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DownToEarth
FORTNIGHTLY ON POLITICS OF DEVELOPMENT,
ENVIRONMENT AND HEALTH

**Science
Reporter**



MK Yadav Sir

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Private Papers of public figures like Nehru, and the rules governing them

DIVYAA
NEW DELHI, JULY 4

THE Prime Ministers' Museum & Library (PMML) recently decided that it will not permit future donors of Private Papers of eminent personalities to impose indefinite conditions on the declassification of such material.

In 2008, Congress leader Sonia Gandhi reclaimed boxes of papers from Jawaharlal Nehru's Private Collection that the family had donated to the museum earlier, and also barred access to several sets of these papers.

What are Nehru's papers at the PMML?
The Jawaharlal Nehru Papers were the first set of Private Papers obtained by PMML, which was set up originally as the Nehru Memorial Museum & Library (NMML) in the memory of India's first Prime Minister.

The Private Papers of Nehru, spanning both the pre-Independence and post-Independence periods, were transferred to PMML in several batches starting in 1971. The transfer was facilitated by the Jawaharlal Nehru Memorial Fund (JNMF) on behalf of Nehru's legal heir, Indira Gandhi, who apparently remained the owner of these documents until her assassination in October 1984.

Subsequently, a substantial collection of Nehru's Papers from the post-1946 period was handed over to PMML by Sonia Gandhi.

Are Private Papers the same as personal papers?

The individual collections have come from families, institutions, universities, and other private donors. The papers are invaluable for an accurate appraisal of the lives and the work of these personalities and essential for an understanding of India's modern history and landmark moments. This lies at the heart of repeated efforts to make them available to scholars and researchers.

The custodians of the archives say there are essential differences between papers and correspondence that can be deemed personal, as opposed to Private Collections, even if they pertain to the same person. For instance, the correspondence of a President or a Prime Minister with other eminent personalities of the time, or with institutions, can be part of that person's Private Collection by virtue of these papers being owned by the person's family or other private individuals.

However, correspondence and documents held in a personal capacity are excluded from this set.

Official Records constitute another set of papers — these are held by various government departments and ministries and could comprise letters, records, file notings, etc. on the workings of central and state governments.



The PMML in New Delhi, Abhinav Saha

Does PMML have other such papers?

The PMML has the largest collection of Private Papers in the country, which originally belonged to some 1,000 personalities of modern India. Its collection includes the papers of Mahatma Gandhi, B R Ambedkar, Rajkumari Amrit Kaur, Maulana Abul Kalam Azad, Bhikaji Cama, and others.

Among its recent acquisitions are papers of former Himachal Pradesh Chief Minister Shanta Kumar, which include letters written by him to Prime Minister Narendra Modi on the abrogation of Article 370 and Indo-Pak relations, according to the PMML.

What conditions do donors impose?

When donors hand over Private Collections in their ownership to archives and museums, they sometimes reach an understanding with the recipient institution, imposing conditions for their declassification and public access.

Many who donated Private Collections to PMML set unspecified embargo conditions on public access to these papers. As a result, they cannot be made public, and researchers cannot access them.

Therefore, the museum — which functions under the Ministry of Culture — has decided that it will, under normal circumstances, permit only a five-year embargo from the date of receipt of new papers. In rare cases, this can go up to 10 years at most.

PMML has also decided to open up several sets of private papers lying in its custody for decades, pertaining to the first Speaker of Lok Sabha G D Mavlankar, and around 2.80 lakh pages related to Nehru that Sonia Gandhi did not claim in 2008.

Which other organisations acquire Private Papers?

The other such organisation, the National Archives of India — also under the Culture Ministry — says it acquires only the papers which the donors agree to declassify.

It is the norm to put all records in the public domain, except in very rare cases, where the concerns may be pressing and pertain to security or sensitivity.

These papers have been acquired mainly through donations and gifts from individuals and institutions. The National Archives has papers pertaining to Mahatma Gandhi, Dr Rajendra Prasad and Dadabhai Naoroji, among others.

Context: The Prime Ministers' Museum & Library (PMML) has decided that it will not permit future donors of Private Papers of eminent personalities to impose indefinite conditions on the declassification of such material.

Prime Ministers' Museum & Library (PMML)

Nehru's Papers at PMML

- **Origins of Nehru's Papers:** The Jawaharlal Nehru Papers were the first set of Private Papers obtained by the Prime Ministers' Museum and Library (PMML).
- **Initial Transfer:** The Private Papers of Nehru, spanning both the pre-Independence and post-Independence periods, were transferred to PMML in several batches starting in 1971.
- **Facilitation:** This transfer was facilitated by the Jawaharlal Nehru Memorial Fund (JNMF) on behalf of Nehru's legal heir, Indira Gandhi, who apparently remained the owner of these documents until her assassination in October 1984.
- **Post-1946 Papers:** Subsequently, a substantial collection of Nehru's Papers from the post-1946 period was handed over to PMML by Sonia Gandhi.
- **Collection of Private Papers at PMML**
- **Diverse Leadership Papers:** The PMML has the largest collection of Private Papers in the country, which originally belonged to some 1,000 personalities of modern India.
- **Prominent Figures Included:** This collection encompasses the papers of notable leaders such as Mahatma Gandhi, B R Ambedkar, Rajkumari Amrit Kaur, Maulana Abul Kalam Azad, Bhikaji Cama, Chaudhary Charan Singh, and many others.

