water in remote villages of Raigad, Pune and Palghar districts of the state through the Sumant Moolgaokar Development Foundation.

"Water conservation is an area one



**VIKAS GOSWAMI**  
Head of Good & Green, Godrej

The watershed management programme will become a big area of focus for us. We have seen that it gives a big boost to rural livelihoods

should look into and bring under the sphere of influence of India Inc. It is a real problem today and will worsen with time," said Marico Industries chairman Harsh Mariwala. "Corporates along with the government of India have a role to play in this."

In November-December, Godrej Industries started three projects on watershed management in dif-

## For Sake of Every Drop

**Team from Tata went to drought-affected districts to conduct a needs assessment survey**  
**HUL working with WOTR and MGNREGA program across 75 villages of Jalna district**  
**SAB Miller India, RPG Enterprises, RIL implement ways of saving water in their**

**Godrej started projects on watershed management in Maharashtra**

**Bisleri International will continue to build check dams**



PHOTO CREDIT: NITIN SONAWANE

ferent parts of Maharashtra, including the Marathwada region, under its sustainability strategy called Good & Green.

The group, in collaboration with the National Bank for Agriculture and Rural Development, plans to take up watershed management programmes in other states.

"The watershed management programme will become a big area of focus for us. We have seen that it gives a big boost to rural livelihoods," said Vikas Goswami, head of Good & Green at Godrej Industries. "In the next three years, some of the current dry areas will turn into green and the water will be available even in summer." Watershed management includes land use and water management practices to protect and improve the quality of water and other natural resources.

Bottled water company Bisleri International, which undertakes rainwater harvesting every year, constructed four new check dams in four villages in Maharashtra and repaired and renovated 10 old check dams in the tribal villages of Valsad district in Gujarat last year. These dams help store 285 million litres of water, benefitting 14 villages and 192 farmers.

"We are planning to construct 14 more new check dams in Dhannu/Vikramgad, Maharashtra in collaboration with Rotary Club of South Mumbai," said Ramesh Chauhan, chairman of Bisleri.

The Watershed Organisation Trust, an NGO that works on conservation projects and climate change issues in 3,700 villages in seven Indian states, said the interest from companies in lending a helping hand has grown manifold.

"Around four years ago, Royal Bank of Scotland was our only client. Now, we have eight to 12 companies as customers who work towards water conservation and educate villages on the importance of saving water," said Prakash Keskar, a director of this group. The clients include Tata Capital, Asian Paints, Godrej and Hindustan Unilever.

"During this Latur crisis, these companies have also reached out to the foundation and discussions are on how they can help the drought-stricken areas," said Keskar. The Hindustan Unilever Foundation is working with the trust and the government in 75 villages of Jalna district. Their watershed programmes have brought in assured water potential of 1.728 million litres and reduced migration of people from villages by generating 142,777 person-days of employment.

ET - 14/04/16

# State takes over wells, to set up cell for tracking water complaints

Bhavika Jain & Priyanka Kakodkar | TNN

**Mumbai/Aurangabad:** CM Devendra Fadnavis has instructed officials to set up a "war room" and a dedicated 24-hour helpline to track grievances related to water shortage and issues of wastage in all the districts of Maharashtra.

The directive was issued on Monday after Fadnavis told 21 collectors via video-conferencing to review their preparedness for the drought. He also took stock of the Chief Minister Gram Sadak Yojana and other schemes like crop insurance, fodder and water works under the Jalyukt Shivar.

Meanwhile, with water levels in dams in drought-struck Marathwada dipping to less than 4.5% this week,

## 1,500 unauthorized connections cut in Feb

The BMC, in a six-day special drive conducted in February this year, cracked down on 1,463 illegal water connections across the city. Out of these, 298 were from Mumbai city area, 563 from eastern suburbs and 602 from western suburbs. In January, 3,772 leakages were detected out of which 929 were in city area, 1,386 in eastern suburbs and 1,457 in western suburbs. Mumbai is currently reeling under a 20% water cut due to a poor monsoon. TNN

the government is expanding its control over private wells and borewells as sources of drinking water. Over the last year, it has taken charge of 5,192 such water sources. This is twice as high as earlier years. "We have requisitioned private wells and borewells so that the water can be used for the public," said Aurangabad divisional commissioner Umakant Dangat.

