

Central Water Commission  
Water Systems Engineering Directorate

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R K Puram, New Delhi-66  
Dated 26. 11. 2018.

***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.

Encl: As above.

*P. Maheshwari*  
26. 11. 18  
SPA (Publicity)

Deputy Director, WSE Dte.

*Am*  
26/11

Director, WSE Dte.

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For information to:

Chairman, CWC, New Delhi

Member (WP&P/D&R/R.M.), CWC and all concerned, uploaded at [www.cwc.gov.in](http://www.cwc.gov.in)

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Hindustan (Hindi)  
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# Indus waters: India to expedite 3 projects <sup>2684</sup>

AGENCIES

NEW DELHI, 25 NOVEMBER

India has decided to fast-track three projects, including construction of two dams, to arrest the unutilised water of its share under the bilateral Indus Waters Treaty with Pakistan, government officials said.

The three projects include the Shahpur Kandi dam project, a second Sutlej-Beas link in Punjab and the Ujh Dam project in Jammu and Kashmir, they said.

"These (three) projects were stuck in red tape and inter-state disputes. But it has been decided to expedite the execution of these projects," one of them added.

Under the Indus Waters Treaty, waters flowing in three of Indus tributaries -- the Sutlej, Beas and Ravi -- have been allotted to India; while the Chenab, Jhelum and Indus waters have been allotted to Pakistan.

Of the total 168 million acre-feet, India's share of water from the three allotted rivers is 33 million acre-feet, which constitutes nearly 20 per cent.

India uses nearly 93-94 per



cent of its share under the Indus Waters Treaty. The rest of the water remains unutilised and goes to Pakistan," an official added.

The Ujh dam is a proposed hydroelectricity and irrigation multipurpose project in the Kathua district of Jammu over the Ravi river with a capacity to generate 196 MW of electricity. The total water utilisation from this project is 172.8 million cusec metre (mc), but it has the capacity to store 925 mcm of water, the officials said. The estimated cost of the project is Rs 5,950 crore.

The Jammu and Kashmir

government has forwarded the Detailed Project Report (DPR) to the Centre for its appraisal, which is expected to be okayed by the Advisory Committee of the Ministry of Water Resources for clearance, they said.

After the Uri attack in Kashmir in September 2016, the government had sought to use the Indus Waters Treaty to put pressure on Pakistan. The measures included effectively using India's share of waters that flow into Pakistan. This also included fast-tracking irrigation and hydropower projects by resolving the inter-state dis-

putes.

The Centre has also asked the Punjab government to prepare a feasibility report of the second Ravi-Beas link that is expected to further help in increasing utilisation of India's share of water under the treaty.

In September, the Punjab and the Jammu and Kashmir governments signed an agreement to resume works on the Rs 2,793-crore Shahpur Kandi project. Though the work on the project began in 2013, it was halted due to certain issues raised by the J&K.

The Punjab government also submitted a revised cost estimate of Rs 2,793.54 crore and requested the Centre to include the project in the prioritised list of the Pradhan Mantri Krishi Sinchai Yojana (PMKSY)/Accelerated Irrigation Benefit Programme (AIBP) projects.

The project, when implemented, will enable the upstream Ranjit Sagar Dam project power station to act as a peaking station, besides having its own generation capacity of 206 MW and irrigation benefit of 37,173-hectare to Punjab and J&K.

News item/letter/article/editorial Published on 26/11/2018 in the

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# NHPC's Arunachal Projects to Resume Work After NGT Move

Green tribunal  
quashes appeal to  
stall hydroelectric  
projects at Lower  
Subansiri and Dibang

**Sarita.Singh**  
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**New Delhi:** The government expects to resume work on two of the country's largest hydroelectric projects, planned by the NHPC at Lower Subansiri and Dibang in Arunachal Pradesh with a combined capacity of 4,800 MW, as the green tribunal has quashed appeals stalling them.

The government has filed a caveat in the Supreme Court against stay on the two projects without a hearing. However, the organisations opposing the projects are preparing to approach the Supreme Court, according to people aware of the matter.

The National Green Tribunal (NGT) on Monday rejected an appeal filed by social activists against the constitution of a three-member expert committee to study the 2,000-MW Lower Subansiri hydroelectric project on

the border of Assam and Arunachal Pradesh.

"This is a very positive development in the hydroelectric sector where no new project has taken off in the last three-four years. With this order, we expect work to resume on the project. The expert panel will hopefully submit its report in the next two-three months," said a government official.

The case was filed in NGT by Assam Public Works and Tularam Gogoi demanding fresh formation of an expert committee with better local representation and limited government intervention. NGT on Monday retained the three-member commit-

tee, including Prabhas Pandey, PM Scott and ID Gupta.

"We have heard the learned counsel appearing for the applicant. We did not find any merit in these applications," the tribunal order said.

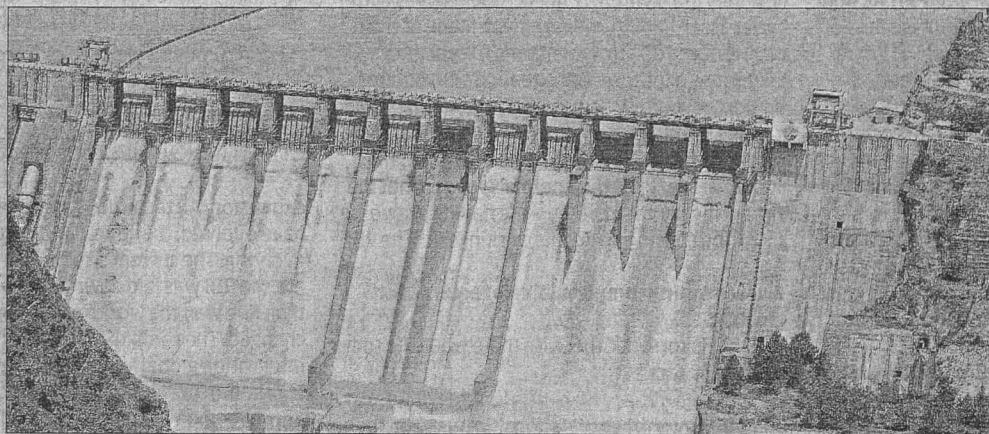
The litigation had stopped work at the project for nearly nine months after the case was filed in the tribunal, which had reserved the matter.