- **About:** It is housed in the historic Teen Murti campus, located south of Rashtrapati Bhavan in New Delhi, the capital city of India.
- **Designed by:** Robert Tor Russel and built in 1929-30 as part of Edwin Lutyens' imperial capital, Teen Murti House was the official residence of the Commander-in-Chief in India.
- **Objective:** To promoting advanced research on Modern and Contemporary India.
- **Private Papers:** It come from diverse sources like families, institutions, universities, and private donors.
- **Personal Papers:** It held in a purely personal capacity are typically excluded from private collections.

INDIA-MONGOLIA JOINT MILITARY EXERCISE NOMADIC ELEPHANT COMMENCES IN MEGHALAYA

Context: The India-Mongolia Joint Military Exercise NOMADIC ELEPHANT is set to commence in Umroi, Meghalaya, focusing on enhancing tactical skills and interoperability between the two nations' armed forces.

Exercise NOMADIC ELEPHANT

- **About:** This exercise marks the 16th edition of the annual India-Mongolia Joint Military Exercise.
- **Participants from India:** The Indian contingent comprises 45 personnel from the Battalion of SIKKIM SCOUTS, along with members from other arms and services.
- **Objective:** Aimed at enhancing joint military capabilities for counter-insurgency operations in a Sub Conventional scenario under Chapter VII of the United Nations Mandate.
 - The exercise aims to enhance inter-operability and foster camaraderie and bonhomie between the Indian and Mongolian armies.
- **Focus Areas:** Operations in semi-urban and mountainous terrain.
- **Tactical Drills:** It include response to a terrorist action, establishment of a Joint Command Post, establishment of an Intelligence & Surveillance Centre, and securing of a Helipad/Landing Site.
- **Sharing Best Practices:** Both sides will exchange tactics, techniques, and procedures for conducting joint military operations.
- **Impact on Bilateral Relations:** It is expected that the exercise will strengthen defence cooperation and further bolster bilateral relations between India and Mongolia.

Unexpected discovery reveals zinc's crucial role in making legumes resilient to climate change

Context: Researchers have discovered that zinc plays a crucial role in the health of legume crops.

Zinc

- **About:** It is a component of mixed ores alongside lead, is primarily found in veins associated with minerals like galena, chalcopyrites, iron pyrites, and sulfides.
- **Global Importance:** Ranked as the fourth most widely used metal globally, after steel, aluminium, and copper.
- India maintains self-sufficiency in zinc production, with significant reserves in Rajasthan, Andhra Pradesh, Madhya Pradesh, and Bihar.
- **Global Reserves:** Australia holds the largest share of global zinc reserves at 27%, followed by China (18%), and Russia, Mexico, Peru, Kazakhstan, and the USA.
- **Uses of Zinc:**
 - The largest consumer of zinc is the galvanising industry, utilizing its corrosion-resistant properties to protect steel.
 - Zinc is extensively used in producing die-castings crucial for automobiles, electrical components, and hardware.
 - Zinc oxide finds widespread use in manufacturing products like paints and rubber due to its properties.

Biological Role of Zinc:

- **Trace Mineral Importance:** Zinc is a trace mineral essential for nearly 100 enzymes, vital for DNA creation, cell growth, protein building, tissue repair, and immune system function.
- **Role in Nitrogen Fixation:** Zinc aids in nitrogen fixation in plants, crucial for converting atmospheric nitrogen into ammonia, benefiting legume crops through a symbiotic relationship with rhizobia.

Key Findings

- Legume nodules involved in nitrogen fixation are sensitive to environmental factors such as temperature, drought, flooding, soil salinity, and nitrogen levels.
- Zinc regulates nitrogen fixation efficiency in legumes through a transcriptional regulator called Fixation Under Nitrate (FUN), which controls nodule breakdown under high soil nitrogen levels.
- Zinc modulates FUN activity by forming large filament structures that can be dismantled to release active FUN based on zinc availability in the soil.

Producer Price Index in the works, to replace WPI

Industry ministry to get the draft vetted by statistical commission

MUKESH JAGOTA
New Delhi, July 4

THE COUNTRY WILL have a Producer Price Index (PPI) to gauge the price pressures in the next few months, in addition to the extant consumer price index. The wholesale price index (WPI) may be on its way out.

The model for the proposed PPI is being worked upon and thereafter it would be examined by the National Statistical Commission (NSC), following which it will be placed before higher authorities for approval, a senior official said on Thursday.

