Central Water Commission
Technical Documentation Directorate
Bhagirath(English)& Publicity Section
****

West Block II, Wing No-5
R K Puram, New Delhi – 66.

Dated 18.1.2019.

Subject: Submission of News Clippings.

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 be uploaded on the CWC website.

S. Mahendran. 18.1.2019
SPA (Publicity)

Encl: As stated above.

O/C

Deputy Director, WSE Dte. 18/01/2019

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Business standard
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PM to visit J&K on Feb 3, lay foundation stones for several projects

ARUN SHARMA
JAMMU, JANUARY 17

PRIME MINISTER Narendra Modi is scheduled to visit Jammu and Kashmir on February 3 to lay the foundation stones of various projects across the three regions of the state, estimated at a cumulative cost of over Rs 60,000 crore.

BJP state general secretary Narinder Singh said the PM will lay the foundation stone for Ladakh's first-ever university, as well as a hospital and two mega solar power projects in the region. He will also lay the foundation stone of two AIIMS - one in Jammu and one in Kashmir.

Other projects for which Modi will lay the foundation stone include the Shahpurkandi dam and Ujh dams, which will generate 206 MW electricity and provide water for irrigation to Punjab and Jammu and Kashmir; the four-laning of the Jammu-Akhnoor-Rajouri-Poonch highway; the Sudh Mahadev-Pul Doda highway; the Devika Rejuvenation plan in Udhampur; and the Indri Pattan-Pargwal bridge in Akhnoor.

Narendra Modi

According to the state BJP chief spokesperson Sunil Sethi, Modi will be laying the foundation stone of nearly 30 Centrally-sponsored projects worth over Rs 60,000 crore. Of them, projects worth nearly Rs 35,000 crore are in the Jammu region.

Modi will also address a public rally at Vijaypur in Samba district, seeking to increase support for the BJP in Jammu - the party had won 25 of the 37 seats in Jammu in the the 2014 Assembly elections.

The BJP now hopes that the PM's visit will help the party improve its electoral prospects in the state. As such, the party wants the state's Assembly elections to be held at the same time as the Lok Sabha elections this year. BJP state president Ravinder Raina said he has conveyed the same to the Election Commission, but added that it is for the body to take a decision.

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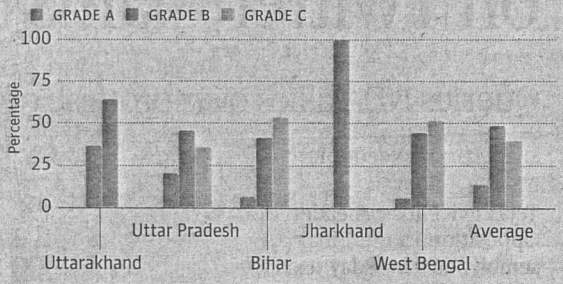
DATA POINT

H 18

Where the filth flows

A government-commissioned independent study of 97 towns along the Ganga shows that 39% of these towns in five States are in need of overall improvement in cleanliness, solid waste management and a change in how nullahs (drains) are handled. The study was conducted over six weeks in November-December 2018. By **Varun B. Krishnan**

How they fared | Over half the towns in Bihar and West Bengal where the Ganga flows were given the C grade*, which means they require overall improvement



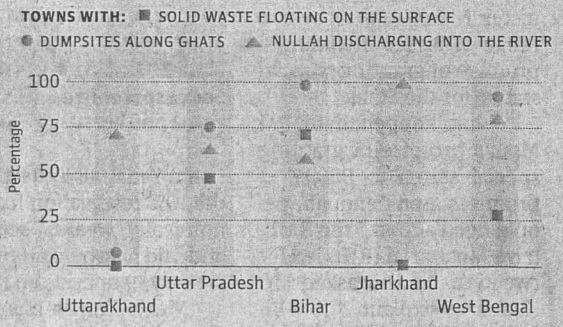
Population matters | Only three towns with a population of more than a lakh each were graded A. Most of the towns which received the A grade had a low population

Population	Grade A	Grade B	Grade C
<1 lakh	9	26	12
1-4 lakh	2	16	19
>4 lakh	1	2	5
Total	12	44	36

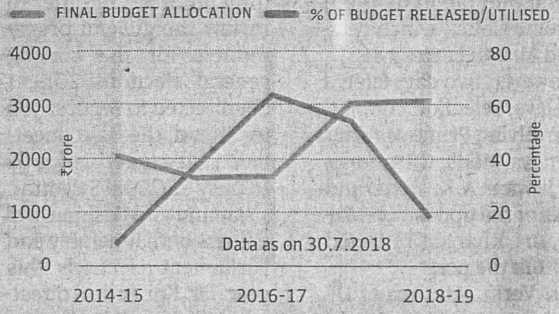
▪ *No. of towns ranked in each State — West Bengal: 39, Uttar Pradesh: 20, Bihar: 17, Uttarakhand: 14, Jharkhand: 2*