In the matter of the 2,800-MW Dibang multipurpose project, the NGT had in its judgement on November 13, dismissed the appeal filed by appellant Pradip Kumar Bhuyan against the government for granting environ-

ment clearance to the project. The tribunal upheld the environmental clearance accorded to the project in the lower Dibang valley district.

"The court said adequate studies had been undertaken to ensure sustainable implementation of the project. The court, however, has asked the implementing agency to meet all conditions laid down in the environment clearance scrupulously," said a person aware of the matter.

The government official said NHPC will shortly call bids to award turnkey contracts to build a 70-meter high concrete dam on the Dibang river.



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## Govt's Ganga e-flow order unscientific, say experts

TIMES NEWS NETWORK

**New Delhi:** A month after the Centre notified minimum environmental flow for the Ganga, environmentalists on Saturday said the methodology used for deciding e-flow did not follow scientific basis and claimed as many as 942 dams, barrages and weirs in the entire Ganga river basin were restricting its flow and posing a grave challenge to its rejuvenation.

Uninterrupted flow of water in any river is important to keep it clean through its natural ecological functions and processes. Besides 784 dams, 66 barrages and 92 weirs, the river basin also has functional lift schemes.

Making a joint presentation on the issue at an event, India River Week, river conservationists noted that the Ganga slows to a trickle just 14 km downstream from its origin and the reason for this are the dams, barrages and weirs which come in its way.

Displaying recent images from the Bhagirathi valley, they flagged how the dry river beds could be visible after each of the barrages in the river basin.

"The Uttarakhand government regularly asked the Centre to allow setting up of hydro-plants in Bhagirathi eco-sensitive zone. It's a politico-bureaucrat-corporate nexus that is against Ganga," said Shashi Shekhar, former water resources secretary.

"We are only attacking sewage waste in the river but the solution is in improving the flow. Solution to pollution is by dilution which would come with better flow," he said.



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# 'Sewage from 1,700 colonies is dumped directly into Yamuna'

**NGT PANEL** Monitoring committee told Delhi govt last month that 80% slums, unauthorised colonies lack sewerage

**HT Correspondent**

■ [hreporters@hindustantimes.com](mailto:hreporters@hindustantimes.com)

**NEW DELHI:** The absence of sewer lines in 1,700 unauthorised colonies — housing around 40 lakh people — in the national capital is one of the major reasons of pollution in the Yamuna, the monitoring committee set up by the National Green Tribunal (NGT) for overseeing cleaning of the polluted river has said.

The river — that is the lifeline of the city as it supplies drinking water to most parts — is almost dead with high levels of toxic chemicals. The committee said sewage, mainly faecal sludge from these colonies being directly emptied into the river, adds to extremely high levels of pollutants not allowing the water body to sustain life.

The two-member monitoring committee, in an official note to the Delhi government last month,



■ **Of the 1,797, unauthorised colonies in the city, only 14% have been provided sewage pipelines.**  
SONU MEHTA/HT FILE

stated that in the absence of a sewerage system in 80% of the unauthorised colonies and slum clusters, faecal sludge is being directly emptied into the river.

Faecal sludge has 2,000 to 8,000 mg/litres of biochemical oxygen demand (BOD) load per day, which is much higher than the 150-300mg/litres BOD of sewage.

The BOD levels — oxygen needed by the river to sustain life — in Yamuna is alarmingly high.

This is because sewage from planned colonies goes to the sewage treatment plants (STPs) and is then drained into the river. However, sludge from the unauthorised colonies is collected in septic tanks by private contractors and is directly emptied into the river, thus adding to the BOD levels.

Around one-third of Delhi's population is dependent on septic tanks for its daily sewerage needs, the committee said.

"The faecal sludge leeches into the groundwater thus ruining the environment. It is leading to destruction of land, water and drains, for which no compensation is being demanded by government authorities, who are responsible for enforcement," it said in its note.

Of the 1,797, unauthorised col-

onies in the city, only 14% have been provided sewage pipelines. However, the functioning is poor, as residents are not willing to pay the charges for the same, it said.

The NGT had in July this year formed the monitoring committee and directed it to submit by December 31 an action plan on cleaning of the river.

The situation has been grim despite the faecal sludge and septage management rules being put in place since February 2018. The committee had asked the state government to notify the rules.

When contacted the committee said, the rules were approved by the government and are expected to be notified soon.

"We were told that the notification is ready and will be out soon. Once the rules are notified, implementation will be the key," said a committee member not wishing to be named.

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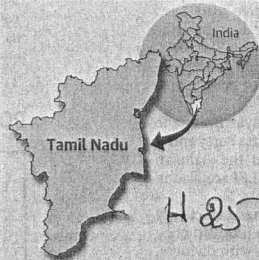
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## WHERE

# Assessing Gaja's havoc in Tamil Nadu



On November 16, Vedaranyam, the tip of the nose of peninsular India stretching into the Bay of Bengal, was in the eye of a storm when Cyclone Gaja made landfall and swirled through the fertile Cauvery delta in Tamil Nadu. The cyclone left the delta battered like no other in more than half-a-century.

### What happened?

The cyclone with high velocity winds

gusting up to 120 km an hour sheared trees, huts, tiled houses and every other structure in its path. Almost the entire delta spread over Nagapattinam, Tiruvarur and Thanjavur districts, considered the granary of the State, the neighbouring Pudukottai and even interior Tiruchi and Dindigul districts staggered under its impact as the cyclone made its way to the Arabian Sea in Kerala.

### What was the impact?

The cyclone swept in wind and water, destroying lakhs of trees, including coconut, banana, cashew, mango, jackfruit, casuarina, betelvine, eucalyptus, teak and sugarcane on thousands of hectares. The paddy crop of the samba/thaladi seasons was also damaged in some places. Boats and huts of fishermen were destroyed. The Point Calimere Wildlife Sanctuary, a Ramsar site (a wetland of international importance for conservation), was ravaged. Carcasses of blackbuck, spotted deer, feral horses

and birds were washed on the shores of Karaikal in Puducherry. Scores of villages were wiped out and thousands rendered homeless. The steel roofs of petrol stations, grain storage godowns and other buildings were blown away. Nearly a lakh tonne of stocks in salt pans in Vedaranyam were washed away. Over 3.41 lakh houses with thatched or tiled roofs were damaged, according to an official estimate. More than 3.78 lakh persons were accommodated in over 550 relief centres. Over 92,500 birds and 12,200 heads of cattle perished.