"Consultations with the Ministry of Statistics and Programme Implementation (MoSPI) have been done. It has to go through a process. We are on the job," secretary in the department for promotion of industry and internal trade (DPIIT) Rajesh Kumar Singh said.

The model from our side is final and we have taken expert advice from International Monetary Fund (IMF) on the methodology. The procedural clearances required will be worked on. That process is on but

IN A TRANSITIONAL PHASE

■ The Producer Price Index has been discussed for the past 20 years when the idea was first mooted



■ India is one of the few countries that still uses WPI. All members of the G-20, including China, have PPI

■ The CPI is the yardstick relied on by the Reserve Bank of India and the Monetary Policy Committee (MPC) under the inflation targeting framework

the secretary said, "There will be a transitional phase where both will be there. It (WPI) should go but a call will have to be taken."

The CPI is the yardstick relied on by the Reserve Bank of India and the Monetary Policy Committee (MPC) under the inflation targeting framework. However, the WPI has a larger *de facto* weight in the GDP deflator than CPI, which explains the unusually narrow gap between the nominal and real GDP growth rates seen in recent quarters.

India is one of the few countries that still uses WPI. All members of the G-20, including China, have PPI. PPI globally tracks price movements in both goods and services.

PPI is different from WPI in the way that it measures the average change in prices received by producers and excludes indirect taxes. WPI captures the price changes at the point of bulk transactions and may include some taxes and transportation costs. PPI also removes multiple counting bias inherent in WPI. The shedding of additional costs on products imposed by taxes and transportation makes it a more accurate gauge of price movements.

Weightage of an item in WPI is based on net traded value whereas in PPI weights are retrieved from Supply Use Tables. PPI also includes services while WPI only has goods.

cannot give the timeline," he added. The PPI has been discussed for the past 20 years when the idea was first mooted. While the need to move to PPI from WPI was expressed in 2003 it was only in 2014 that a working group was set up to determine the methodology and data requirements to move ahead. The report of the group came in 2017 but no decision was taken on it.

In 2019, the government had constituted a working group for revision of the current series of WPI with 2011-12 as its base year. The task before the group was to suggest a new base year for WPI and suggest additions and deletions of com-

modities in the basket of goods whose prices are tracked to draw the index. The working group was also empowered to recommend a roadmap for moving to the Producer Price Index (PPI) from WPI.

"That (revision of WPI base year) is also one of the issues that the government is considering. I suppose you can expect some sort of an update of the base year eventually, but whether there will be one particular base year or different... because our studies show that other countries have multiple base years for different types of indices," Singh said.

On whether the WPI will be discontinued after the PPI is rolled out,

WPI TO PPI

(Syllabus: GS Paper 3 – Economy)

Context: The country will have a Producer Price Index (PPI) to gauge the price pressures in the next few months, in addition to the extant consumer price index, and wholesale price index (WPI) may be on its way out.

Wholesale Price Index (WPI)

- **About:** The WPI is a gauge used to monitor and record fluctuations in the prices of bulk goods at the wholesale level within India.
- **Published by:** Office of Economic Adviser, Ministry of Commerce and Industry.
- **Base year:** WPI has been revised from 2004-05 to 2011-12 in 2017.
- **Formula:** $WPI = \frac{\text{Total value of the basket of goods and services at current prices}}{\text{Total value of the basket of goods and services at base year prices}} \times 100$
- **Component of WPI:** Manufactured products = 65% approx (64.2% now)
 - Primary articles = 20% approx (22.6% now)
 - Fuel and power = 15% approx (13.1% now)
- India is one of the few countries that still uses WPI. All members of the G-20, including China, have PPI. PPI globally tracks price movements in both goods and services.

Differences Between PPI and WPI

- **Measurement Focus:** PPI measures the average change in prices received by producers and excludes indirect taxes.
- WPI captures price changes at the point of bulk transactions and may include some taxes and transportation costs.
- **Adjustment for Bias:** PPI removes the multiple counting bias inherent in WPI, providing a more accurate representation of price changes.
- **Inclusion of Costs:** PPI excludes additional costs imposed by taxes and transportation, focusing solely on the price changes of goods and services.

Producer Price Index (PPI)

- **About:** It is a family of indexes that measures the average change over time in selling prices received by domestic producers of goods and services. PPIs measure price change from the perspective of the seller.
- **Calculation:** $PPI = \frac{\text{Value of Total Output at Current Prices}}{\text{Value of Total Output at Base Year Prices}} \times 100$
- **Coverage of PPI:** Mining, Manufacturing, Agriculture, Fishing, Forestry, Gas, Electricity, Waste and Scrap materials.

India & China agree: Situation at LAC not in each other's interest

Both to redouble efforts to resolve issues at earliest

SHUBHAJIT ROY
NEW DELHI, JULY 4

IN THEIR first meeting after the return of the BJP-led NDA to power, External Affairs Minister S Jaishankar and Chinese Foreign Minister Wang Yi agreed Thursday that the "prolongation of the current situation in the border areas is not in the interest of either side".

