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The News Clippings on Water Resources Development and allied subjects are enclosed for perusal of the Chairman, CWC and Member (WP&P/D&R/RM), Central Water Commission. The soft copies of clippings will also be uploaded on the CWC website.

Encl: As stated above.

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# Skymet forecasts lull in the plains after weeklong rains

HT Correspondent

■ letters@hindustantimes.com

**NEW DELHI:** Widespread monsoon rains in most parts of India over the course of this week will be followed by “break monsoon” conditions when the rains shift to the Himalayan foothills, private met forecaster Skymet Weather said on Monday

During break monsoon, which is likely to set in from July 15, there will be less rain in the plains and extensive rainfall in the foothills from Uttarakhand in the north to several parts of northeast India. Heavy rains are likely in parts of Uttar Pradesh, Bihar and the north-eastern states during the break monsoon period.

“The low pressure area over Uttar Pradesh and adjoining Madhya Pradesh will be fading away soon, resulting in drastic decrease in the rains over the central parts of the country. Moreover, the trough currently passing through the Indo-Gangetic plains will also shift north towards the foothills of Himalayas, leading to increased rain activities along these parts,”



■ A waterlogged road in Mumbai on Monday.

SATYABRATA TRIPATHY/HT

Skymet Weather said.

“Usually the excess of the monsoon trough shifts to foothills of Himalaya, but this year, since the monsoon hasn’t covered the entire country yet we cannot call it excess. But the monsoon trough is shifting to the foothills which will lead to dry conditions in central India,” explained Mahesh Palawat, vice president, climate change and meteorology, Skymet Weather.

In its Monday bulletin, India

Meteorological Department (IMD) said a seasonal trough (area of low pressure) across the northern plains is very likely to remain active during the coming three days, with a gradual northward shift from Monday evening.

“Monsoon will come back to plains after July 12. We haven’t changed our forecast for July. It’s still 95% of the Long Period Average (LPA),” said M Mohapatra, IMD director general.

# 2,400 died due to extreme weather events in 2018-19: Govt

TIMES NEWS NETWORK

**New Delhi:** Over 2,400 people died in India due to extreme weather events in the last one year, the government informed Rajya Sabha on Monday. Though it said global warming may lead to increase in frequency or intensity of weather events, it denied any “direct” linkages between natural disasters and climate change.

“As per information received from the ministry of home affairs, 2,405 lives have been reported to be lost during the financial year 2018-19 in India due to cyclonic storms/flash floods/landslides/cloudbursts etc,” minister of state for environment Babul Supriyo said. “India experienced 431 major natural disasters between 1980-2010, resulting in loss of human lives, property and resources,” the minister added.

Referring to steps taken by government to tackle the issue, Supriyo said the National Action Plan on Climate Change, which comprises missions in specific areas of solar energy, energy efficiency, water, agriculture, Himalayan ecosystem, sustainable habitat, green India and strategic knowledge on climate change, was being implemented.



# Water Crisis? India Won't be at Sea

Niti Aayog working on plan to set up desalination plants along 7,800-km coastline

Yogima.Sharma@timesgroup.com

**New Delhi:** Jal shakti via salt water. With the prime minister making countrywide sufficient clean water supply by 2024 a top priority, and water shortage in major urban centres grabbing headlines, Niti Aayog is working on a plan to exploit India's vast coastline and its marine waters by desalinating sea water and supplying it to population centres via a network of pipelines. The plan is to set up floating desalination plants in marine waters under India's command or set up plants along

the country's 7,800-km coastline. Under international law, territorial sea of a sovereign state extends to 12 nautical miles from its coastline and the maritime exclusive economic zone (EEZ) can be up to 200 nautical miles. India's maritime EEZ is estimated to be 1.63 million square km. Niti Aayog's plan is also energy-efficient, as it seeks to use solar energy or ocean energy for the project. The government's think tank will soon come up with a detailed

plan listing various technologies that can be used in different states to help set up commercially viable desalination plants.

The Aayog will handhold the newly formed Jal Shakti ministry, providing it with the cost analysis and project viability report for such plants. Following this, a policy on desalination plants will be framed, a senior government official told ET. He spoke off record.

"The government will soon come up with a directive for the ministry to kickstart work in this direction," the official said.

**Govt think tank to provide Jal Shakti ministry with cost analysis and project viability report**

India Facing Worst Water Crisis >> 10

## Water Woes

Niti Aayog eyes ways to make sea water usable

India's massive coastline of 7,800 km offers huge opportunity

Large number of desalination plants may come up on sea or on the coast

Ocean energy or solar energy will be used to run these plants

### WHY IS IT NEEDED?

By 2020, as many as 21 major Indian cities will run out of water

India ranks second from bottom in global water quality index

600 m people face high to extreme water stress

84% rural homes do not have access to piped water



## India's Worst Water Crisis

>> From Page 1

"This would be followed by a clearly outlined policy that can make sea water usable in most cost-effective manner as water is the priority area for the government," the official added.

