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Punjab does a deep dive for Indus dolphins

Alongside research on the aquatic mammal, efforts are on to protect its habitat

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CHANDIGARH

The census of one of the world's most threatened cetaceans, the Indus river dolphin (*Platanista gangetica minor*) – a freshwater dolphin that is found in river Beas, is all set to commence in the winter as part of a project by the Centre. However, Punjab's wildlife preservation wing has gone a step ahead to not only protect the dolphins but also their natural habitat.

The Indus river dolphin is classified as endangered by the International Union for the Conservation of Nature (IUCN) and, until recently, it was believed that these dolphins were endemic to Pakistan. But in 2007, a remnant but viable population of Indus dolphins was discovered in Punjab's Harike wildlife



Small population: The Indus river dolphin is classified as endangered by the IUCN. • AFP

sanctuary and in the lower Beas river. Since its discovery, research is being done by Punjab's Department of Forests and Wildlife Preservation in partnership with WWF-India on the current distribution, habitat use and population abundance of the mammal. The Indus river dolphin was declared the State aquatic animal of

Punjab in 2019.

"Enumeration of freshwater dolphins is being undertaken as a nationwide project of the Central Government. At the State level, the Punjab Government has taken the initiative for conservation of dolphins and its habitat," Gitanjali Kanwar, coordinator – rivers, wetlands and water policy,

WWF-India, told *The Hindu*. The project is to be implemented over five years.

"Alongside research, importance will be on engaging the riparian communities by encouraging community-led biological monitoring. Villages around the hot spot sites of dolphin occurrence will be developed as models for community-led conservation. Extension programmes will be held to develop a group of dedicated individuals, called 'Beas-Dolphin Mitras' [friends and protectors] of the river Beas. The project also will embark on dolphin eco-tourism. We will adopt a participatory process to address various water conservation-related issues, including protection of freshwater habitats," said Ms. Kanwar.

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More barrages, check dams planned across the Palar

Surplus to be diverted to meet city's drinking water needs

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CHENNAI

The Palar, which has been in full flow this year, may soon have two barrages and more check dams built in Kancheepuram and Chengalpatu districts. There are plans to divert surplus water to city lakes to cater to the city's drinking water needs.

The projects are awaiting the State government's nod. This year, nearly 3.5 tmcft was stored both as surface water and groundwater recharge in three recently constructed check dams alone across the Palar at Pazhaya-seevaram, Esur Vallipuram and Vayalur. However, the river continued to have good flow as the regions upstream, including Kaveripakkam, received good rain during the southwest monsoon. About one tmcft of floodwater had drained into the sea, said officials of the Water Resources Department.

The department has submitted a proposal to build a ₹380-crore barrage across the river near Udayambakkam-Padalam for the benefit



Proving useful: The recently built check dam across the Palar at Esur Vallipuram in Kancheepuram. ■ B. VELANKANNI RAJ

of residents and also convert the Vayalur check dam into a barrage. Once these two barrages with shutter arrangements are built, each of them would have a potential to store nearly 2.5 tmc both as surface and groundwater.

Officials said there was a proposal to increase the height of the Vayalur check dam up to five metre and convert it into a barrage. There is more scope for constructing such storage structures and recharging water table, and it could be pumped for drinking water and irrigation needs.

R. Muralimohan, secretary, Madurantakam Cooperative Sugar Mills Farmers Association, said the proposed barrage across the river near Udayambakkam-Padalam would benefit residents at least 25 villages. About 2,000 more acres may be registered for crushing at the nearby sugar mills once the project was implemented.

Farmers want the major project to be started in a couple of months. Groundnuts, paddy, banana and sugarcane are mainly cultivated in the region, he said.

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Rule curve level fixed by panel not maintained, says Minister

'Kerala not opposed to giving water to T.N.'

A CORRESPONDENT
IDUKKI

Agriculture Minister P. Prasad, who visited the Mulla-periyar dam along with Water Resources Minister Roshy Augustine on Sunday, said the rule curve level for the dam fixed by the Central Water Commission (CWC) had not been maintained.

The upper rule curve level till October 31 was 138 feet and it had not been maintained, he said.

"The Kerala Government is not opposed to giving water to Tamil Nadu for its agricultural purpose but the sa-



Taking stock: Revenue Minister Roshy Augustine and Agriculture Minister P. Rajan at the Mullaperiyar dam.

fety of the people of Kerala should also be considered," he said.

Mr. Augustine said that Tamil Nadu was currently releasing 2,974 cusecs (cubic feet per second) from the dam to the Periyar, and the water level had dipped to

138.85 feet at 9 a.m. More water was released as the level continued to increase after opening the three spillway shutters.

The new rule curve level at 139.5 feet will come into effect from November 1, he said.

Rationing of water a must for sustainability

SURINDER S KUKAL

The agricultural sector consumes a major share of water resources of Punjab, both ground as well as surface waters. In general, the farmers use this water extravagantly for irrigation purposes, despite the efforts made to educate them. This is mainly due to the provision of free electricity to the agricultural tubewells. Even the farmers in canal command areas (CCAs) prefer groundwater to surface water due to ease of use. Canal water in CCAs is under-utilised, especially in the central part of Punjab.