The military standoff along

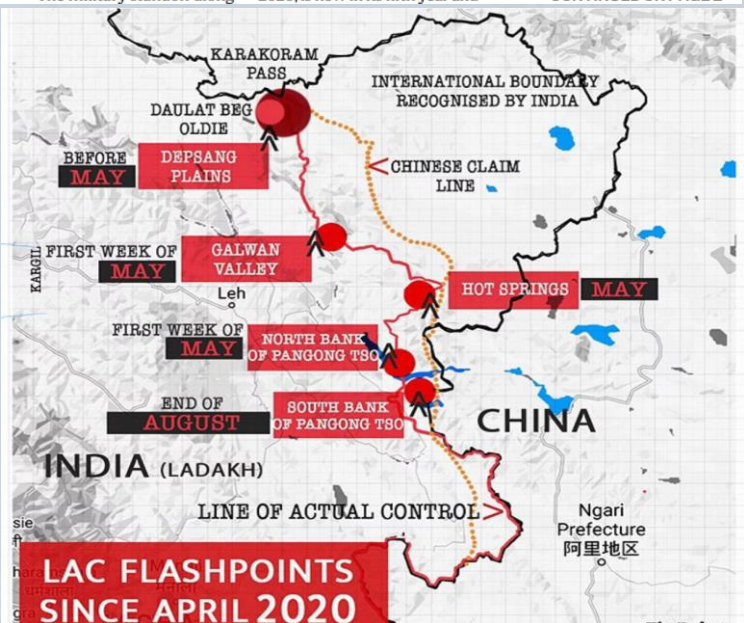


Jaishankar with Wang Yi in Astana on Thursday. ANI

the Line of Actual Control in eastern Ladakh, which began in May 2020, is now in its fifth year and

has soured relations between the two countries.

CONTINUED ON PAGE 2



Context: India's External Affairs Minister emphasized the need for India and China to intensify efforts towards complete troop disengagement and restoring peace on the Line of Actual Control to normalize bilateral relations.

Line of Actual Control (LAC)

- **About:** The LAC is the demarcation that separates Indian-controlled territory from Chinese-controlled territory.
- **Three Areas:** Western (Ladakh, Kashmir),
 - middle (Uttarakhand, Himachal) and
 - eastern (Sikkim, Arunachal).
- As **LAC is not fully and officially demarcated**, it has led to differing perceptions regarding the alignment, with China making territorial claims in the following areas.
- The **countries disagree on the exact location** of the LAC in various areas, so much so that India claims that the LAC is 3,488 km long while the Chinese believe it to be around 2,000 km long.
- The **two armies try to dominate** by patrolling the areas up to their respective perceptions of the LAC, often bringing them into conflict.

Importance of Ladakh

- **About:** Ladakh, also known as "the Land of Passes," is the largest among the regions of Jammu, Kashmir, and Ladakh,
- **Coverage:** Area of 95,876 km². It is administered by India as a union territory.
- **Bordering Territories:** Shares borders with the Chinese Tibet Autonomous Region to the east, Himachal Pradesh to the south, Jammu and Kashmir, Gilgit-Baltistan, and Xinjiang across the Karakoram Pass to the west and far north, respectively.

TDF scheme playing a crucial role in promoting 'Aatmanirbharta' in defence; Start-ups & MSMEs being encouraged to enhance capabilities in cutting-edge technology

Context: The Technology Development Fund (TDF) scheme is pivotal in bolstering 'Atma Nirbharta' in the defense sector through technology advancement initiatives.

Technology Development Fund (TDF)

- **About:** The TDF scheme aims to foster involvement from both public and private sectors, with a special focus on startups and MSMEs, to cultivate a robust ecosystem in advanced technology.
- **Implemented by:** DRDO, under the 'Make in India' initiative.
- **Promoting Self-Reliance:** To promote 'Aatmanirbharta' by reducing dependency on foreign technology through indigenous development.
- **Objectives of the TDF**
 - To provide Grant in Aid to Indian industries, including MSMEs & start-ups, as well as academic and scientific institutions for the development of defence and dual use technologies that are currently not available with the Indian defence Industry.
 - To engage with the private industries, especially MSMEs and start-ups, to bring in the culture of Design & Development of Military Technology and support them with Grant in Aid.
 - To focus on Research, Design & Development of Niche technologies which are being developed for the first time in the country.

Brahmaputra's lone female gharial's long wait for a mate could end soon

Rahul Karmakar
GUWAHATI

A lone female gharial has temporarily overshadowed the one-horned rhino in the Kaziranga National Park and Tiger Reserve in eastern Assam.

Wildlife officials and specialists are not sure how this gharial came to inhabit a stretch of the Brahmaputra within the national park. But they are certain that the reptile, presumed to be an adult by its size, is the key to repopulating the river with gharials.