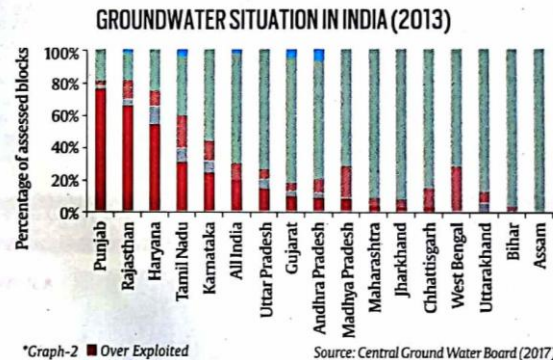
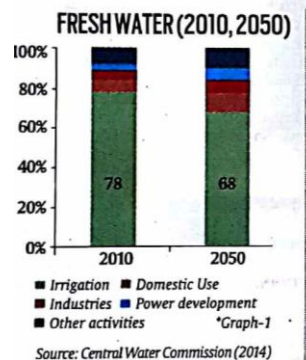
According to a Niti Aayog report on water management index last year, India is currently suffering from the worst water crisis in its history with the country ranked at 120 among 122 countries in the quality of water. By 2020, it said, as many as 21 major cities of India will run out of water and face 'day zero'—a term that got popular after a major water crisis in Cape Town in South Africa, which means literally switching off most of the city's tap for a day.

The report said 600 million people face high-to-extreme water stress, 75% of households do not have drinking water on premises and 84% rural households do not have access to piped water. Moreover, factors such as rapid climate change and ongoing over-extraction of groundwater, mainly for agriculture, are pushing the system to a breaking point, the Aayog had observed. The think tank's desalination plants plan comes in this context. Countries like Israel have been successful in using desalinated water for wide use. Currently, as much as 70% of household water comes from desalinated sea water in Israel.



# On the water front

Farmers can be given monetary rewards for saving electricity and water.  
Water-guzzling crops need to shift to geographically sustainable areas



## FROM PLATE TO PLOUGH BY ASHOK GULATI

A ONE-WEEK DELAY in the monsoon's arrival has laid bare the precariousness of India's water situation. The images of thousands of Chennai residents running after water tankers were telecast by BBC and CNN. Several people had to walk for miles to get drinking water in parched lands. If this was the condition of humans, one can imagine the condition of cattle. These images clearly exposed that the Indian lion, the symbol of Make in India, has feet of clay.

It is no wonder that Prime Minister Narendra Modi, in the first 'Mann ki Baat' of his second term, gave a clarion call to save every drop of water, and to make water conservation a mass movement on the lines of the Swachh Bharat Abhiyan. He already has given a commitment to deliver tap water, hopefully safe for drinking, to every household by 2024 under the "Nal se Jal" programme. These are commendable measures and one hopes they can deliver quality results in time.

But the issue that we want to dwell on here is: How did we reach the current situation? And how best, and how fast, can we get out of it for sustainable water-use in the country?

First, let us note a few facts about water availability and use in India. India has only 4 per cent of the global fresh water resources while it has to quench the thirst of about 18 per cent of the world population. Of the total fresh water resources available in the country, as per the Central Water Commission, 78 per cent was being used for irrigation in 2010, which is likely to be reduced to 68 per cent by 2050. For domestic use, it was just 6 per cent in 2010, likely to go up to 9.5 per cent by 2050 (graph 1). So, by far, agriculture will remain the biggest user of water to produce enough food, feed and fibre for the foreseeable future. And unless this sector is geared to improve in terms of the supplies of and efficiency in water use, the situation is not going to improve significantly.

Second, of the total of about 198 million hectares of India's gross cropped area, roughly half is irrigated. And the major source of this irrigation is groundwater (63 per cent), canals accounting for 24 per cent, tanks 2 per cent and all other sources accounting for about 11 per cent. So, the real burden of irrigating Indian agriculture lies with groundwater, driven by private investments from farmers.

There is hardly any effective regulation of groundwater. The policy of cheap or free power supply for irrigation has led to a situation of near-anarchy in the use of groundwater. On the one hand, power subsidies to agriculture cost the exchequer roughly Rs 70,000 crore each year and on the other, this is depleting groundwater in an alarming manner. Overall, about 1,592 blocks in 256 districts are either critical or overexploited. In places like Punjab, the water table is going down by almost a metre a year, and this has been going on for nearly two decades. Almost 80 per cent of the blocks in Punjab are over-exploited or critical (see graph 2). This only shows how indifferent and short-sighted we are while tak-

Suvajit Dey

ing away the rights of our own future generations.

Paddy and sugarcane, both water-guzzling crops, take away almost 60 per cent of India's irrigation water. One kilogram of rice produced in Punjab requires almost 5,000 litres of water, and one kg of sugar, say in Maharashtra, requires about 2,300 litres of water for irrigation. Estimates vary on how much water the plant really consumes, how much evaporates, and how much of it goes back into groundwater. But traditionally, say a hundred years ago, eastern Uttar Pradesh and Bihar used to be the hubs for sugarcane, and rice was grown largely in eastern and southern India, where rainfall was high and water plentiful. All that changed with new technology and populist policies like free power.