### How bad was it?

Many residents in Vedaranyam said they had not witnessed devastation of such magnitude in their life. A few elders compared the devastation to a cyclone in the 1950s. Every family was left counting its losses. The coconut growing belt of Pattukottai, Peravurani and Orathanadu in Thanjavur district took a severe beating. "Coconut growers are ruined. We have lost everything," said V.

Veerasenan, a farmer of Pattukottai. Official estimates said coconut trees raised on over 30,000 hectares were uprooted. In Pudukottai district alone, over 5 lakh coconut trees were destroyed. The electricity distribution network crumbled with more than a lakh poles uprooted, severing over 53 lakh connections. More than 800 transformers and 180 sub-stations were affected. Absence of power left villages and towns without drinking water supply. Tangedco, the power utility, has deployed more than 22,000 workers on the massive restoration effort.

### How did the government respond?

Sixty-three persons lost their lives in cyclone-related incidents. More lives would have been lost but for some well-coordinated action by the State Disaster Management Authority, from its headquarters in Chennai, to evacuate people from coastal hamlets. By the time the cyclone made landfall, officials in the districts had moved more than a lakh

people to relief centres. The pre-emptive action came in for some praise even from DMK president M.K. Stalin, though the rare show of goodwill did not last long. Left without food and essential supplies, mobs turned their ire against the visiting Ministers and other elected representatives. Nevertheless, several Ministers continue to soldier on along with scores of senior IAS officers sent from Chennai to oversee relief and restoration efforts. Chief Minister Edappadi K. Palaniswami, after an aerial inspection of Pudukottai and Thanjavur districts, called on Prime Minister Narendra Modi and sought ₹14,910 crore in assistance.

### How long will it take to recover?

Officials concede that it could take more than a month to restore normality. But as Mr. Veerasenan says it could take a decade for farmers to reclaim their livelihood.

S. GANESAN

News item/letter/article/editorial Published on 25/11/2018 in the

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## Notification on Ganga e-flows drew from study by govt bodies, IIT-D, reveals RTI

**SOWMIYAASHOK**

NEW DELHI, NOVEMBER 24

THE CENTRE'S October 9 notification on minimum environmental flows in the Ganga, notified two days before Ganga activist G D Agarwal's death, draws heavily from a March 2018 report, put together by three government agencies and IIT-Delhi, an RTI application has revealed.

The report follows at least six previous attempts since 2010 at drawing up an acceptable quantum of environmental flow in the river, particularly in the upper reaches of the Ganga, which is heavily dammed. The notification specifies minimum flow releases only in the downstream stretch between Haridwar and Unnao, while remaining vague about Upper Ganga River Basin.

Environmental flows, or e-flows, are defined as "water regime provided within a river...to maintain ecosystems and their benefits where there are competing water uses and where flows are regulated".

Environmentalists point out that Ganga's flow is restricted, and its rejuvenation under threat, due to 900 dams, barrages

and weirs built on the river.

The report, which heavily influenced the government notification, was put together by the Central Water Commission, the National Mission for Clean Ganga, the National Institute of Hydrology in Roorkee, and IIT-Delhi, according to documents accessed by *The Sunday Express* under the RTI Act. The committee was set up by the Ministry of Water Resources in August 2017.

The study analyses inflow and release data of Bhimgoda barrage in Haridwar, Bijnor and Narora barrages, and quantifies minimum flow releases immediately downstream in non-monsoon months (October to May) and monsoon months (June to September). The report makes the case for "storage-type reservoirs" such as the Tehri reservoir - the subject of much ire for environmentalists, who believe large structures block crucial sediments needed in the lower reaches of the river.

The notification provides a range of 20 per cent in the dry season, 25 percent in lean season, and 30 percent in the high flow season for monthly average flow in the Upper Ganga River Basin stretch.

This is in stark contrast to recommendations by the consortium of seven IITs, which was tasked with preparing the Ganga River Basin Management Plan in 2013. The IIT Consortium assessed environmental flows in upper Ganga in "range of 35 to 59%, 37 to 71% and 42 to 83% of the average virgin flows in the monsoon, non-monsoon and lean period, respectively," documents show.

Prof Vinod Tare of IIT-Kanpur, convener of the consortium, said environmental flow in the stretch between Haridwar and Unnao is already higher than what is laid down in the notification. "The focus should be on the upper reaches of the Ganga," he told *The Sunday Express*.

"All studies commissioned do focus on e-flows but at different stretches. A scientific study looking at the entire stretch is crucial considering specific characteristics of that stretch," former Union Water Secretary Shashi Shekhar told *The Sunday Express*. "This (notification) is at least a beginning - the notification should have mentioned that a scientific study will be conducted within a certain number of years."

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# Water flow in Ganga 'woefully inadequate'

Experts say that the quantum fixed by government is not enough

JACOB KOSHY  
NEW DELHI

Former Union Water Resources Secretary Shashi Shekhar has said that "minimum flow" in the Ganga notified by the government on October 9 is "woefully inadequate." Additionally, an analysis by Professor Vinod Tare of the Indian Institute of Technology, Kanpur of the actual water flow at barrages downstream of Haridwar and using data provided by the Central Water Commission, suggests that actual flow today already exceeds the government's prescriptions. These findings emerged at the India Rivers Week conference on Saturday.

## Government's promise

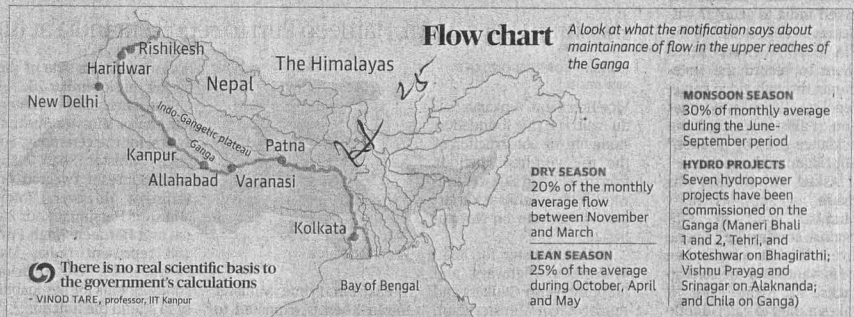
While the government has promised to reduce pollution in the Ganga by 70% by March 2019, environmentalists say that this relies on setting up sewage plants rather than ensuring that the natural flow of the river isn't

blocked. The blocks in the river hobble its propensity to clean itself.