Distinguished from other crocodilians by its elongated snout, the gharial (*Gavialis gangeticus*) was believed to have been wiped out from the Brahmaputra river system during the 1950s, though there were claims of sightings in



A comeback: Gharials were believed to have been wiped out from the Brahmaputra river system during 1950s. SPECIAL ARRANGEMENT

the 1990s. The female gharial was first spotted in 2021 within the Biswanath Wildlife Division of the 1,307.49-sq. km Kaziranga.

The gharial, now 2.55 metres in length, was recorded twice, 500 metres apart, in one of the three priority habits chosen during a 10-day survey of aquatic reptiles along the Brahmaputra in January.

Teams of the Turtle Survival Alliance Foundation

"sandbar with a shoreline water depth of 4.5 metres".

"We do not know much about gharials in the Brahmaputra but we do know that this female has been lonely for more than three years and is close to the size of an adult ready to breed," Sushmita Kar, TSAFI's project director in the northeast, told *The Hindu*.

One of the 10 recommendations in the report was the "high-priority" reintroduction of gharials in the Brahmaputra.

Kaziranga's Director Sonali Ghosh said the tiger reserve had the right conditions for a gharial breeding programme.

If the reintroduction proposal is approved, the reptiles are likely to be brought from the Kukrail gharial breeding centre near Lucknow.

India (TSAFI), an NGO specialising in reptiles, and the Assam Forest Department surveyed the Brahmaputra on a 160-km stretch from the Kaliabhomora bridge in the west to the Kamalabari Ghat in Majuli beyond the eastern edge of the Biswanath division.

The female gharial was found to be the only one of its kind moving between a "sandy shoreline" and a

GHARIALS

(Syllabus: GS Paper 3 – Env and Eco)

Context: The female gharial was found to be the only one of its kind moving between a "sandy shoreline" and a "sand bar with a shoreline water depth of 4.5 metres".

Gharials

- **About:** These are freshwater crocodiles primarily found in deep, fast-flowing rivers.
- **Distribution:** Historically, they were widespread in river systems across India, Bhutan, Bangladesh, Nepal, and Pakistan.
- **Distinctive Features:** Female gharials lack the distinctive ghara (pot-like structure) on the tip of the snout that males possess.
- **Reintroduction Proposal:** Brahmaputra landscape, focusing on the Biswanath Division, due to suitable habitat conditions.
- **Rehabilitation Centers:** Gharials for reintroduction likely to come from the Kukrail gharial breeding center near Lucknow, Uttar Pradesh and the National Chambal Sanctuary in Madhya Pradesh.
- **Crocodilian Species in India**
 - Gharial (*Gavialis gangeticus*) - Critically Endangered.
 - Mugger crocodile (*Crocodylus palustris*) - Vulnerable.
 - Saltwater crocodile (*Crocodylus porosus*) - Least Concern.

Brahmaputra

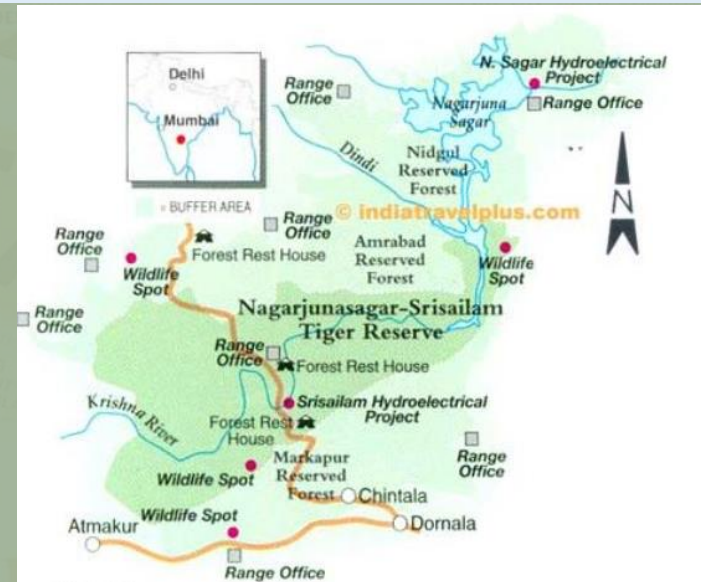
- **About:** Originates from the Chemayungdung glacier in southwestern Tibet.
- Its source is near the origins of the Indus and Satluj rivers.
- **Confluence:** Near the town of Sadiya, the Dihang river turns southwest and is joined by the Lohit and Dibang mountain streams.
- Below this confluence, it becomes known as the Brahmaputra.

Gaur sighted in NSTR after decades

Context: After several decades, the Indian gaur, locally extinct, has been sighted once again in the Nagarjunasagar Srisailem Tiger Reserve (NSTR) in Andhra Pradesh.