No political party wants to touch the rationalisation of power pricing for agriculture. Technological solutions like drip irrigation, sprinklers, etc. cannot make much headway unless policies are put on the right track. Israel has perhaps the best water technologies and management systems, ranging from drips to desalinisation to recycling (87 per cent) of urban waste water for agriculture. PM Modi visited Israel to find solutions to our water woes. But my visits to Israel revealed one thing clearly: Technologies cannot take you far enough unless the pricing of power and irrigation water is put on track.

The existing situation can be taken as a sort of current entitlement, and those who agree to get their power supply metered and if they save on power consumption compared to current levels, can be rewarded. Along with that, there could be an income support (of say Rs 15,000/ha) for crops that guzzle less water, say maize or soyabean in Punjab during the kharif season. This would provide savings on the power subsidy, but more importantly, in terms of precious groundwater. At least one million hectares of paddy cultivation needs to shift away from the Punjab/Haryana belt.

One possible way out is to give monetary rewards to farmers for saving water and power for irrigation. The existing situation can be taken as a sort of current entitlement, and those who agree to get their power supply metered and if they save on power consumption compared to current levels, can be rewarded. Along with that, there could be an income support (of say Rs 15,000/ha) for crops that guzzle less water, say maize or soyabean in Punjab during the kharif season. This would provide savings on the power subsidy, but more importantly, in terms of precious groundwater. At least one million hectares of paddy cultivation needs to shift away from the Punjab/Haryana belt to eastern India. Eastern India can develop better procurement facilities for paddy for the PDS, and procurement from Punjab-Haryana needs to be discouraged/curtailed.

Similarly, sugarcane needs to be contained in the Maharashtra-Karnataka belt and expanded in the UP-Bihar belt. With new Co 0238 varieties that give recovery rates of more than 10.5 per cent, there is a good case that cane can be developed for ethanol from this belt. Will Modi 2.0 move in this direction to save water? Only time will tell.

*Gulati is Infosys Chair Professor for Agriculture at ICRIER*



# No major deficiency in 1,352 dams inspected, says report

71-9  
All dams are inspected twice a year, before and after monsoon

**PRESS TRUST OF INDIA**  
**MUMBAI**

The latest report on dam safety has stated there are 297 dams in Maharashtra with "rectifiable deficiencies" which need immediate attention and another 1,055 have minor issues.

An official said the upside of the report was that none of the dams in the State have any major deficiency which could lead to failure.

The report studied 1,352 of the 1,358 dams in the State, he informed.

Of the 297 dams with rectifiable deficiencies, 94 dams are above 30 metres in height and are termed as Class I structures while the remaining 203 are Class II with heights varying between 15 and 30 metres, an official explained.

"There are another 1,055 dams with minor deficiencies. Of these, 171 are above 30 metres and 884 are between 15 to 30 metres in height. There are no dams with major deficiency which would lead to failure," he



A view of the Tiware dam which breached last week following incessant rains in Ratnagiri, causing a flood-like situation in seven downstream villages. ■ FILE PHOTO

said. Speaking about the six dams which have not been included in the report, he said, "Dahegaon and Waghdardi dams, both Class II structures, have not been inspected. Reports of Bhilawani, Manyad, Khasapur and Panharwadi, also Class II dams, have not been received."

He said all dams in the

State are inspected twice a year, once before the monsoons between April and May and a second time around October 15 post-monsoon.

Dam safety in the State came back into focus sharply after Tiware dam, located in Chiplun tehsil of Ratnagiri district, breached late night on July 2, killing over 20 people.



# Hyd to get new reservoir ST-9

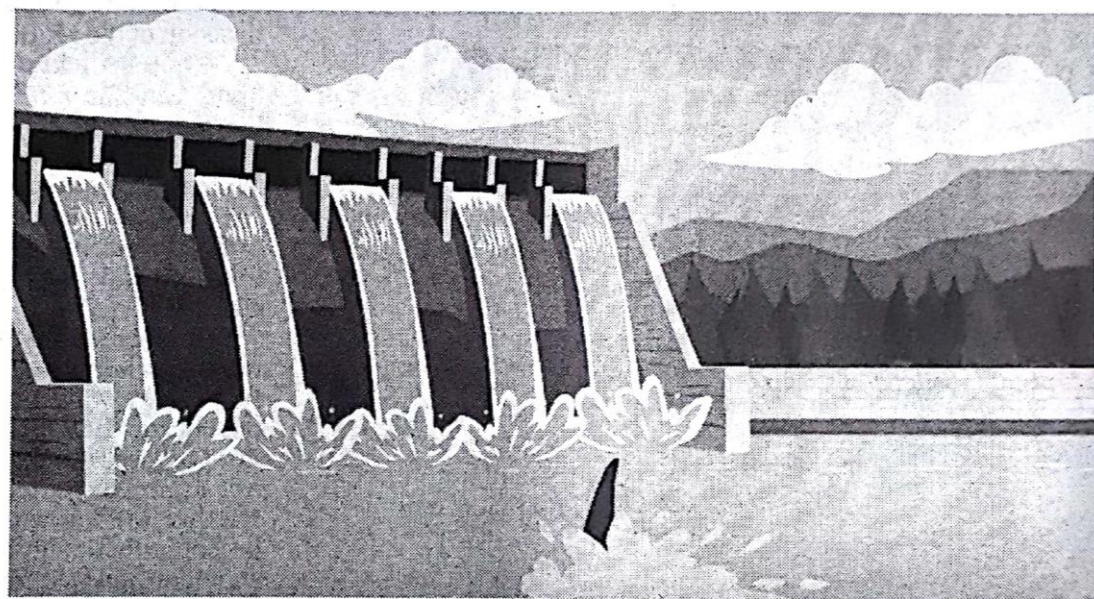
The reservoir will provide drinking water to Hyderabad and Secunderabad