Among the sharpest critics of the government's approach – led by the National Mission for Clean Ganga – was the late G.D. Agrawal, a seer and formerly a scientist, who'd undertaken a fast since June. His key demands were to stop all under-construction dams in the upper reaches of the Ganga, and modify the design of existing ones to ensure that flow in the lower reaches was at least 50% of the monthly average flow. He died on October 11.

However, the notification said that the upper stretches of the Ganga – from its origins in the glaciers and until Haridwar – would have to maintain 20% of the monthly average flow between November and March, which is the dry season; 25% of the average during the 'lean season' of October, April and May; and 30% of monthly average during the monsoon months of June-September.

"These flows are already achieved and this is the state of the river... there's no real scientific basis to the government's calculations," said Mr. Tare.



## Centre looks abroad for ideas

SPECIAL CORRESPONDENT  
NEW DELHI

The Centre is in talks with experts from Germany, Laos, Austria and Egypt, among others, to evolve a Ganga-River Basin Management Plan.

Though it already has a preliminary draft from a consortium of seven IITs, it is in the process of soliciting wider consultation from countries that have such river basin management plans.

At a two-day workshop organised by the German

Society for International Cooperation, and the National Mission for Clean Ganga (NMCG), the Centre discussed the experiences of countries in managing rivers such as the Danube, Rhine, Mekong. "Right now the focus, as far as the Ganga is concerned, is on fixing the sources of pollution. However cleaning is a continuous process...we also need to think of its future," said Rajiv Ranjan Mishra, director-General, NMCG.

There is already a draft

'Ganga law' in the anvil that is meant to ensure the health and ecological viability of the river. This, however, is still being deliberated by various Ministries and, according to officials, is being readied for the approval of the Cabinet before the year ends. "The river basin plan is much more comprehensive," said Mr. Mishra.

An early draft of the Ganga River Basin Management Plan analysed the river in terms of environmental quality and pollution; water

resources management; fluvial geomorphology; ecology and biodiversity; socio-economic and socio-cultural; policy, law and governance and geo-spatial database management. Seven missions were identified for focused interventions: 'Aviral Dhara', 'Nirmal Dhara', 'Ecological Restoration', 'Geological Safeguarding', 'Disaster Management', 'Sustainable Agriculture' and 'Environmental Knowledge Building and Sensitisation'.



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## गंगा पर बने बांध-बैराज उसके प्रवाह को बाधित कर रहे हैं

नई दिल्ली, (भाषा): गंगा नदी का प्रवाह उस पर बने 900 से अधिक बांधों और बैराजों के चलते बाधित हो गया है और उसका संरक्षण खतरे में है। यह बात पर्यावरणविदों ने कही है। पर्यावरणविदों ने कहा कि नदी के संरक्षण के लिए उसका प्रवाह सुधारा जाना चाहिए और शहरों से उसमें छोड़े जाने वाले ठोस अपशिष्ट पर रोक लगनी चाहिए। पर्यावरणविद एवं जल संसाधन विशेषज्ञ रवि चोपड़ा ने कहा कि सरकार गंगा की सफाई ध्यान केंद्रित कर रही है, उसके संरक्षण पर नहीं।

नदी का प्रवाह सुधारना उसका संरक्षण करने का सबसे अच्छा तरीका है। चोपड़ा यहां 'केन इंडिया रेजुवेनेट गंगा' विषयक कार्यक्रम में बोल रहे थे। पर्यावरणविदों ने एक संयुक्त प्रस्तुति में दावा किया कि गंगा नदी पर 940 बांध, बैराज बनाये गए हैं और ये उसके प्रवाह को बाधित कर रहे हैं।

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# Climate change caused deadly Kerala rains: IMD

## ALARM Study says most of the state vulnerable to flooding, 'normals have shifted'

Jayashree Nandi  
Letters@hindustantimes.com

**NEW DELHI:** The extreme rainfall and flooding that devastated Kerala in August, the worst disaster the state confronted in almost a century, were a result of climate change, the ministry of earth sciences (MoES) has concluded after a meteorological analysis of the event.

"Kerala flooding has happened because of extreme rainfall during monsoon 2018 and large amounts of water stored in catchments of reservoirs, which had to be released. It is because of climate change that such disasters happen," said KJ Ramesh, director general of the India Meteorological Department (IMD), an arm of the MoES.

The percentage of "extremely heavy rainfall" and "dry days" has shown an increasing trend in the past few decades while the frequency of "light to moderate" and "very light" rainfall are decreasing in India — one of the many climate variability and impact of climate change being observed by India Meteorological Department.

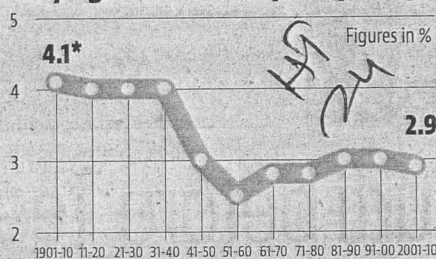
"The normals have shifted," Ramesh said on Friday at a national media briefing on climate change organised by the Centre for Science and Environment (CSE), supporting his presentation with decadal precipitation data.