Indian Gaur

- **About:** The Indian Bison, or Gaur, is the largest and tallest wild cattle species.
- **Scientific Name:** *Bos gaurus*
- **Distribution:** Gaurs are native to South and Southeast Asia.
- **Habitat:** Gaurs inhabit evergreen and semi-evergreen forests, along with moist deciduous forests and open grasslands.
 - They prefer hilly terrains below 1,500-1,800 m altitude with large, undisturbed forest tracts and abundant water.
- **Features:** Indian Bison can reach lengths of 240-340 cm and heights of 170-230 cm. Adult males weigh 600-1500 kg, while females weigh 400-1000 kg.
- **Conservation Status:** Listed as Vulnerable on the IUCN Red List, protected under the Wildlife Protection Act, 1972 (Schedule I), and included in CITES Appendix I.



Nagarjunasagar Srisailem Tiger Reserve (NSTR)

- **Location:** Situated in the Nallamala hill ranges of Andhra Pradesh, spanning Guntur, Prakasam, and Kurnool districts.
- **Establishment:** Designated as a Tiger Reserve in 1983, it is the largest in India, covering 5,937 sq. km.
- **Name Origin:** Named after the Nagarjuna Sagar Dam and Srisailem Dam, major dams in the area.
- **Wildlife Sanctuaries:** Includes Rajiv Gandhi Wildlife Sanctuary and Gundla Brahmeswaram Wildlife Sanctuary.
- **River:** The Krishna River runs through the reserve for approximately 270 kilometers.
- **Flora:** *Andrographis nallamalayana* and *Dicliptera beddomei*.
- **Fauna:** Tigers, Leopards, Wolves, Wild Dogs, Jackals, and prey species like Sambar, Chital, and Wild Boar. The Krishna River hosts Muggers, Otters, and Turtles.

Why the Western Freight Corridor is delayed

MANU KAUSHIK
New Delhi, July 4

THE EXECUTION PROBLEMS faced by the Tata Projects and challenges in the construction work have led to inordinate delays in the implementation of Western Dedicated Freight Corridor (WDFC). Even though the DFCCIL (Dedicated Freight Corridor Corporation of India) has set an official target to commission WDFC by March 2025, the government-run entity is not expecting the work to finish before July 2025.

"The last stretch of 104-km between Saphale and JNPT (Jawaharlal Nehru Port) was challenging from the day one because there were a lot of land acquisition issues. Then, the problems with Tata Projects emerged, and they got slow in executing the project. We are not expecting WDFC to be fully operational before one year from now," said a senior DFCCIL official.

In 2017, Tata Projects was awarded the contract for this stretch. Due to the slow progress, the DFCCIL decided to terminate the contract in 2022 but it was later revoked after Tatas promised to speed up work.

"It would not have been the right decision to end the Tata contract because it would have delayed the

Western Dedicated Freight Corridor timeline

Project conceived	2005	Tata Projects awarded contract between New Saphale and JNPT	2017
Cabinet approval	2008	Completion of land acquisition	2023
		Target to fully commission WDFC	Mar 2025



project further. We must also understand that Tatas was handed over the land after a delay. Also, it was the first time for the Tata group to work on a railway project," said the official. As per the contractual timeline, Tata group was supposed to complete the work by March 2021.

The delay in commissioning of 1,506-km WDFC is also affecting the traffic on this corridor. At present, the DFCCIL is operating just 30 trains daily (each way) which is far lower than 80 trains (each way) running on

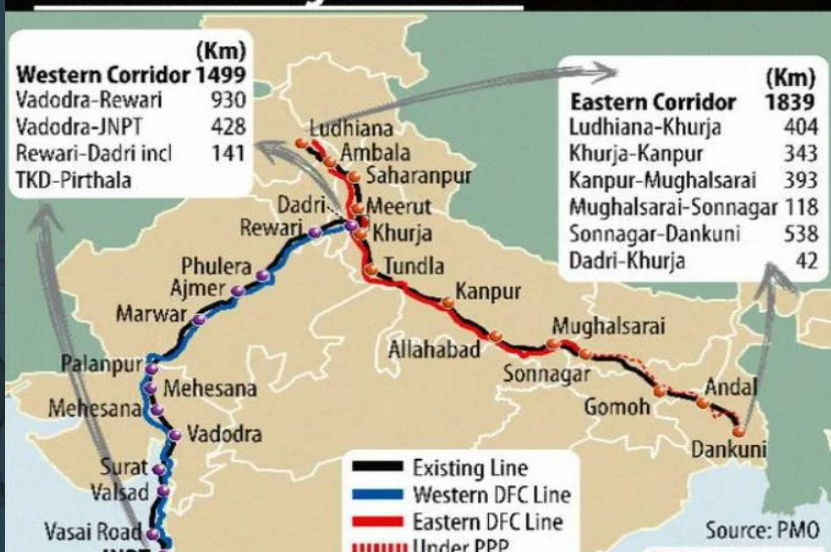
Eastern DFC. "The last leg is the most crucial piece of WDFC because it will not only connect the corridor to a large port (JNPT) but will also give connectivity to central rail network (in addition to the existing western rail network). Plenty of companies are waiting for this last section to go online and take a call that whether they want to switch from roads to rail. Over the long distance, the economics of using rail network is far better than roads," said a railways analyst.