The largest such effort is in the water-scarce districts of Osmanabad where 1,155 private wells have come under state control and Latur where the number is 1,017.

Officials admit that this is the most intense water crisis

## SUPPLY FROM DAHANU TO REACH PARCHED MARATHWADA

### Desalination project

> The state government has sought a detailed project report from an IITian from Aurangabad, Ajay M Chole, who has proposed setting up a desalination plant near Dahanu to solve the perennial water scarcity in Marathwada

### Winding route

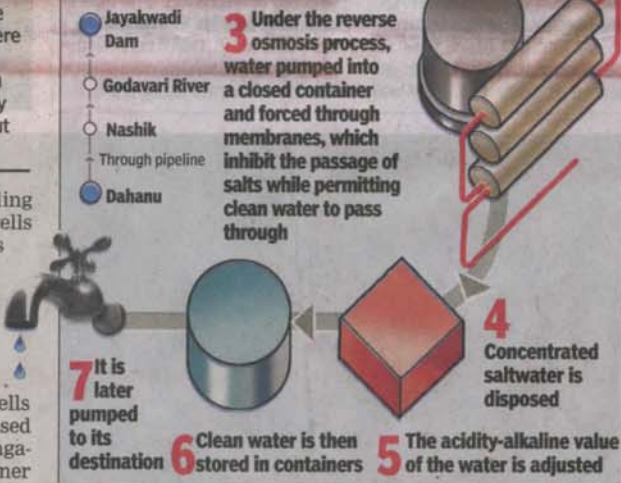
> The processed water will be transported from Dahanu to Nashik through a pipeline. The distance between Dahanu and Nashik is about 150 km. The water will be released into Godavari River. It will then flow downstream into the Jayakwadi dam, which caters to the parched region

### Centre's interest

> In response to Chole's proposal, the Centre has said that the Marathwada region is eligible for the desalination project under the Atal Mission for Rejuvenation and Urban Transformation scheme

> S Kudale, deputy secretary of state water supply department, discussed the proposal with Chole. After a presentation before the state government officials on March 26, Chole was told to submit a detailed project report of his proposal

**3** Under the reverse osmosis process, water pumped into a closed container and forced through membranes, which inhibit the passage of salts while permitting clean water to pass through



this historically arid region has seen. "Marathwada has faced four droughts in the last five years. Earlier, the drought was more localised to a section of Marathwada," pointed out Dangat.

Tankers now have to tra-

vel an average of 40 km to find a water source.

Last year, during this period, dam water levels were 14%. Seven of the 11 major dams are at dead-storage level, including Jayakwadi, the largest dam in the region.

## Both Houses adjourned over farmer's death

**Mumbai:** The death of Nanded farmer Madhav Kadam, who had attempted suicide by consuming poison outside Mantralaya on March 23, rocked the state legislature on Monday.

Both Houses were adjourned several times over the issue. While Opposition leaders moved an adjournment notice, Shiv Sena MLA from Nanded south Hemant Patil said, "In December too, Kadam, a Sena activist, had attempted suicide. It is shameful for me that I am an MLA from the ruling party." Patil claimed that the drought alleviating measures are not being properly implemented.

Opposition members stood in the well of the House demanding a case be filed under IPC Section 302 (murder). When speaker Haribhau Bagade said the incident, though unfortunate, could not become an issue for adjournment, the Opposition demanded that the House offers condolence. When Bagade pointed out that the motion will have to be jointly moved by the ruling and Opposition parties, the latter staged a walkout. In the Upper House, Opposition leader Dhananjay Munde also tabled an adjournment motion and sought a case be filed against the government for causing his death. "The farmer had been meeting ministers and officials to claim compensation, to no avail. The government's apathy drove him to kill himself," said Munde.