▪ Only 92 towns were considered as data could not be obtained for five towns

River dumps| It is common for nullahs to drain into the Ganga across towns in all the States. In Bihar, the towns had dumpsites along the river as well



Low fund utilisation| An analysis of funds allocated for the Ganga-cleaning mission shows that in 2017-18, only half the budgeted amount was released/spent



*Grades: A - Clean ghats, good solid waste management (SWM); B - Partially clean, needs better SWM; C - Needs overall improvement

Source: Third party inspection of 97 Ganga towns' report by Ministry of Housing and Urban Affairs; Rajya Sabha Q&A

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Business Line, Delhi ✓

River linking is no smooth-sailing exercise

Disagreement between States, absence of a legal framework for Central intervention and environmental issues are obstacles

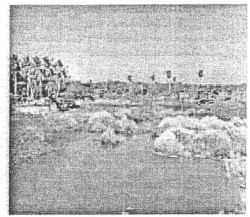
SK SARKAR

A river is the lifeline of the masses and supports wild life. The river system is a major source of irrigation, provides potable water and cheap transportation, helps in electricity generation, and is a source of livelihood for the people. Out of total utilisable surface water resources of 690 billion cubic meter (BCM), only 65 per cent is currently utilised in India, the rest falls into the sea. This maintains the ecological balance of land and oceans and freshwater and sea.

However, there is spatial and temporal variation of water availability. Due to this, droughts and floods often coexist in India. To ensure optimal utilisation of river water, one of the options is to divert water of surplus river basins to the deficit ones. For example, the water resource potential of the Godavari river basin is 110 BCM per annum while that of Cauvery is 21 BCM per annum, thus creating an opportunity to transfer water from Godavari to Cauvery for optimum use of river water. Further, to mitigate the likely adverse impact of climate change, long- and short-term measures, including inter-basin water transfer, is the need of the hour.

In 1980, the Central government prepared a National Perspective on Water Development. It envisaged inter-basin water transfer comprising 30 water-link projects and about 3,000 storages connecting 37 Himalayan and Peninsular rivers. A back-of-the-envelope calculation shows that the scheme is likely to cost $123 billion (2002 prices) but it will help create 35 gigawatt of hydropower, irrigate 35 million hectares, and usher in navigation and fishery benefits.

Of the 30 water-link projects, Ken-Betwa Link project involving Madhya Pradesh and Uttar Pradesh, is at an advanced stage of preparation. This project aims to transfer surplus water from the Ken river to Betwa basin through canals to irrigate land, supply drinking water to drought-prone Bundelkhand region, and generate hydro power. This project has been accorded all statutory clearances. But a water-sharing arrangement between the two States is hanging fire; unlike the Renuka dam project in the Upper Yamuna basin, where five States recently entered into a water-sharing pact.



Fluid state Inter-basin water transfer

The barriers

There are clearly many challenges in implementation of inter-basin water transfer projects. First, the States with surplus water resources do not generally agree that there is such surplus. It is difficult for donor and donee States to come to an agreement as the latter often demand more water. The States are also apprehensive about disturbing the existing allocation of water as per awards. There is thus a need to evolve consensus among the States concerned.

Second, at present, there is no legislative framework through which the Central government can intervene in this regard. Most of the river basins are inter-State. The Constitution allows the Centre to regulate and develop inter-State rivers and river valleys as per Entry 56 of the Union List. One or more Central legislation may be passed using this Entry for facilitating inter-basin transfer, if needed.

Third, the inter-basin water transfer (IBWT) projects are like other water resources projects. Thus, environmental concerns of IBWT projects are similar. All environmental issues and concerns such as submergence of forest areas and biodiversity loss need to be addressed in a holistic manner if benefits are to outweigh costs.

Fourth, the IBWT projects require construction of reservoirs and link canals. These involve substantial submergence. Further, canal construction also requires land acquisitions. Thus rehabilitation and resettlement (R&R) is an important issue. There is a need to have diverse innovative and attractive R&R packages for project-affected persons so that they support the project on their own.

Fifth, there is an international dimension. For example, main components of six Himalayan link projects fall in Nepal and Bhutan. There is a need of hydro diplomacy with these two neighbours to evolve a consensus.

Similarly, the Sankosh project (Manas-Sankosh-Teesta-Ganga Link) also requires interaction with Bangladesh, Nepal and Bhutan, calling for consensus among these countries with India.

It is essential that various issues, macro as well as project-specific, are addressed in a time-bound manner, by constituting a National Water Mission on river linking, if necessary.