**STATESMAN NEWS SERVICE**  
HYDERABAD, 8 JULY

**F**our and half centuries after iconic Hussain Sagar Lake was dug to supply drinking water to inhabitants, the city is all set to get a new reservoir as chief minister K Chandrasekhar Rao directed officials to construct one in order to mitigate drinking water problems in the twin cities.

Hussain Sagar stopped supplying drinking water to the city sometime in 1930s and has become badly polluted as sewage and industrial waste are dumped in the historic lake. Two more reservoirs Osmansagar on river Musi and Himayatsagar on River Esa were also built at the outskirts of the city during the Nizami rule, primarily for flood control and also for supplying drinking water. However, in recent times rapid encroachment has reduced their water storage capacity and are often found to be dry. The city's drinking water is currently met by water from river Krishna and Godavari. Water in river Krishna too has been dwindling in recent times.

Chief minister K Chan-



drasekhar Rao today held a meeting with officials and directed them to build a new reservoir at Kesavaram in Chevalla mandal of Ranga Reddy district which is adjoining Hyderabad city. The state's IT hub and financial district are located in Ranga Reddy. "At present we are diverting water from Krishna and Godavari rivers from quite a distance. Despite this we are unable to fulfil the drinking water needs of the people of Hyderabad," said Mr Rao. Instructing officials to con-

struct the new reservoir Mr Rao said 10 per cent of the water from the massive Kaleshwaram project on river Godavari will be allocated to Hyderabad as decided before. "Construct a reservoir and water treatment plant at Kesavaram.

Drinking water should be supplied to the city from here," he said while directing officials to prepare estimates for both the construction of reservoir and laying down of pipelines. Since the city is bursting at its seams he asked

officials that every household within Outer Ring Road should get a water connection. The water crisis in Chennai this summer has badly rattled people although Telangana for the past few years has been trying to recharge its ground water through various efforts.

The Hussain Sagar Lake was built by Ibrahim Quli Qutb Shah. It is an artificial lake which was constructed even before the city of Hyderabad was founded by Muhammad Quli Qutb Shah.



## Aquifer storage to resolve water crisis: Experts

**SAPNA SINGH ■ NEW DELHI**

**A**t a time when many States, including Delhi, are facing the spectre of water crisis, Central Ground Water Board (CGWB) experts have recommended a scientific approach to tackle the water issues, especially groundwater decline and depletion.

As per the latest study, hydrogeologists suggest river basin and Aquifer Storage and Recovery (ASR) techniques to overcome the crisis. Scientists emphasised regular aquifer mapping to identify sources of underground water. The underground topography of the Capital has to be studied.

“With ASR, storage of drinking water, treated surface water, reclaimed wastewater or groundwater from other aquifers is possible. In this concept, water is stored underground in a suitable aquifer

through wells and is recovered when needed from the same,” said a hydrogeologist.

Speaking to *The Pioneer*, a senior hydrogeologist said it is pivotal to understand topography to deal with groundwater decline and depletion.

“As per latest findings, ASR can be set up at Chhatarpur basin, Palam and Rajakori,” said the scientist who is working on Delhi groundwater and aquifer mapping.

On the emphasis of this technology, the scientist replied, “The challenge is not just water quantity but quality also. The aim should also be to provide safe and secure water as per the standards of World Health Organisation (WHO), and if not WHO, at least the quality of water to be supplied to homes should satisfy the level prescribed by Bureau of Indian Standards (BIS).

“With ASR, storage of



drinking water, treated surface water, reclaimed wastewater or groundwater from other aquifers is possible. In this concept, water is stored under-

ground in a suitable aquifer through wells and is recovered when needed from the same," the hydrogeologist explained.

Presently, Delhi Jal Board

(DJB) is supplying 828 (Million Gallons a day) of water from canals against the demand of 1050 MGD; and there is acute shortage of about 300 MGD of

water that has affected tens of thousands of people.