Replying in the House, revenue minister Eknath Khadse said the farmer owned just over a hectare in Loha village, Nanded and had been given a compensation of Rs 4,624 in January after it was confirmed that 33% of his land was affected on account of deficit rainfall. TNN

This means the dam water cannot flow down canals but has to be retrieved from the dam. "Jayakwadi had reached dead-storage level earlier in 2012 but that was by April. Now it has reached this level in March," said Dangat.

T01 - 29/03/16

# comment

## This cannot be watered down

Riparian disputes have created a political ecosystem that encourages patronage for free water, writes VARUN GANDHI



The bird sanctuary in Keoladeo needs 500 million cubic feet of water during the monsoon to maintain its resident ecosystem  
AFP

**O**n March 13, NTPC's 2,100 MW Farakka Super Thermal Power Station in West Bengal had to stop generation, given a declining availability of cooling water from the Farakka feeder canal. This hit power supply in five states, affecting 38,000 households, while leaving the town of Farakka without potable water. On the Ganga, ferries were suspended, while 13 barges carrying coal were left stranded. The Ganga, it seems, is running shallow.

With Haryana's fields increasingly running dry, the Jat agitation obscures an agrarian crisis. The passage of the Punjab Sutlej Yamuna Link Canal Bill (2016) by the Punjab assembly on a non-partisan basis has unilaterally sparked a crisis in riparian management. Water availability in India's 91 reservoirs has now reached its lowest level in a decade, touching 29% of storage capacity. Eighty-five per cent of the country's water needs are now supplied by rapidly declining aquifers. With increasing tanker dependence, water conflicts are arising — prohibitory orders have been imposed in villages in Latur, Maharashtra, while water supply to local swimming pools has been cut off. Short-sighted political tactics, combined with irrigation inefficiency, have served to make water disputes intractable.

Water is a commodity that resists commodification — a recipe for market failure. States have often cited the Harmon Doctrine, ignoring externalities and past investments, to support the idea of absolute sovereignty over water flowing through its territories. More successfully, the social contract approach has focused on deciding on an initial allocation of property rights and creating a mechanism to trade such rights. The Inter-State Water Disputes Act (1956) was enacted to deal with conflicts, creating adjudication tribunals where direct negotiations failed. However, such tribunal decisions have often not been accepted by disputing parties, leaving arbitration as a non-binding mechanism. Interventions by the Centre, as in the Ravi-Beas dispute, have also been unsuccessful.

India's water settlement dispute mechanisms remain

opaque and ambiguous. As rivers generally cross state boundaries, the construction of equitable mechanisms for allocating river flows has been a constitutional legacy. With a plethora of stakeholders — state governments, Parliament, courts, water tribunals, central ministries and civil society — water disputes have remained a persistent phenomenon. With growing consensus that many such disputes are increasingly intractable, existing institutional arrangements have clearly failed to generate outcomes that focus on growth and the national interest.

The Cauvery dispute led to 26 meetings between 1968 and 1990 at the ministerial level between Tamil Nadu and Karnataka, with no consensus reached. Tamil Nadu argued that Karnataka's construction of the Kabini, Hemavathi and Swarnavathi dams on the Cauvery, along with a unilateral expansion of its irrigation works, led to a diminishing water supply to Tamil Nadu, while leaving the 1924 agreement between the Madras Presidency and the Mysore state unimplemented. With the dispute increasingly politicised, the Cauvery Water Dispute Tribunal (1990) has found resolution a distant mirage.

Success has required a sub-basin focused approach, similar to the Indus Agreement between India and Pakistan. The Krishna Godavari water dispute focused on the inter-state utilisation of untapped surplus water among Maharashtra, Karnataka, Andhra Pradesh, Odisha and Madhya Pradesh. The Krishna Tribunal decision, awarded in 1976, was weighted towards projects that were in operation or under consideration, while allowing the diversion of the Krishna waters to areas outside the river basin but within the boundaries of the riparian states. With little to no quantification division of flows, this marked success was supported by extensive sub-basin focused negotiations between the states themselves.