The traffic on WDFC primarily comprises containers with some movement of imported coal, imported fertilisers and foodgrains. The container traffic, which is 70% of the overall traffic on the corridor, is mainly for the export-import items such as tyres, hosiery, carpets, wooden furniture, etc. At the moment, about 17 CTOs (container train operators) and shipping lines are operating major traffic on this route.

The DFCCIL official said that there are issues with the quality of land on the stretch to JNPT. "The quality of soil is not favourable. From the stability point of view, the contractor is facing issues. Because of the intervention of the Maharashtra government, we were able to complete the land acquisition last year – after a delay of almost 15-16 years," he said.

Historically, the commissioning of DFC project has been impaired by the delays in land acquisition and financing arrangements. In 7 years to 2014, only 88% of the total land was acquired and the remaining land patches were held up due to disputes, and court cases. Due to the slow progress of the projects, railways continued to lose logistics market share to the road sector.

Eastern and Western Dedicated Freight Corridor



WESTERN DEDICATED FREIGHT CORRIDOR

(Syllabus: GS Paper 3 – Infrastructure)

Context: The execution problems faced by the Tata Projects and challenges in the construction work have led to inordinate delays in the implementation of Western Dedicated Freight Corridor (WDFC).

Western Dedicated Freight Corridor (WDFC)

- **About:** The WDFC spans approximately 1,500 kilometers from Dadri in Uttar Pradesh to Jawaharlal Nehru Port Trust in Mumbai.
 - It traverses through Haryana, Rajasthan, Gujarat, Maharashtra, and Uttar Pradesh, connecting major ports en route.
- **Funding:** Japan International Cooperation Agency (JICA), highlighting international collaboration in infrastructure development.
- **Connecting Link:** Currently, the section between Dadri and Khurja is under construction, aiming to link the eastern and western arms of the freight corridor.
- **Industrial Corridor Development:** The development of the Delhi-Mumbai and Amritsar-Kolkata industrial corridors is closely integrated with the Eastern and Western Dedicated Freight Corridors (DFCs).
- **Benefits:**
 - Logistics costs are expected to decrease significantly due to streamlined freight transport.
 - Improved transportation systems will lead to higher energy efficiency and reduced carbon footprint.
 - Goods will be transported faster, benefiting industries dependent on timely deliveries.
 - The WDFC is designed to be environmentally friendly, minimizing ecological disruptions.

Too much milk powder

As stocks of skimmed milk powder pile up ahead of the 'flush' season and the important Maharashtra elections, dairies are seeking solutions – from subsidy on exports to a government-financed buffer



HARISH DAMODARAN

WITH MANY states enacting stringent anti-slaughter laws, Indian dairy farmers have been facing challenges in disposing of unproductive cattle – the ones that do not give enough milk or happen to be male.

Now, they have been hit by a new 'surplus' problem – of skimmed milk powder (SMP). Cooperative and private dairies are holding an estimated 3-3.25 lakh tonnes (t) of SMP stocks at the start of the production year that runs from July to June.

What is SMP?

Being perishable, milk cannot be stored. Only its solids – fat and solids-not-fat (SNF) – are storable. On average, cow milk contains 3.5% fat and 8.5% SNF, with the same at 6.5% and 9% for buffalo milk.

During the 'flush' season, when cattle and buffaloes produce more, dairies convert surplus milk into butter and ghee from cream (fat) and SMP from SNF. During the 'lean' season, when animals produce less, SMP is recombined with water into liquid to meet demand. The flush season in the South and Maharashtra, states with predominantly cow populations, extends from July till December. In the North and Gujarat, where buffaloes outnumber cows, it extends from September to March.

From every 100 litres (l) of cow milk, a dairy can make about 8.75 kg of SMP, and 3.6 kg of ghee.

Why is the SMP surplus a problem?

The problem arises when dairies procure excess milk – beyond the normal surplus during the flush – and the SMP and butter (ghee produced) do not have takers.

Dairies in India produce 5.5-6 t of SMP annually. Of this, roughly 4 t is used for recombining during the lean season. The balance 1.5-2 t gets consumed by makers of ice cream, biscuits, chocolate, sweetmeats, baby formula, and other food and industrial products.

2023-24 was a year of abundant and continuous milk supplies with hardly any lean period. This was in contrast to 2022-23, which saw unprecedented shortages. In February-March 2023, Maharashtra dairies realised record prices of Rs 430-435 per kg for yellow



Cows at a breeding centre in Junagadh Agricultural University, Junagadh, Gujarat

DECLINING SMP EXPORTS, INTERNATIONAL PRICES



(cow) butter, and its 315-320 for SMP. They also paid farmers Rs 37-38 a litre for cow milk with 3.5% fat and 8.5% SNF. This encouraged them to ramp up production, through better feeding and induction of new animals.