More than 300 people died in the August rainfall, flooding and landslides that rendered thou-

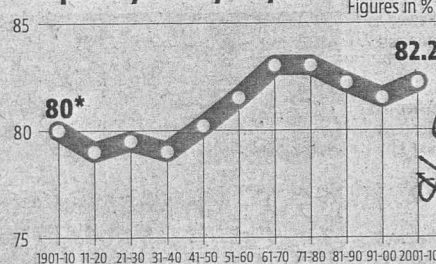
### APPARENT EFFECTS

Climate change has affected rainfall patterns and made cyclones deadlier

#### Very light rainfall day frequency

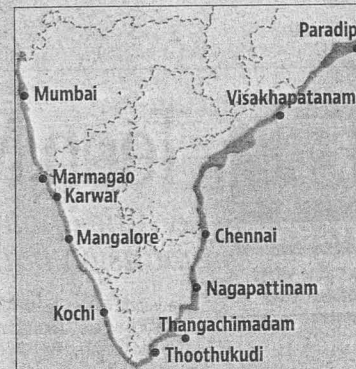


#### Frequency of dry days



#### THE MOST VULNERABLE

Multiple hazards Coastal vulnerability



Red areas denote places that face a combination of serious threats: greater chances of tsunami, sea-level rise and cyclones

Source: IMD \*(in %, approx numbers based on IMD data)

sands homeless, and left a trail of devastation, wrecking 10,000 km of highways and damaging 45,000 hectares of farmland.

The state government estimated the damage at almost ₹20,000 crore.

Climate change refers to seasonal changes over a long period

of time caused by the growing accumulation of heat-trapping greenhouse gases in the atmosphere.

Rainfall data for 1951 to 2016 shows that rainfall events of more than 10 to 15 cm per day are increasing while those of less than 5 cm per day are gradually

decreasing.

"This is proof of climate change impact. The Intergovernmental Panel on Climate Change's (IPCC) fifth assessment report had said such impacts will be pronounced," Ramesh said.

CONTINUED ON P8

### Kerala floods

The 1951 to 2016 data published in Geophysical Research Letters this year also shows that there has been a marked increase in heavy rainfall events in southern and north western India, starting in 2000.

IMD has been working on a report on the causes of the Kerala floods and the accuracy of IMD's weather model in predicting the event. The findings say that the elevation in Kerala ranges from -48 m below sea level (in the backwaters and other low-lying areas) to +2,692 m (in the hills) above the mean sea level, with 35 % of area between 0-50 m, 39.82 % between 50-500 m and 24 % of the area above 500 m.

"More than 75% of the geographical area in Kerala is vulnerable to flooding. They are sitting on the most vulnerable zone. This, coupled with unprecedented rainfall, led to extreme flooding," said Ramesh, who displayed other rainfall maps showing the west coast would be highly vulnerable to extreme rainfall events in future.

Kerala received 2,377.1 mm rain against a normal of 1,676.3 mm (above normal by 42%). The rainfall over Kerala during June, July and August (1-20 August) was 15%, 18% and 156% above normal, respectively.

"The exceptionally high rainfall in August, 2018... has been due to two consecutive active spells, August 8 to 10 and then during August 14 to 17. Under this rainfall scenario, by the end of July 2018, in all the major 35-odd reservoirs in Kerala, the storage was close to the full reservoir level (FRL) and had no buffer storage to accommodate the heavy inflows from August 8. Continued exceptionally heavy rainfall in August in the catchment areas had compelled the authorities to resort to heavy releases downstream into the rivers leading to widespread flooding," Ramesh's presentation said.

The heaviest rainfall was recorded over Idukki district (93% above normal) during the season.

"Our paper published a few

Hindustan Times  
Statesman  
The Time of India (New Delhi)  
Indian Express  
Tribune

Hindustan (Hindi)  
Nav Bharat Times (Hindi)  
Punjab Keshari (Hindi)  
The Hindu (New Delhi)  
Rajasthan Patrika (Hindi)

Deccan Chronicle  
Deccan Herald  
The Times of India (A)  
Business standard  
The Economic Times

and documented at Bhagirath (English) & Publicity Section, CWC

Business Line, Delhi ✓

## Now IMD can forecast impact of rain on water levels in rivers, tanks

PRESS TRUST OF INDIA

New Delhi, November 23

A new technology has been developed to assess the rise in water level in rivers and reservoirs due to rain and can help State governments to minutely monitor the impact of rainfall, India Meteorological Department chief KJ Ramesh said, in the aftermath of the deadliest deluge in Kerala.

The technology called the 'Impact Based Forecasting Approach' which shows "pre-event scenario" can help authorities in taking real-time decisions, he said.

"We should be able to generate a scenario where we can take decisions to release water or not. It will be helpful for every State authority to take decision. We can run this system in pre-event scenario. We are now in a position to put this technology into service,"

Ramesh said at an event organised by the Centre for Science and Environment.

The heavy downpour that ravaged Kerala for a fortnight ending August 21 caused death of around 500 people and economic damage of over ₹40,000 crore.

Kerala Chief Minister Pinarayi Vijayan had said in the State Assembly that there were "lapses" in IMD's rain forecast.

The IMD had forecast 98.5 mm rain in the State between August 9 and 15, but Kerala received 352.2 mm of rainfall, Vijayan said.

The IMD Director-General attributed the excessive rainfall to climate change.

"The number of cyclones has increased from 10 to 18

every year as reported in Nature journal, and secondly, the quantum of precipitation which was 13 days has come down to 10 days," he said.

There is another technology which would help in identifying warm ocean segments that contribute to the rapid intensification of the systems.

Cyclone Ockhi's unpredictability was due to such warm ocean segments, following which the technology was developed in October, Ramesh said.

Ockhi is the first severe cyclonic storm in almost 40 years to have travelled about 2,400 kilometres from the Bay of Bengal to as far as the

Gujarat coast, a senior Met Department official said.

Ockhi, which formed as a depression over South West Bay of Bengal on November 29 last year, intensified into a cyclone

off the Kanyakumari coast in Tamil Nadu on November 30 and travelled up to the Gujarat coast before it dissipated on December 6 after weakening into a low pressure area.

CSE Director General Sunita Narain stressed on the need to plan "deliberately for drainage" to prevent disasters like Kerala floods.

"Every river, pond, paddy field and city should be mapped and protected at all costs," Narain said.

"Every home, institution, village and city must be required to do rainwater harvesting so that rain can be channelised and recharged," she said.



Hindustan Times  
Statesman  
The Time of India (New Delhi)  
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Hindustan (Hindi)  
Nav Bharat Times (Hindi)  
Punjab Keshari (Hindi)  
The Hindu (New Delhi)  
Rajasthan Patrika (Hindi)

Deccan Chronicle  
Deccan Herald  
The Times of India (A)  
Business standard  
The Economic Times

and documented at Bhagirath (English) & Publicity Section, CWC

# IMD hints at El Nino from Feb, a hotter summer

Neha.Madaan  
@timesgroup.com

**Pune:** The India Meteorological Department has indicated an increased probability of El Nino conditions from February next year, probably resulting in above-normal summer temperatures.