According to the scientist, the national Capital has the potential to fulfill water demands without dependence on neighbouring States.

Delhi Chief Minister Arvind Kejriwal said the Aam Aadmi Party (AAP) Government is not willing to depend on neighbouring States to meet water demands. The Delhi Government has planned to conserve water in stretches from Palla till Wazirabad. The Government has claimed the regular flow of Yamuna will not be changed and small ponds will be created and these ponds will be filled with overflowing water during monsoon.

The scientist added that at Wazirabad point, ammonia levels are high and it may become the reason for serious health problems.

*Continued on Page 4*



## Aquifer...

"It is not the question of quantity of water but quality also matters, apart from this pilot project, the government is also promoting Rain Water Harvesting system," the hydrogeologists said.

"In cities where Bituman is used in road construction, chemicals are

used in floor making, to harvest rain water is not good idea as the chemically polluted water may further cause health hazards for the citizens," the CGWB official said. With ASR technology, water can be treated and with its ability to store water, the quality of recovered water is equivalent to drinking water. Hydro geologist

said that in three plants - Chhatarpur Basin, Palam and Rajakori will have the capacity to treat and store total 600 MGD water and there will be no harm to natural reservoirs. "With 550-660 MGD water from plants, Delhi can become self sufficient to cater water needs for its citizens," Hydro geologist in CGWB concluded.

The scientist illustrated that in ASR technology, the water will be stored underground in an aquifer between two confining layers. Notably, in this technology, the stored water is separated from the native ground water by water in buffer zone. Interestingly, In Texas, Australia the technology is being used.



# Una among 255 water-stressed dists

Central team on 3-day visit to identify grey areas & hold talks with stakeholders

RAJESH SHARMA

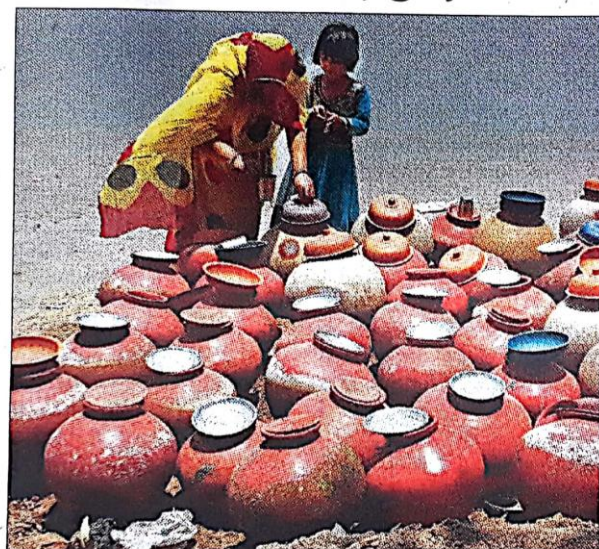
UNA, JULY 8

With a two metre decline in groundwater level in the last 10 years, the Union Ministry of Jal Shakti has included Una in the list of 255 water-stressed districts in the country.

A team constituted by the Centre under the Jal Shakti Abhiyan reached here Monday. During its three-day tour, the team will study the realities of depleting groundwater in the district.

It is led by Rajiv Kumar, Joint Secretary in the Ministry of Electronics and Information Technology. The other members include Bhagwan Das, Director in the Ministry of Food and Public Distribution, and NK Meena, an engineer with the water and power sector.

Una DC Sandeep Kumar, officials from other departments concerned and stakeholders were present.



Rajiv Kumar said the abhiyan began on July 1 and the first phase would be completed by September 15. Grey areas would be identified and discussions would be held with stakeholders to find workable solutions to the important issue. In the subsequent

phases, activities would be undertaken on the field to implement the plans.

Rajiv Kumar, nodal officer for Una district, said five basic activities had been proposed by the ministry to tackle the groundwater stress. These were water conservation and rainwater harvest-

## SHOCKING FIGURES

**2** metre decline in groundwater level in the district in the last 10 years

**22** piezometers had been installed at pumping stations to avail data

The drive will focus on these aspects: water conservation and rainwater harvesting, renovation of water bodies, watershed development and afforestation

which had now come down to 1,345 cubic metre.

Senior state hydro-geologist KS Mandhotra said 99 per cent water used for irrigation and drinking purposes in the district was drawn from the ground aquifer.

At least 22 piezometers had been installed at various pumping stations in the district in 2009 that provided daily data on the water level status. He said the depletion trend had been calculated at 20 centimetre per year.

Mandhotra said every ground water aquifer had a dynamic and static water resource. While dynamic water was the quantity that was recharged every year through rain, the static reserve was the one that permanently existed in various layers of sand and gravel.

In Una district, besides the entire dynamic resource, an additional 48 per cent of it from the static reserve was being withdrawn every year.

ing, renovation of traditional water bodies, reuse of borewell recharge structures, watershed development in the valley catchment areas and intensive afforestation.