India's agricultural policies need tinkering as well. India's water tables are dropping by 0.3 metres annually — a consequence of a system that "encourages using more inputs such as fertiliser, water and power" (Economic Survey, 2016). Water management is regulated by multiple central, state and

municipal bodies, along with the Central Water Commission — bad coordination exacerbates localised pollution. We encourage sugarcane planting in arid regions, and advise farmers on cropping decisions without any consideration of local surface water availability.

Our systemic focus on rice and wheat production, over dry land agriculture, needs to be reversed, while drip irrigation can help restore declining water tables. A central regulatory agency, focused on the design, control and coordination of national programmes for water conservation needs to be instituted. Water allocation decisions need an operational mechanism for sectoral allocation, based on logic, need and social equity. The government should undertake regional- and basin-level water planning, enabling communities, industries and civil society to negotiate over allocation. Regulatory protection for riverine ecosystems needs to be strengthened, with illegal sand mining curbed. We must institute legal protections for minimum water flow in our rivers while political interference in water allocation needs to be curbed.

The Keoladeo National Park, a veritable cornucopia of swamps, grasslands and woodlands, is located near Bharatpur in Rajasthan. When winter approaches, this Ramsar-designated site becomes popular as a nesting habitat for the migratory Siberian crane, while hosting over 370 species of avian fauna. The sanctuary needs 500 million cubic feet of water annually during the monsoon to maintain its resident ecosystem — most of it historically provided by the Gambhir River (now dammed by the Panchana dam). The Supreme Court's notice to the Rajasthan government to release water from the Panchana dam has been held up by protests by farmers seeking irrigation. Such riparian disputes have seen water scarcity tying into a political ecosystem that encourages patronage for "free water" — the political value of surface water has risen. Seeking long-term riparian sustainability remains the only way out.

Varun Gandhi is BJP national general secretary and Lok Sabha MP  
The views expressed are personal

12/02/15 - T01

# Packed water con: Over 200 vendors booked

## Overcharging, Less Content Among Reasons

TIMES NEWS NETWORK

**Mumbai:** The state legal metrology department has launched a crackdown on vendors of packaged water bottles who selling the drinking water bottles at rates higher than the maximum retail price (MRP).

The crackdown was conducted by state officials on vendors who hawk their wares near railway stations and state transport bus stands across the city.

In one such drive that was carried out on Tuesday, a total of 217 vendors were booked and fined. While 137 vendors were booked for overcharging customers, 80 others were booked for other violations like selling less than the prescribed quantity.

The government's drive was initiated after the department received several complaints from consumers regarding different violations of existing rules. "We have been receiving several complaints

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from consumers about overcharging at railway stations and bus stands after which we launched this drive. Such surprise crackdowns will continue," said controller of the legal metrology organization, Amitabh Gupta.

The vendors were booked at five railway stations — Mumbai Central, Kurla terminus, Bandra terminus, Kalyan and Thane and two state transport bus depots — Mumbai Central and Thane.

According to existing norms, a penalty of Rs 2,000 has been prescribed for violating rules and overcharging and if the offender is a repeater, court cases can be filed in the Small Causes Court.

The state government is also in the process of making the filing of online complaints to facilitate consumers in registering of cases easily. Social media will also be used, said Gupta.

# Water crisis forces NTPC to curtail power generation in Bengal; to affect five states

**KOLKATA** Water crisis at the 2,100 MW NTPC thermal power plant at Faraka has forced the state-run power generator to curtail generation to just 500 MW.

"Only one unit of 500 MW is operational out of three 500 MW units and three 200 MW units," NTPC officials told PTI.

"The water level has gone down considerably. We are unable to draw sufficient water used in our units," they said adding that the situation could continue for another two weeks unless water level improves.

Though generation curtail is an



PIC FOR REPRESENTATION

annual event during the months of March and April as water level goes down, but this year the water crisis is higher than earlier years, they said. "The idle units have been taken for regular maintenance." **PTI**

MM - 13/03/16



# Scientific waste management can bring huge benefits

— Suhag Dixit, CMD, Pyrocrat Systems LLP

Indian cities do not need imported machinery and technology for solid waste management. Only when the composition of waste is studied properly and a suitable technology for managing typical Indian municipal solid waste is used, will waste management projects in India be sustainable.