The resultant augmented milk availability, including in the peak lean summer months of April-June, meant that hardly 2.5 t of SMP was used for reconstitution purposes. Thus, instead of the normal July opening stocks of 1.5-1.75 t, dairies are now saddled with 3-3.25 t of SMP. With the new flush season taking off, the problem of surplus may worsen.

What has been the impact of this surplus?

Cow SMP realisations for dairies have

crashed to Rs 200-210 per kg, and to Rs 335-340 for yellow butter. The latter corresponds to a ghee (almost 100% fat) price of Rs 408-415 per kg.

The surplus problem is less in milk fat, as its annual production by dairies is only 3-3.5 t. Unlike SMP, fat also has a good market in India, especially during the festival months (August to November) when consumption of mithai (sweetmeats) goes up. The base ingredients – ghee, khoya, chenna and paneer – in most mithai come from high-fat milk. There is, thus, a higher chance of fat prices recovering.

At current per kg realisations, the gross revenue for a dairy producing 8.75 kg of SMP and 3.6 kg of fat from 100 litres of cow milk would

be Rs 3,224-3,331. Deducting Rs 250 post-procurement expenses (on chilling, aggregator/collection agent commission and transport to the plant), and Rs 250 for processing and packing costs, the dairy can, at most, pay farmers Rs 2,524-2,633, or Rs 25.24-26.33 per litre. This is more or less what they are paying.

Politically, this could be a disaster – particularly ahead of the Maharashtra assembly elections due in October. The NDA government there, on June 28, announced a Rs 5/litre subsidy payable to farmers on the milk they supply to dairies. The scheme's fine print is awaited. Even if implemented in time for the polls, it would not address the problem of SMP stock pile-up.

Is there a better solution?

Ganesan Palaniappan, a dairy ingredients trader in Chennai, believes exporting SMP, whether commercially or as commodity assistance to neighbouring countries, is the only way to get rid of the surplus.

But the drop in global prices – SMP rates at the New Zealand-based Global Dairy Trade fortnightly online auction platform are ruling at \$2,586 per tonne, down from the recent high of \$4,999 in April 2022 – makes commercial exports unviable. Moreover, since a high of 1.3 t in 2013-14, India's SMP shipments have seen a decline, standing at 4,800 tonnes in 2023-24 (see chart and table).

"The Centre should give a subsidy on SMP exports, which will boost domestic prices and enable our dairies to pay more to farmers," Palaniappan says. R S Sodhi, president of the Indian Dairy Association, suggested that the Centre create a 50,000-100,000-tonne buffer stock of SMP. "If farmers don't get remunerative prices, they will not feed their animals properly, and you will have milk inflation next year. A buffer stock [the government buying powder from dairies and also paying for its storage] will support prices for producers now, and protect consumers from future inflation."

Over the medium term, the dairy industry would have to develop a market for SMP. The reasons are two-fold. First, there is growing demand for milk fat in India. But for every 1 kg of fat, dairies also end up making over 2.4 kg of SMP. Second, an increasing share of India's milk comes from cows, which yield more milk, and start calving earlier than buffaloes. But 1 kg of fat from buffalo milk results in production of less than 14 kg of SMP.

As an increasing share of India's milk comes from cows, the challenge of finding a market for surplus SMP may also grow.

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SKIMMED MILK POWDER

(Syllabus: GS Paper 3 – Economy/Sci & Tech)

Context: With many states implementing strict anti-slaughter laws, Indian dairy farmers struggle to dispose of unproductive cattle. Compounding their woes, they now face a surplus of skimmed milk powder (SMP).

Skimmed Milk Powder

- **About:** It is obtained by removing water from pasteurised skim milk by spray-drying.
 - It is classified according to the heat treatment used in its manufacture (high heat, medium heat, and low heat).
- **Storable Components:** Only milk solids—fat and solids-not-fat (SNF)—are storable.
- **Composition of Milk:** On average, cow milk contains 3.5% fat and 8.5% SNF, while buffalo milk contains 6.5% fat and 9% SNF.
- **Conversion During Seasons**
 - **Flush Season Production:** During the flush season, when milk production is high, dairies convert surplus milk into butter and ghee from cream (fat) and skimmed milk powder (SMP) from SNF.
 - **Lean Season Usage:** During the lean season, when milk production is low, SMP is recombined with water to meet liquid milk demand.
 - **Regional Flush Seasons:** July to December in the South and Maharashtra (cow-dominant), and September to March in the North and Gujarat (buffalo-dominant).
- **Surplus SMP Problem**
 - **Excess Milk Procurement:** Dairies face issues when they procure more milk than needed, creating excess SMP and butter/ghee without buyers.
 - **Annual SMP Production:** Indian dairies produce 5.5-6 lakh tonnes of SMP annually.
 - **SMP Utilization:** About 4 lakh tonnes are used for recombining during the lean season; 1.5-2 lakh tonnes are used in food and industrial products.

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