He said the availability of water to each person in the country during 1951 was 5,177 cubic metre per year,



## नमामि परियोजना की समीक्षा

लखनऊ। केंद्रीय मंत्री, जल शक्ति, गजेन्द्र सिंह शेखावत ने उत्तर प्रदेश में नमामि गंगे कार्यक्रम की प्रगति की समीक्षा करने के लिए उत्तर प्रदेश के मुख्यमंत्री योगी आदित्यनाथ के साथ बैठक की। योगी ने कुंभ की सफलता में नमामि गंगे मिशन के योगदान को माना। नमामि गंगे कार्यक्रम के तहत 28,451 करोड़ रुपये की लागत से कुल 298 परियोजनाओं को मंजूरी दी गई है।



एनबीसीसी ने कर्मिकों के लिए हिन्दी और यूनिकोड विषय पर कार्यशाला का आयोजन किया। उद्घाटन राजेंद्र चौधरी, निदेशक (वाणिज्य) द्वारा किया गया। कार्यशाला का आरंभ मानस कविराज, मुख्य महाप्रबंधक (मा.सं.प्र.) के स्वागत संबोधन द्वारा किया गया।



# गंगा की जिम्मेदारी हमारी तो यमुना की तुम्हारी: शेखावत

नई दिल्ली, (पंजाब केसरी): नवंबर तक गंगा आचमन करने योग्य हो जाएगी। इसमें सीवर आदि का पानी बिल्कुल नहीं गिरेगा। हमारी कोशिश है कि गंगासागर तक पूरी गंगा साफ होनी चाहिए। उक्त बातें केन्द्रीय जलशक्ति मंत्री गजेन्द्र सिंह शेखावत ने सोमवार को ओखला में जलबोर्ड द्वारा बनाये जा रहे देश के सबसे बड़े सीवर ट्रीटमेंट प्लांट (एसटीपी) के शिलान्यास अवसर पर कहीं। शेखावत ने कहा कि 1985 से गंगा की सफाई का काम हो रहा है लेकिन 2014 से पहले तक इसकी दशा में कोई परिवर्तन नहीं आया। क्योंकि इसकी हॉलिस्टिक एप्रोच सही नहीं थी। उन्होंने कहा कि केन्द्र में नरेन्द्र मोदी के नेतृत्व वाली सरकार बनने के बाद से गंगा, हिंडन, यमुना एवं इसकी सहायक नदियों की सफाई के लिए 28 हजार करोड़ रुपए दिए गए। केन्द्रीय मंत्री ने कहा कि दिल्ली में यमुना का 22 किलोमीटर लंबा हिस्सा है, जिसकी सफाई के लिए औपचारिक तौर पर मुख्यमंत्री अरविंद केजरीवाल की जिम्मेदारी ज्यादा बनती है, हालांकि केन्द्र सरकार की ओर से उन्हें हर संभव मदद दी जाएगी।

इस मौके पर मुख्यमंत्री केजरीवाल ने कहा कि दिल्ली में देश का सबसे बड़ा एसटीपी बनने जा रहा है। इसके लिए जलबोर्ड सहित दिल्ली के लोगों और सभी स्ट्रेक होल्डर्स को बहुत-बहुत बधाई। उन्होंने



सीएम केजरीवाल से बात करते केन्द्रीय जलशक्ति मंत्री गजेन्द्र सिंह शेखावत।

कहा कि मुझे विश्वास है कि केन्द्र एवं दिल्ली सरकार मिलकर यमुना को जल्द साफ करने में कामयाब होंगे। केन्द्र सरकार इसके लिए 85 फीसदी फंडिंग दे रही है। उन्होंने कहा कि 10 दिनों में ये उनकी केन्द्रीय मंत्री से दूसरी मुलाकात है। प्राशासनिक तौर पर दिल्ली की स्थिति काफी पेचीदगी पूर्ण है लेकिन सभी एजेंसी मिलकर काम करें तो बदलाव जरूर आयेगा। सीएम ने कहा कि हम पानी की रिसाइकलिंग और रिचार्जिंग

की दिशा में हम काम कर रहे हैं। अभी हम यमुना में पानी को रोकने के पायलट प्रोजेक्ट पर काम शुरू करने जा रहे हैं। इस प्रोजेक्ट के लिए भी हमें केन्द्र सरकार की तरह से बहुत सहयोग मिल रहा है। इसके अलावा हम कोरोनाशन प्लांट के एसटीपी का शोधित पानी पल्ला में छोड़ेंगे। इसके बाद पल्ला से 20 किमी दूर वजीराबाद में उस पानी को वापस निकालेंगे। इसके बाद इसे ट्रीट करके लोगों तक पहुंचाया जाएगा।