**Q** Tell us what municipal solid waste (MSW) management is all about.

In India municipal corporations are responsible for managing municipal solid waste generated in their territories as per the "Solid Waste Management & Handling Rules, 2000." Even though these rules are very effective, the implementation of the solid waste management rules and regulations is very poor in India right now because of the loopholes present in the rules. We can look forward to much better waste management as soon as "Municipal Solid Waste Management & Handling Rules, 2015" are implemented.

**Q** What are the adversities caused due to ineffective MSW management?

Municipal corporations, across India, simply do not have the desired space for dumping waste. Due to ineffective MSW management, we see that landfill sites have tremendous odour that travels in a radius of several kilometers. The continuous emission of methane gas from the landfill sites cause perennial fires. In fact, 5-10 per cent of global warming is caused by methane gas emitted from landfill sites. Also, wastewater from landfill sites contaminates the underground water in neighbouring areas.

**Q** When MSW is scientifically segregated, what benefits can accrue?

When waste is managed scientifically, huge benefits can accrue. MSW management can result in recycling of 80 per cent waste. This leads to huge value recovery and generation of jobs in waste management facilities. As only 20 per cent waste goes to the landfill site, it significantly reduces the extent of landfill area.

**Q** Urbanisation is growing rapidly in India with the expectation of 50 per cent of our population living in cities by 2030. Given this, how would you assess the criticality of municipal solid waste management?

On an average 0.5 kg of waste is generated per person per day. India generates approximately 230 billion kg of waste every day. Currently all cities across India are facing major waste management crisis. Lack of proper waste management is causing dam-



▲ A landfill at Visakhapatnam, located in a valley, is an example of improper solid waste management. Landfill fires are impinging on the pristine ecosystem.

age even to the tourism industry in rural areas. Across India, villages and residences around landfill sites are suffering from obnoxious odour from the landfill site. The waste management issue is not handled properly in next couple of years, the solid waste pollution in India make up go out of hands and create major social, economic and environmental crisis India future.

**Q** Even metropolitan cities in India have poor levels of scientific waste management. What is your view, and what could be the reasons?

The government is spending huge amount of money in metropolitan cities for waste management projects. But if you notice, most of these projects fail. Main reasons for failure of these technologies are:

- ◆ These technologies are imported from developed countries that have completely different composition of waste. In developed countries waste segregation takes place at source but in India this is not so. This is why India needs completely different technologies for effective waste management.
- ◆ Biogas-based technologies in India fail because of the chemicals present in the solid waste. Chemicals and detergents present in municipal solid waste kill the bac-

teria in biogas reactors (digesters) very frequently leading to failure of technology.

- ◆ Municipal solid waste to electricity projects fail because municipal solid waste does not have high calorific value in India. Municipal solid waste to electricity projects are effective only in case the waste segregation takes place at source and the waste has very high calorific value that is essential for energy production.
- ◆ The machinery and technology suppliers for the municipal solid waste management plants do not have engineering background. It is also the case that the machinery is sourced from 15-20 different suppliers and there is a no single point

of responsibility for ensuring success of the project.

**Q** Do you feel deeper engagement of the private sector can help the situation?

Most of the waste management projects will be coming up as public private partnership. Also, as per the corporate social responsibility norms, companies with profit of more than ₹5 crore have to invest a minimum of 2 per cent of their profit into CSR activities. Waste management projects have been formally recognised by government of India as a CSR activity.

**Q** You have set up a 300tpd MSW segregation plant at Navi

Mumbai. Who owns and operates the plant? What is the business model?

City & Industrial Development Corporation of Maharashtra (CIDCO) has the responsibility of managing solid waste generated in the CIDCO-managed of Navi Mumbai, from Belapur to Panvel. This contract has been handed over to Girish Enterprises Pvt Ltd that has purchased the machinery and technology from our company, Pyrocrat Systems LLP. As per the contract document, CIDCO pays ₹540 per tonne for conducting solid waste management operations and landfill site management as per Municipal Solid Wastes (Management and Handling) Rules, 2000.