El Nino-Southern Oscillation (ENSO) is an irregularly periodical variation in winds and sea surface temperatures over the tropical eastern Pacific Ocean. The warming phase, which is thought to impact India's southwest monsoon, is known as El Nino, while the cooling phase is La Nina.

IMD officials said it was too early to say whether the weather event will impact the 2019 monsoon. An IMD source said El Nino might start weak-

ening by spring next year.

A recent probability forecast for El Nino and La Nina (ENSO) by the IMD indicated maximum probability for ENSO neutral conditions (neither an El Nino event nor a La Nina event) from October to February next year. Thereafter, an increased probability for El Nino con-

## WARM PHASE

ditions is seen from February to July, the forecast said.

An IMD official told TOI that if one went by consensus of various experts and models, there was a good chance of an El Nino event during early next year. "As in October 2018, international models are showing Nino 3.4 index temperature values crossing the El Nino thresh-

old level of 0.5°C. While our model forecasts are showing the index value to be slightly less than 0.5°C, other international forecasting centres are indicating that by the end of this year or early next year, weak or moderate El Nino might occur and may continue up March or April," the official said.

An event is considered to be weak El Nino if the sea surface temperatures over the equatorial Pacific Ocean increase by more than 0.5°C above normal. On the likelihood of the event continuing after March or April 2019, the official said generally, these events weaken by spring and in rare cases, continue beyond that. He said there could also be a chance of an increase in summer temperatures in 2019 because of El Nino.

## 235 farmers ended lives in September: Maha govt

**Mumbai:** The Maharashtra government has said 235 farmers committed suicide in the state for various reasons in September this year.

Maharashtra relief and rehabilitation minister Chandrakant Patil stated this in the Legislative Assembly in a written reply on Thursday.

In six districts of Vidarbha region, 15,629 farmers ended their lives for various reasons between January 2001 and October 2018.

Of them, 7,008 farmers were eligible for financial compensation and their

**Between January and September this year, there were 73 cases of farmers suicide in Nashik, while 674 farmers killed themselves in Marathwada**

families have been given a financial assistance of Rs one lakh each.

As many as 215 cases are pending for probe, he said.

In Nashik district, between January and Septem-

ber 2018, there were 73 cases of farmers suicide, of which 17 were eligible for financial compensation. They have been provided assistance of Rs one lakh each, he said.

In Kolhapur, between 2004 and 2018, a total 113 farmers ended their lives. In Marathwada, 674 farmers killed themselves between January and September 2018.

Of them, 445 were entitled to compensation. Patil also said there was no proposal under consideration to ease the criteria for providing compensation to farmers who commit suicide. #



News item/letter/article/editorial Published on 24/11/2018... in the

Hindustan Times  
Statesman  
The Time of India (New Delhi)  
Indian Express  
Tribune

Hindustan (Hindi)  
Nav Bharat Times (Hindi)  
Punjab Keshari (Hindi)  
The Hindu (New Delhi)  
Rajasthan Patrika (Hindi)

Deccan Chronicle  
Deccan Herald  
The Times of India (A)  
Business standard  
The Economic Times

and documented at Bhagirath (English) & Publicity Section, CWC

Jansatta, Delhi ✓

# अविरल और निर्मल होकर रहेगी गंगा : उमा भारती

जनसत्ता संवाददाता  
देहरादून 23 नवंबर।

केंद्रीय मंत्री उमा भारती ने कहा कि गंगा का जल अविरल और निर्मल होकर रहेगा क्योंकि केंद्र सरकार गंगा की स्वच्छता के लिए संकल्पबद्ध है। उन्होंने कहा कि गंगा के लिए पर्यावरणविद् प्रोफेसर जीडी अग्रवाल का बलिदान किसी भी सूरत में व्यर्थ नहीं जाने दिया जाएगा।

उमा भारती ऋषिकुल में दिव्य प्रेम सेवा मिशन और पतंजलि योगपीठ द्वारा संयुक्त रूप से आयोजित देवभूमि स्वदेशी मेला परिसर में नमामि गंगे व्याख्यानमाला में मुख्य वक्ता के रूप में बोल रही थी। उन्होंने कहा कि गोमुख से लेकर गंगासागर तक 1600 गांवों को शौच मुक्त बना दिया गया है। झारखंड और कोलकाता के कुछ क्षेत्र शौच मुक्त होने से रह गए हैं, जिन्हें जल्दी ही शौच मुक्त कर दिया जाएगा। उन्होंने लोगों से अपील की कि वे गंगा के किनारे औषधीय और जड़ी बूटी वाले पेड़-पौधे लगाए। उत्तराखंड सरकार को उनके मंत्रालय ने गंगा किनारे पेड़-पौधे लगाने के लिए दो करोड़ रुपए दिए हैं। साथ

ही उन्होंने कहा कि गंगोत्री से गंगासागर तक गंगा किनारे पेड़ लगाने के लिए राष्ट्रीय वन अनुसंधान संस्थान देहरादून से एक प्रोजेक्ट बनवाया गया है, जिसको जल्दी ही अमल में लाया जाएगा।

उमा भारती ने कहा कि जिस तरह से गंगा की स्वच्छता के लिए केंद्र की नरेंद्र मोदी सरकार ने कार्य किया है। वैसा कार्य आजादी के बाद आज तक केंद्र की किसी सरकार ने नहीं किया है। उन्होंने कहा कि गंगा में भारत के लोगों की अगाध आस्था है। गंगा नदी विश्व की अकेली ऐसी पावन नदी है, जिसमें गोमुख से गंगासागर तक 70 करोड़ लोग हर साल स्नान करते हैं। हम सबका यह फर्ज है कि गंगा को स्वच्छ रखें और गंगा में कूड़ा करकट ना डालें।