The writer is former Secretary, Ministry of Water Resources, and Distinguished Fellow TERI, New Delhi.

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GREEN PROGRAMME

Morning Standard, New Delhi

GOVT TO PRIORITISE RIVER CLEANING

Monitoring locations may be prioritised in five classes based on availability of Biochemical Oxygen Demand and Faecal Coliform

RICHA SHARMA @ New Delhi

WITH a rise in pollution in rivers across the country, the Centre has for the first time come up with draft criteria for prioritisation of polluted river stretches to help in deciding the level and degree of treatment needed to clean them.

The Central Pollution Control Board (CPCB) has devised a procedure whereby the monitoring locations may be prioritised in five classes based on availability of Biochemical Oxygen Demand (BOD) and Faecal Coliform (FC) in river water. The Centre has identified 302 polluted river stretches in the country and they are expected to be categorised once the draft is finalised. The comments on the same are invited till January 22.

According to the CPCB, water quality monitoring is an essential component to maintain and restore the wholesomeness of resources by way of prevention and control of pollution as prescribed under the Water (Prevention and Control of Pollution) Act, 1974.

"However, the Act does not define the level of wholesomeness to be maintained or restored in different water bodies of the country. In view of this, an effort has been made to define it," said a CPCB official.

The central pollution monitoring body has tried to define the wholesomeness in terms of protection of human uses, and thus, taken human uses of water as base for identification of water quality objectives for different water bodies in the country.

"It was considered ambitious to maintain or restore all natural water body at pristine level which is possible only by taking proper control measures. The level and degree of treatment required can be decided depending on the categorization of the polluted river stretch." the official added.

Plan for cleaning rivers

The CPCB has tried to define the wholesomeness in terms of protection of human uses, and thus, taken human uses of water as base for identification

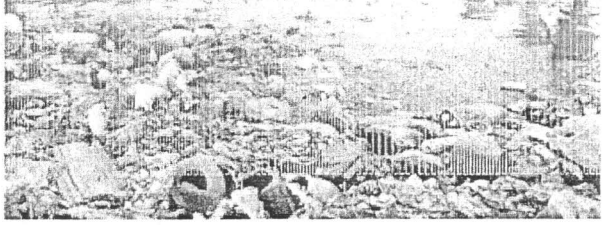
Parameter defined based on Biochemical Oxygen Demand* (BOD) and Faecal Coliform (FC). BOD (weightage-70%) and FC (Weightage-30%)

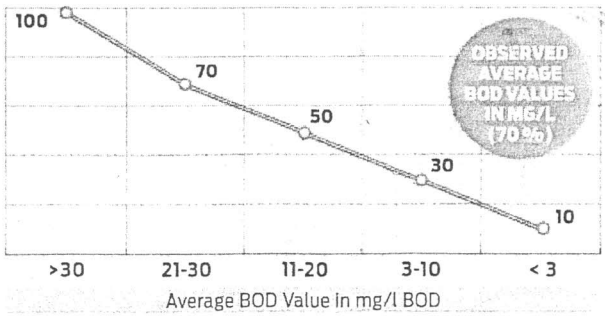
Criteria for the locations having been monitored at least for 2 years and 8 observations in each year

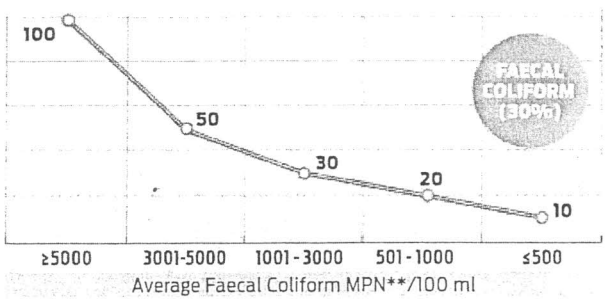
CATEGORY OF RIVER MONITORING LOCATION

Priority of monitoring location Category

Priority-V	Priority-IV	Priority-III	Priority-II	Priority-I
Score 10-20	21-50	51-70	71-90	>90
Very Good	Less Polluted/ Good	Moderately Polluted/Fair	Severely Polluted/ Poor	Critically Polluted/ Very Poor







** Biochemical Oxygen Demand is a measure of the amount of dissolved oxygen used by microorganisms when decomposing organic matter*
*** Most Probable Number*

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Millennium Post, Delhi

Eliminating industrial waste

ROSHNA N

Industrial wastewater is severely contaminating India's fresh water resources – innovative methods of recycling must be immediately formulated

United Nations Environment Programme (UNEP) has reported that India is on the verge of becoming a highly water-stressed country. At this stage, reducing wastewater generation and improving water recycling should be given due importance. Reuse of industrial wastewater has been in practice for a long time in India, and this water is mainly used for agricultural purposes in neighbouring areas. However, this has led to high levels of heavy metal concentration in vegetables grown with industrial wastewater.