**Q** How do you see the road ahead for MSW segregation and the waste-to-electricity sector in India?

Currently, 95 per cent of solid waste management projects in India fail. This high rate of failure is because of lack of awareness and the absence of sincere thought required in creating sustainable design of waste management projects. The solid waste management industry is controlled by a handful of players. Unless there are policies to ensure sustainability of waste management projects, the government's investment in solid waste management will not yield results. Indian cities do not need imported machinery and technology for solid waste management. Only when the composition of waste is studied properly and a suitable technology for managing typical Indian municipal solid waste is used, will waste management projects in India be sustainable.

# Water shortage to hurt industry output

## May Trip IIP Growth By 40-50Bps: Economists

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**Mumbai:** The ongoing water scarcity in several parts of India, especially in Maharashtra, one of the most industrialized states in the country, is expected to have a negative impact on industrial production in the next 2-3 months. With civic bodies imposing cuts on water supplied to industrial belts across several states, the resultant shortage could pull down Index of Industrial Production (IIP) growth by around 40-50 basis points, while the manufacturing sector alone could take a hit of about 50-75 basis points, economists said (100 bps = 1 percentage point).

The adverse impact of a poor monsoon on the agriculture sector is widely discussed, but the current water shortage hitting the industrial sector is an emerging 'headwind' for the economy, they said.

A textile manufacturer in Maharashtra said that over the last few weeks, his unit has remained shut whenever the Maharashtra Industrial Development Corp (MIDC) did not supply water. A recent TOI report quoted Anirudha Kelkar, an employee in a small dye manufacturing unit in a Mumbai suburb, as saying that initially when the water cuts began, the company bought water supplied in tankers. "However, it was getting very expensive. Now we just close down production during water cuts. The production is obviously lower than usual, but at least we are not incurring losses," Kelkar was quoted as saying. The MIDC management, on its part, "is trying its best to manage the situation", said Jayadevan K, an adviser to some industries around the city.

### SUPPLY CRUNCH

Industries/sectors that could be hit by water shortage

- > Food products & beverages
- > Textiles
- > Paper & paper products
- > Ice production
- > Cold storage



### Mumbai Units' Supply Cut By Half

- > There are around 15,500 industrial units of various sizes in MIDC areas around Mumbai
- > MIDC had a supply capacity of about 600 million litres per day, which industry insiders say has now been cut by half

### Sensex jumps 2% on monsoon hopes

**Mumbai:** Prospects of a good monsoon after two consecutive years of deficient rains boosted investor sentiment on Dalal Street on Wednesday with the sensex closing nearly 2% (481 points) higher at 25,627, a three-month high. A surprisingly strong industrial growth figure for February and lower-than-expected consumer inflation rate for March too helped the strong buying momentum that added about Rs 1.46 lakh crore to investors' wealth with BSE's market capitalisation now at Rs 96.7 lakh crore. TNN

With water fit for industrial production in short supply, such initiatives are, however, not enough to arrest the expected drop in industrial production.

With drought in 10 of the 29 states, mainly due to poor rainfall in much of the country for two consecutive years, dams and reservoirs are left with unusually low levels of water, said SBI chief economic adviser Soumya Kanti Ghosh. Several industries depend on supply from these reservoirs and due to the shortage, water is being rationed in residential and industrial areas. "We believe there are three industry categories — food products & beverages, textiles, and paper & paper products — that will get affected the most from this water shortage. These three industry categories weigh 14.4% in IIP-Manufacturing. Our in-

ternal estimate suggests that these three industry segments may push down IIP-Manufacturing growth by around 50-70 basis points," Ghosh said. Since the manufacturing segment has a 75.5% weight in IIP, the overall impact on the IIP could be about 40-50 basis points.

Economists also pointed out that water shortage hitting India's industrial sector is an emerging phenomenon. "While adverse weather conditions playing spoilsport for agriculture is widely discussed, the current situation can potentially act as a headwind for manufacturing in certain pockets of the country," said Siddhartha Sanyal, chief India economist, Barclays.

The government on Tuesday said IIP for February was 2%, compared to -1.5% in January, which surprised economists and analysts.