WATER resources in Punjab are dwindling both in terms of quantity and quality. It is mainly because of its increasing demand (fast-increasing population and improved life standards) and non-judicious use, especially in the agricultural sector. The erratic pattern and the decreasing amount of rainfall over the years have added to the increasing scarcity of water. The population of the state (around 3 crore) grew by 8.3% during the past decade with an increase in the population density of 600 persons per square km in 2020 from 551 in 2011. This has burdened the already depleting groundwater resources. On the other hand, the average annual rainfall of 490 mm during the period 1970-2020 has decreased to 444 mm during the past two decades (1998-2020). The erratic rains, coupled with the increasing number of dry spells (no rainfall for 10 consecutive days) even during the years of otherwise normal rainfall, has added to a steep fall in the water table depth (WTD). Presently, the WTD has been falling at the average rate of 65-70 cm in the state. The non-judicious use of water for paddy and the increased area under paddy over the past two decades have been playing a major role in the depletion of groundwater.

The water table data in the state indicates that by 2030, the water table in 10 blocks of Barnala, Moga, Patiala and Sangrur districts will deplete beyond 50-m depth, Sangrur being the worst affected district with almost all blocks depleting to



MICRO IRRIGATION: THE LAGGARD STATES

State	Net irrigated area	Area covered under micro irrigation			Area in thousand hectares
		Drip irrigation	Sprinkler irrigation	%	
Uttar Pradesh	14,337	33.52	179.64	1	Net irrigated area includes irrigation by government canals, private canals, tanks, tubewells, other wells, other sources. Period covered: 2005-06 to 2020-21
Madhya Pradesh	9,876	322.27	249.24	6	
Punjab	4,128	36.03	13.7	1	
West Bengal	3,106	10.32	78.12	3	
Bihar	3,101	12.49	106.98	4	

SOURCE: DIRECTORATE OF ECONOMICS & STATISTICS, DEPARTMENT OF AGRICULTURE, CO-OPERATION AND FARMERS' WELFARE

below 50-m depth. In addition, 16 blocks in different districts are expected to deplete below 40-m depth by 2030. The WTD in almost half of the state is expected to go below 30 m by 2040 if the groundwater extraction goes unabated at the present rate. Further, about 8% and 19% of the area is expected to have WTD below 50 m by 2030 and 2040, respectively.

Availability and demand

Punjab has an annual utilisable water availability of 35 billion cubic metres (BCM) — canal water (14.6 BCM) and groundwater resources (20.5 BCM). The surface water supply has declined over the years due to

uncertain and ill-distributed rainfall. The dependence on groundwater has increased more than two times during the past 20-year period, as indicated by the substantial increase in the number of tubewells to 15 lakh. The annual water demand of all sectors, including domestic, industrial and power generation, is about 66 BCM, with a major chunk of it being consumed in the agricultural sector. The rains constitute about 21 BCM of water. Thus, a water deficit of 10 BCM, which is met through over-extraction of groundwater, needs to be minimised by improving the existing water availability and reducing water withdrawals. Apart from depleting ground-

water resources, the energy requirement in terms of electricity and diesel has increased manifold. The electricity subsidy in the state increased from Rs 693 crore in 1997-98 to more than Rs 6,500 crore in 2020. In addition, the farmers spend about 620 crore on diesel generator sets for pumping out groundwater. The energy requirement for groundwater extraction is expected to increase with further depletion of groundwater, apart from the huge amount of expenditure incurred by the farmers for deepening of their tubewells. Thus, there is a dire need to use water judiciously in different sectors, especially in the agricultural sector, so as to sustain water availability for all.

With limited water resources and increasing water demand, it becomes imperative to strategise for the sustained use of water in various sectors. Of all the components of such a strategy, judicious use of water is of utmost importance. For ensuring its judicious use, it is important that water is rationed. Rationing of water means to provide a fixed amount at nominal or no cost, but thereafter charging at enormous rates on volumetric basis. Thus, the minimum required quantity of water, as per scientific recommendations, is provided to the consumers at minimal or no cost. Charging the consumption of water over and above this recommended quantity of water should attract the charges at exorbitant rates. This will prevent non-judicious use of water, thereby leading to its conservation.

The agricultural sector consumes a major share of water resources of the state, both ground as well as surface waters. In general, the farmers use this water extravagantly for irrigation purposes, despite the efforts made to educate them for judicious use of water. This is mainly due to the provision of free electricity to the agricultural tubewells as part of the government strategy to subsidise the input use. However, this has led to non-judicious use of water in the farm sector. Even the farmers in canal command areas (CCAs) prefer groundwater to surface water due to ease of its use. It has been observed that the canal water in CCAs remains under-utilised, especially in the cen-

tral part of Punjab. To strategise the judicious use of water, the following rationing scheme needs to be adopted in the agricultural sector:

■ In CCAs, the surface water allocation should be made available free of cost to the farmers. The groundwater extraction, if done, may be charged as per the differential slab rates on a per-unit volume basis as recorded from the water meters installed on the tubewells.

■ In non-CCAs, the groundwater extraction could be allowed free of cost for the recommended volume. For example, the volume of irrigation water as per scientific recommendations for the rice-wheat system is 9,000 cubic metres per hectare. The water extracted over and above this recommended volume may be charged on per-unit volume basis at differential slab rates. This can lead to huge reductions in groundwater extractions, thereby reducing the fast depletion of groundwater.

■ To further incentivise judicious use, farmers saving upon the above-said recommended requirement of water through various conservation practices should be allowed to sell the water credits due to them to other stakeholders.

The rationing of water in all sectors, especially the agricultural sector, can do wonders for checking the fast-depleting groundwater resource and ensure its sustained availability in the times to come.

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