## 1160 करोड़ की लागत से 2022 तक बनकर होगा तैयार

1160 करोड़ की लागत से बनने वाले इस एसटीपी की क्षमता 564 एमएलडी होगी यानी यह प्लांट एक दिन में 56 करोड़ 40 लाख लीटर पानी का शोधन करेगा। यह प्लांट 2022 तक बनकर तैयार होगा, जिसमें केन्द्र जीका के माध्यम से 85 प्रतिशत और दिल्ली सरकार 15 प्रतिशत की राशि देगी। इस प्लांट की खासियत होगी यह पांच मेगावॉट बिजली भी बनाएगा।

## हरियाणा को एसटीपी का पानी हमें पल्ला में पानी दे : सीएम

सीएम ने कहा कि यह एसटीपी योजना 56.4 करोड़ लीटर गंदे पानी को ट्रीट करेगा। लेकिन इस पानी के इस्तेमाल का अभी तक कोई प्लान नहीं बन सका है। हरियाणा के बॉर्डर वाले इलाकों में सिंचाई के लिए पानी की बहुत दिक्कत है। अगर हम इस पानी को हरियाणा को दे दें तो वहां ये सिंचाई के लिए इस्तेमाल होगा। बदले में इतना ही पानी हरियाणा हमें पल्ला में दे दे।

## थोड़ा धन्यवाद हमें भी मिल जाता

शिलान्यास अवसर पर एक समय ऐसा भी आया जब मंच हंसी-ठहाकों से गुंज गया। दरअसल, अपने संबोधन के दौरान केन्द्रीय मंत्री शेखावत ने कहा कि इस प्लांट के शिलान्यास को लेकर कुछ पोस्टर लगे देखे थे जिनमें दिल्ली के सीएम धन्यवाद दे रहे हैं जबकि हमने भी इसके लिए 85 प्रतिशत धनराशि उपलब्ध करायी है। थोड़ा सा धन्यवाद हमें भी मिलना चाहिए था।



पश्चिमी राजस्थान: तकनीक जटिल है, लेकिन कायाकल्प संभव

# जल कुबेर से धन कुबेर

R/R  
9/7

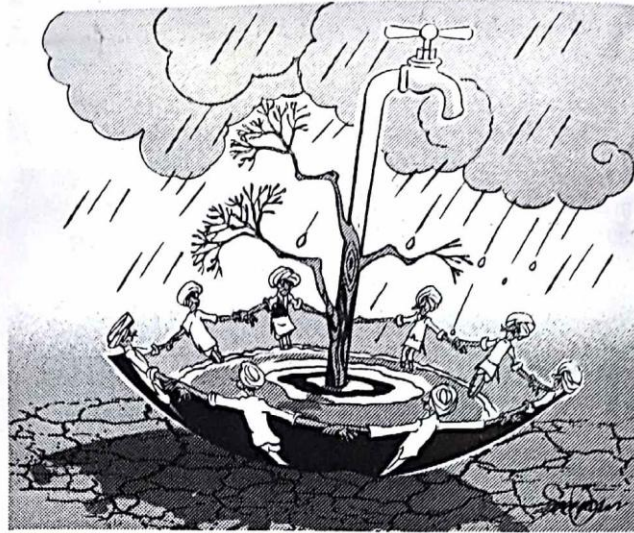


**भागीरथ शर्मा**

लेखक भारतीय प्रशासनिक सेवा के पूर्व अधिकारी एवं राज्य प्रशासनिक सुधार आयोग के सदस्य रहे हैं।

**भू** जल की बात करें तो पश्चिमी राजस्थान का तो कोई भी क्षेत्र 'सुरक्षित' कहने योग्य नहीं बचा है। ऐसी परिस्थितियों में कृषि केवल मानसून पर ही निर्भर होकर रह गई है। जल के अभाव की स्थिति के कारण अत्यल्प आर्थिक संसाधनों वाले इस राज्य पर भारी बोझ पड़ता रहा है। पानी ही इस क्षेत्र में विकास एवं स्थायी रोजगार उपलब्ध कराने का केन्द्र बिन्दु है। वर्तमान परिप्रेक्ष्य में व्यक्तिगत टांके ही जल संग्रहण का सर्वोत्तम माध्यम है। इसी दृष्टि से राज्य सरकार ने गत वर्षों में राहत कार्यों में व्यक्तिगत टांकों को भी सम्मिलित किया। लेकिन बहुत छोटे आकार के टांके को ही स्वीकृति दी जा रही है, जिनका केवल पेयजल के रूप में ही उपयोग हो सकता है।

यदि हम समान परिस्थितियों वाले देश इजरायल का उदाहरण लें तो पता चलता है कि पश्चिमी राजस्थान से भी अधिक कठिनतम परिस्थितियाँ एवं हमारी औसत वर्षा की आधी से भी कम वर्षा का औसत होते हुए भी केवल वर्षा जल संग्रहण एवं संरक्षण के माध्यम से इजरायल में संपूर्ण रेगिस्तान को हरा-भरा बना दिया गया है। वहाँ जमीन के भीतर पानी के स्रोतों का आधुनिकतम वैज्ञानिक यंत्रों की सहायता से चिह्नित कर जमीन में जगह-जगह नलकूप खोदकर वर्षा जल से पुनर्भरण किया जाता है एवं वर्षा की एक-एक बूंद को नालियों के माध्यम से नलकूपों तक