पत्रकारों से बात करते हुए उमा भारती ने कहा कि वे उत्तराखंड सरकार के गंगा नदी को स्वच्छ किए जाने के कार्यों से पूरी तरह संतुष्ट हैं। उन्होंने कहा कि जम्मू कश्मीर में राज्यपाल ने वहां की राजनीतिक परिस्थितियों के अनुसार ही राष्ट्रपति शासन लगाया है। उन्होंने कहा कि स्वामी सत्यमित्रानंद जी एक बड़े संत हैं। उनके द्वारा राम मंदिर के लिए अनशन किए जाने की घोषणा बहुत गंभीर विषय है।

News item/letter/article/editorial Published on 23.11.2018 in the

Hindustan Times  
Statesman  
The Time of India (New Delhi)  
Indian Express ✓  
Tribune

Hindustan (Hindi)  
Nav Bharat Times (Hindi)  
Punjab Keshari (Hindi)  
The Hindu (New Delhi)  
Rajasthan Patrika (Hindi)

Deccan Chronicle  
Deccan Herald  
The Times of India (A)  
Business standard  
The Economic Times

and documented at Bhagirath (English) & Publicity Section, CWC

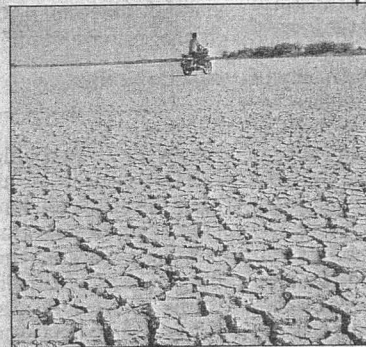
## DROUGHT

### When, and how, does a state govt declare one?

LARGE PARTS of Maharashtra are reeling under drought, aspects of which are being reported in the 'Dry Wave' series of this newspaper. While the word 'drought' usually brings to mind a period of unusually dry weather, crop damage and water supply shortages, there are guidelines in place for a state government for declaring a drought in a state or area. A manual published by the Ministry of Agriculture in 2016 suggests a three-step approach.

The first step is to look at two mandatory indicators — rainfall deviation and dry spell. Depending on the extent of deviation, and whether or not there is a dry spell, the manual specifies various situations that may or may not be considered a drought trigger.

The next step is to look at four impact indicators — agriculture, vegetation indices based on remote sensing, soil moisture, and hydrology. Each impact can be assessed on the basis of various indices. "The States may consider any three of the four types of the Impact Indicators (one from each) for assessment of drought, the intensity of the calamity and make a judgement," the manual states. If all three chosen indicators are in the 'severe' category, it amounts to severe drought; and if two of the three chosen impact indicators are in the 'moderate' or 'severe' class, it amounts to moderate drought.



A state government needs to look at many drought indicators, including dry weather. *Express Archive*

The third step comes in after both previous triggers have been set off. In that event, "States will conduct sample survey for ground truthing... in order to make a final determination of drought. The finding of field verification exercise will be the final basis for judging the intensity of drought as 'severe' or 'moderate'."

Once a drought is determined, the state government needs to issue a notification specifying the geographical extent. The notification is valid for six months, unless de-notified earlier.

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Hindustan (Hindi)

Nav Bharat Times (Hindi)

Punjab Keshari (Hindi)

The Hindu (New Delhi)

Rajasthan Patrika (Hindi)

Deccan Chronicle

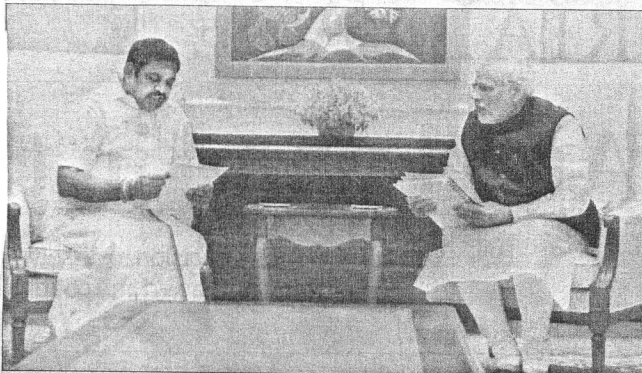
Deccan Herald

The Times of India (A)

Business standard

The Economic Times

and documented at Bhagirath (English) & Publicity Section, CWC



Tamil Nadu Chief Minister Edappadi K Palaniswami submitted a memorandum to Prime Minister Narendra Modi, detailing the extent of the damage caused by Cyclone Gaja.

#### CYCLONE GAJA

## Palaniswami meets PM, seeks Rs 15,000-cr aid for relief, rehab

EXPRESS NEWS SERVICE  
NEW DELHI, NOVEMBER 22

TAMIL NADU Chief Minister Edappadi K Palaniswami met Prime Minister Narendra Modi on Thursday and sought central assistance of Rs 15,000 crore for relief and rehabilitation work after destruction caused by Cyclone Gaja in the state. He urged the Prime Minister for an immediate release of Rs 1,500 crore towards "temporary renovation" work.

"I have submitted a memorandum to the Prime Minister

detailing the extent of the damage caused by the cyclone," he told reporters. According to the memorandum, the state government has sought Rs 14,910 crore towards permanent renovation activities, including in the power sector which lost crucial infrastructure in the cyclone.

Palaniswami said that Modi, responding to his request, deputed a central team to assess the damage caused by the cyclone. The team is expected to reach Tamil Nadu on Friday.

The state government released Rs 1000 crore for immedi-

ate relief and rehabilitation efforts in the affected areas. Palaniswami said a total of 3.41 lakh houses were damaged, while 1.04 lakh heads of cattle and birds perished in the cyclone. Noting that as many as 11.32 lakh trees had been uprooted, he said 7.27 lakh of them have been cleared.

Around 3.78 lakh people were lodged in 556 relief camps, even as relief and renovation work was on, he said.

Supply of electricity and drinking water was being gradually restored, he added.