India generates around 13,500 million litres of industrial wastewater every day, an alarming amount of which is discharged into natural water sources without proper treatment, owing to the high costs involved. This unprocessed sludge contains large amounts of heavy metals, which can pose a serious health hazard to people. These metals can enter the human body via water, air and food – or even absorption through the skin – and accumulate in tissues, leading to skin cancer, bone defects, mental retardation in children and chronic damage to the nervous system, et al.

India generates around 13,500 million litres of industrial wastewater every day, an alarming amount of which is discharged into natural water sources without proper treatment, owing to the high costs involved

Without proper means of disposal, industrial waste is contaminating India's water sources

A study conducted by the Ministry of Water Resources had analysed the amount of heavy metals in Indian rivers from 2014 to 2017. High concentrations of these metals, exceeding the permissible limits for drinking water, were observed in big rivers such as the Ganga, Rapti, Ramganga, Subarnarekha and Tungabhadra.

Observing the standards for heavy metals in these rivers is essential, as nearly 80 per cent of the rural population and 50 per cent of the urban population depend on surface and groundwater for domestic purposes. Hence, immediate action has been taken towards achieving this end.

Concentration of heavy metals such as lead, cadmium and chromium in edible fish tissues in Indian rivers is around 1.4-17 µg/g of dry weight (permissible limit - 0.5 µg/g), 0.62-34 µg/g (permissible limit - 0.5 µg/g) and 0.75-18 µg/g (permissible limit - 2 µg/g) respectively.

Techniques for removing heavy metals

There are physical, chemical and biological methods to remove heavy metals from industrial wastewater.

Physical methods include membrane separation, adsorption, screening and gravity concentration. Chemical methods such as chemical precipitation use chemical reagents to increase the particle size of the colloidal suspension, after which, heavy metals are removed via a filtration process. Some of the biological sludge process and trickling filters use microorganisms for the removal treatments.

Among the treatment techniques, adsorption (a substance that absorbs another) is the most effective and eco-friendly. In this process, heavy metals in water adhere to the surface of an adsorbent via physical or chemical interaction. Adsorption occurs only at the surface of the material (adsorbent). The most common adsorbent used in industries is activated carbon, for removing heavy metals, toxic gases and other elements. Even though it is widely used for many industrial activities, its high cost (Rs 30,000-60,000/tonne) is a drawback.

Organic waste as heavy metal adsorbents

In recent years, various studies have been carried out to develop safe and cost-effective adsorbents. Research be used as an adsorbent. Such bio-adsorbents consist of different functional groups, such as hydroxyls and amines, that have a great affinity for metal ions. In India, around 150 million tonnes of agricultural waste is generated annually. Using organic waste as a bio-adsorbent could help agro-industries and farmers manage their waste efficiently alongside generating additional revenue.

The adsorptive power of many organic wastes such as waste tea leaves, rice husk, banana peel, coconut palm leaves, sugarcane bagasse and mango peel was investigated. Such bio-adsorbents, without any modifications, have lower adsorbent capabilities. Modified bio-adsorbents with higher metal adsorption capacity were made via chemical treatment. Charred banana peel, charred xanthate sugarcane bagasse, charred orange peel and charred chlorinated low-cost adsorbents. A modified adsorbent is a cost-effective alternative for activated carbon. In fact, a few of them have better adsorptive powers than activated carbon.

Adsorbed heavy metals can then be recovered via acid or base treatment, and the bio-adsorbents can then be reused. This will create additional income for industries.

The way forward

Deployment of cost-effective technologies for water treatment (such as bio-adsorbents) will have significant traction in the upcoming years as there are growing concerns about the quality of recycled water. However, adoption of bio-adsorbents in Indian industries is not even in its primitive stage. As an initial step, setting up a bio-adsorbent 'pilot plant' in existing common effluent treatment plants (CETPs) is an economically-viable option. CETPs can opt for existing financial assistance schemes from central and state pollution control boards and state governments for technology upgrades.

The collection and supply of bio-adsorbents also need proper management. Suitable agro-waste collection mechanisms should be developed by the Ministry of Agriculture. These could help in generating additional revenue for farmers and also reduce smoke and haze resulting from agro-waste burning. Therefore, with collaborative efforts from industries, pollution control boards, agro-producers and water supply departments, recycling and management of toxic industrial wastewater can be carried out in an economical way. IANS

(The author is a Research Engineer at Center for Study of Science, Technology and Policy [CSTEP], a research-policy think tank. The views