## राजस्थान के हालात

10.40%	5.40%	19%	1.16%
भूभाग	आबादी	पशुधन	सतही पानी

**भूजल की गंभीर स्थिति** कुल विकास खंड 248 अर्ध गम्भीर, गंभीर व 'डार्क' जोन में 195

पहुँचाकर जमीन में संग्रहित कर लिया जाता है। बाद में आवश्यकतानुसार पंप कर फव्वारे एवं ड्रिप तकनीक से फलदार वृक्षों एवं मूल्यवान फसलों को उगाने में उपयोग किया जाता है। हमारे यहां भी कुछ ऐसे ही उपायों की जरूरत है। हालांकि राजस्थान में इजरायल मॉडल को अपनाने में मुख्यरूप से दो कठिनाइयाँ हैं।

पहली यह कि जलस्रोत चिह्नित करना और उनका पुनर्भरण तकनीकी दृष्टि से बहुत ही जटिल एवं खर्चीला उपाय है। अतः पश्चिमी राजस्थान के 11 मरूस्थलीय जिलों में तो प्रथमतः नरोगा व मरु विकास कार्यक्रम के अन्तर्गत एवं तदोपरान्त एक अभियान के रूप में बड़ी परियोजना चलाकर एक सूत्री कार्यक्रम हाथ में लेकर प्रत्येक लघु सीमांत कृषक के खेत में एक लाख लीटर के टांके

का निर्माण कराया जाकर मरू फलदार वृक्ष लगाए तो रोजगार के स्थायी साधन सृजित हो जाएंगे। इसके लिए करना यह होगा कि पश्चिमी राजस्थान के सभी 11 मरूस्थलीय जिलों में प्रथमतः सभी 5 लाख लघु एवं सीमांत कृषकों को इस कार्यक्रम में सम्मिलित किया जाए। हर किसान के खेत में कम से कम एक लाख लीटर का टांका बनवाया जाए।

इस हेतु तकनीकी दृष्टि से 15 फुट व्यास एवं 20 फुट गहरा टांका बनाना आवश्यक है, जिसके चारों ओर हर जिले की औसत वर्षा के आधार पर कम से कम 60 से 80 फुट व्यास का जलग्रहण क्षेत्र (आगौर) बनाया जाए। यथासंभव अकाल की परिस्थिति में भी कम से कम एक या दो अच्छी वर्षा तो हो ही जाती है। अतः अकाल की स्थिति में भी टांका हर वर्ष भरता

रहेगा और किसान को किसी भी वर्ष पानी की कमी नहीं रहेगी और हर किसान 'जल कुबेर' होगा।

इस योजना में जल के उपरोक्त प्रस्तावानुसार प्रयोगों के चलते तीन एकड़ की ईकाई पर लगभग 50 हजार लीटर पानी ही व्यय होगा। शेष 50 हजार लीटर पानी का उपयोग हर किसान परिवार व पशुओं के लिए शुद्ध मीठे पेय जल के रूप में काम आएगा।

बेर, आंवले एवं अनार के तीन एकड़ क्षेत्र में लगे लगभग 355 पेड़, चौथे या पांचवें वर्ष के बाद 50 से 80 हजार तक की आय का साधन बन जाएंगे। इसके अतिरिक्त बाजरे, मोठ, व ग्वार आदि की फसलें भी नियमित होती रहेंगी तो इस अतिरिक्त आय को मिलाकर कुल एक लाख की आय का प्रावधान किसान को गरीबी रेखा से पार ही नहीं करा देगा बल्कि वह 'जल कुबेर' के साथ-साथ 'धन कुबेर' भी बन जाएगा।

इस योजना के क्रियान्वयन के लिए प्रत्येक विकास खण्ड के पचास-पचास किसानों के समूह बनाए जाएं तथा एक तकनीकी समूह जिसमें एक सिविल इंजीनियर, एक उद्यान विषेक्षज्ञ तथा समाजशास्त्री को सम्मिलित करना होगा, जो समूह में किसानों को फलदार पेड़ों व औषधीय पौधों के बारे में तकनीकी मार्गदर्शन दे सकें।

आगामी 5 वर्षों में 'जल कुबेर योजना' के ही मुख्य विकास कार्य के रूप में लक्ष्य निर्धारित किए जाकर तथा कुल 5 लाख टांकों का निर्माण किया जाए। प्रत्येक टांके के पीछे कम से कम 3 एकड़ जमीन पर आंवले के 50, बेर के 110 व अनार के 195 कुल 355 पेड़ लगाए जाएं। परियोजना की अवधि के 5 वर्षों में कुल 15 लाख एकड़ में 1775 लाख फलदार पौधों का वृक्षारोपण हो पाएगा, जो पूरे मरूस्थल को हरितक्रांति में परिवर्तन कर हरा भरा बना देगा।