Hindustan Times  
Statesman  
The Time of India (New Delhi)  
Indian Express  
Tribune

Hindustan (Hindi)  
Nav Bharat Times (Hindi)  
Punjab Keshari (Hindi)  
The Hindu (New Delhi)  
Rajasthan Patrika (Hindi)

Deccan Chronicle  
Deccan Herald  
The Times of India (A)  
Business standard  
The Economic Times

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Dainik Jagran, New Delhi

# राइन-डेन्यूब के अनुभवों से नदी बेसिन प्रबंधन सीखेगा भारत

## एनएमसीजी ने आयोजित की दो दिवसीय कार्यशाला

जागरण ब्यूरो, नई दिल्ली : नदी बेसिन प्रबंधन के बारे में भारत अंतरराष्ट्रीय अनुभवों से सीख लेगा। राष्ट्रीय स्वच्छ गंगा मिशन (एनएमसीजी) ने विभिन्न देशों में नदी बेसिन प्रबंधन पर चर्चा के लिए राइन, डेन्यूब, मेकांग और नील नदी पर काम करने वाले विशेषज्ञों को इस संबंध में उनके अनुभव साझा करने के लिए आमंत्रित किया है।

इन विशेषज्ञों ने गुरुवार को एनएमसीजी की ओर से आयोजित दो दिवसीय कार्यशाला में उनके अनुभव साझा किए। कार्यशाला का उद्घाटन करते हुए एनएमसीजी के महानिदेशक राजीव रंजन मिश्रा ने कहा कि दो दिन चलने वाले विचार विमर्श से नदी बेसिन प्रबंधन के जटिल मुद्दों को समझने में मदद मिलेगी।

इंटरनेशनल कमिशन फॉर द प्रोटेक्शन ऑफ द डेन्यूब रिवर के इवान जाचादस्की ने यूरोप की डेन्यूब नदी के बेसिन प्रबंधन के बारे में जानकारी दी। उन्होंने कहा कि किसी भी नदी को निर्मल बनाने के लिए तीन बातें महत्वपूर्ण हैं। पहली बात यह है कि नदी को स्वच्छ बनाने के लिए एक

### कवायद

- राइन, डेन्यूब, मेकांग और नील नदी के बेसिन प्रबंधन पर विशेषज्ञों ने रखे विचार
- विचार विमर्श से नदी बेसिन प्रबंधन के जटिल मुद्दों को समझने में मदद मिलेगी : राजीव

संस्थागत प्रक्रिया तय की जाए, जिसमें संबंधित पक्षों की भूमिका स्पष्ट रूप से तय हो। दूसरी जरूरत इस बात की है कि उस नदी में प्रदूषण किस प्रकार है और यह समस्या कितनी गंभीर है, इसका आकलन होना चाहिए। यह आकलन तभी संभव है, जब उस समस्या को समझने के लिए पर्याप्त आंकड़े उपलब्ध हों। कुल मिलाकर नदी को निर्मल बनाने

के लिए प्रशासनिक ढांचा, तकनीकी जानकारी, राजनीतिक इच्छाशक्ति और धन की उपलब्धता होना बेहद जरूरी है। उन्होंने कहा कि अगर राजनीतिक इच्छाशक्ति का अभाव है तो जनता में जन जागरूकता के जरिये उस पर दबाव बनाया जा सकता है। उन्होंने कहा कि डेन्यूब नदी के लिए 2009 और 2015 में दो बार नदी बेसिन प्रबंधन योजना तैयार की जा चुकी है। राइन नदी के लिए काम करने वाले जर्मनी के नदी बेसिन समुदाय 'एफजीजी राइन' के पीटर डेल ने कहा कि नदी को निर्मल बनाने के लिए जरूरी है कि उसमें घरेलू और औद्योगिक सीवेज को गिरने से रोका जाए। इसके लिए नदी बेसिन क्षेत्र में रहने वाले लोगों से एक निश्चित शुल्क वसूलना चाहिए। उन्होंने कहा कि राइन नदी के आस-पास रहने वाले परिवारों से अपशिष्ट जल यानी वेस्ट वाटर के लिए एक से तीन यूरो प्रति क्यूबिक मीटर की दर से शुल्क वसूला जाता है। इसके बाद जब यह गंदा पानी सीवेज ट्रीटमेंट प्लांट से साफ करके नदी में गिराया जाता है तो उसके लिए अलग से शुल्क चार्ज किया जाता है।



News item/letter/article/editorial Published on 26.11.2018..... in the

Hindustan Times  
Statesman  
The Time of India (New Delhi)  
Indian Express  
Tribune

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# RIMES terms Titli cyclone 'rarest of rare'

It has recommended a detailed assessment to understand the risks in the wake of the devastation

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The Regional Integrated Multi-Hazard Early Warning System (RIMES) for Africa and Asia, a 45-nation international organisation on disaster warning, has termed 'Titli', the severe cyclonic storm that devastated Odisha in October, as 'rarest cyclone'.

"More than 200 years of cyclone track history in the Odisha coast reveals that the Titli cyclone is the rarest of rare in terms of its characteristics such as recurvature after landfall and retaining its destructive potential after landfall and recurvature away from the coastal areas for more than two days," says RIMES in its latest report.

The UN-registered organisation said: "Considering the history of cyclone tracks, no synthetic track projection captures the Titli type of cyclones. The forecast information available lacks actionable early warning information such as no indication of occurrence of secondary hazards, including landslides far away from the coasts."

The severe cyclonic storm left more than 60 people dead, mainly due to land slide in interior Gajapati district. Odisha, which takes immense pride in disaster preparedness, was confounded in the wake of the damage to both life and property caused by Titli in interior



A fisherman rushes for shelter as Titli hits the Gopalpur coast in Ganjam district. ■ FILE PHOTO

districts.

Earlier, India Meteorological Department had called the formation of Titli as a 'rarest of rare' occurrence. The severe cyclone had changed its path after landfall.

According to RIMES, the Odisha State Disaster Management Authority faced challenges in anticipating and managing Titli's impact due to lack of impact-based actionable early warning information and prior experience not only in India but also elsewhere.

"The OSDMA, by learning the lessons from Titli cyclone, could evolve measures to minimise impacts in both coastal and non-coastal regions more effectively in future," it said.

The international body said: "The State government actions linked to the cyclone-risk management are also heavily focused on the coastal areas where cyclones

cross at their peak intensities. Therefore, coastal areas now have been largely well managed through evacuations and other protocols, leading to zero casualties in these areas."

"The highest number of casualties occurred in a village called Baraghara in Gajapati district due to landslides. People did not evacuate, as the risk is unknown and also not expected. There was no pin-pointed forecast available what will happen where," it said.

The RIMES has recommended that a detailed risk assessment has to be carried out for Odisha to understand the risks in the light of the Titli devastation.