

**The Hindu Important News Articles & Editorial For UPSC CSE**

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The Supreme Court noted that the Centre has not granted approval for Tamil Nadu's Cauvery-South Vellar Link project, despite a 2021 request.

➔ Karnataka opposed the project, citing concerns over water rights.

# Centre yet to give approval to Tamil Nadu's Cauvery-South Vellar Link project, says SC

Karnataka argues that the plan prejudicially affects or is likely to affect the rights and interests of the State and its inhabitants along the waters of Cauvery; Bench disposes of Karnataka's application saying it is not necessary to consider the State's interim plea for injunction as of today

**The Hindu Bureau**  
NEW DELHI

The Supreme Court has found that the Centre is yet to grant 'in-principle approval' to the Cauvery-South Vellar Link project four years after Tamil Nadu sought clearance from the Jal Shakti Ministry in January 2021.

A Bench of Justices A.S. Oka and A.G. Masih noted the fact while disposing of an application filed by Karnataka urging the top court to restrain neighbouring Tamil Nadu from proceeding with the work on the

Vellar project.

The Bench disposed of the application while observing it was not necessary to consider Karnataka's interim plea for injunction as the request by Tamil Nadu for project clearance has still not received the in-principle approval of the Centre.

"Therefore, as of today, it is not necessary to consider the prayer for interim relief," the order, which was published on Thursday, read.

Tamil Nadu had written to the Ministry on January 5, 2021 for in-principle approval to the Cauvery-



Tamil Nadu had written to the Centre in 2021 for in-principle approval to the Cauvery-South Vellar Link project. FILE PHOTO

South Vellar Link project and for the declaration of Cauvery-Vaigai-Gundar Link project as a national project.

Karnataka, in its injunction application, said the

project was one of a series taken up by Tamil Nadu "to appropriate and commit Karnataka's Cauvery water".

The South Vellar Link project would result in the

transfer of a large quantity of inter-State Cauvery water. This would involve the diversion of flood surplus water from the Mettur dam to the dry tanks in the Sarabanga basin in Salem district at a cost of ₹565 crore. The water would be in excess of 483 tmcft available across the inter-State border at Biligundlu in Karnataka, the State submitted.

"The plan prejudicially affects or is likely to affect the rights and interests of Karnataka and its inhabitants along the waters of Cauvery," the application said.

In fact, Karnataka had

urged the Union government in February 2021 to not accord clearance to the South Vellar project or declare the Gundar Link as a national project.

The Karnataka application had argued that the Tamil Nadu Chief Minister had gone ahead and laid the foundation stone for the project on February 21, 2021 "in disregard of Constitutional conventions" and against federal principles.

The application stemmed from an original suit filed by Karnataka against Tamil Nadu in the Supreme Court.

## Cauvery-South Vellar Link Project: Key Details

- ➔ Tamil Nadu sought in-principle approval for the project from the Jal Shakti Ministry in January 2021, but the Centre has not granted approval yet.
- ➔ **Project Overview:** The South Vellar Link aims to divert surplus water from the Mettur dam in Tamil Nadu to dry tanks in the Sarabanga basin in Salem district.
- ➔ **Karnataka's Opposition:** Karnataka raised concerns that the project could affect its rights over Cauvery water, as the project involves the transfer of inter-State water from Karnataka's Biligundlu border.
- ➔ **Cost and Scope:** Estimated cost of ₹565 crore, with 483 tmcft of water transferred.
- ➔ **Legal Action:** Karnataka filed a plea for an injunction against the project, citing constitutional and federal concerns – and seeking non-clearance from the Centre.

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The Union Ministry of Mines annulled the auction of the Nayakkarpatti tungsten mineral block in Madurai district.

# Tungsten mining: Centre decides to annul auction of mineral block in Madurai

**The Hindu Bureau**  
CHENNAI

The Union Ministry of Mines on Thursday announced its decision to annul the auction of the tungsten mineral block at Nayakkarpatti in Madurai district. The locals had been protesting against the auction, and the Assembly had unanimously adopted a special resolution urging the Union government to immediately cancel the tungsten mining rights granted to a firm.

The decision was taken considering the importance of the biodiversity heritage site in the area, and showed the commitment of the Government of India to protecting traditional rights, an official press release said.

The Centre's decision followed a meeting between leaders of the Ambalakarar community from Madurai district and Union

**Locals are protesting against the auction and Assembly had unanimously adopted a special resolution**

Minister for Coal and Mines G. Kishan Reddy in New Delhi on January 22.

The community leaders had told the Union Minister that the Nayakkarpatti tungsten mineral block included the Arittapatti biodiversity heritage site and a number of cultural heritage sites. They requested the Union Minister to cancel the auction of the Nayakkarpatti block.

In a social media post, Chief Minister M.K. Stalin recalled having asserted in the Assembly that his government would not permit the proposal as long as he held his post.

"We adopted a resolution unanimously in the Assembly. The Union go-

vernment has now given in to the sentiments of the people and the determination of the State government," he said.

The Centre should not issue notifications for such auctions without the consent of the State governments, Mr. Stalin said. "The AIADMK, too, should not go along with legislations that are against the States' rights," he added.

Welcoming the decision, AIADMK general secretary Edappadi K. Palaniswami recalled the steps that his party took to highlight the issue in the Assembly and expose the "drama" staged by the DMK government over it.

The decision of the Centre was a victory to the steps undertaken by the AIADMK, and had put a stop to the "double standards" of the DMK government over the proposal. The people's power had won, Mr. Palaniswami said.

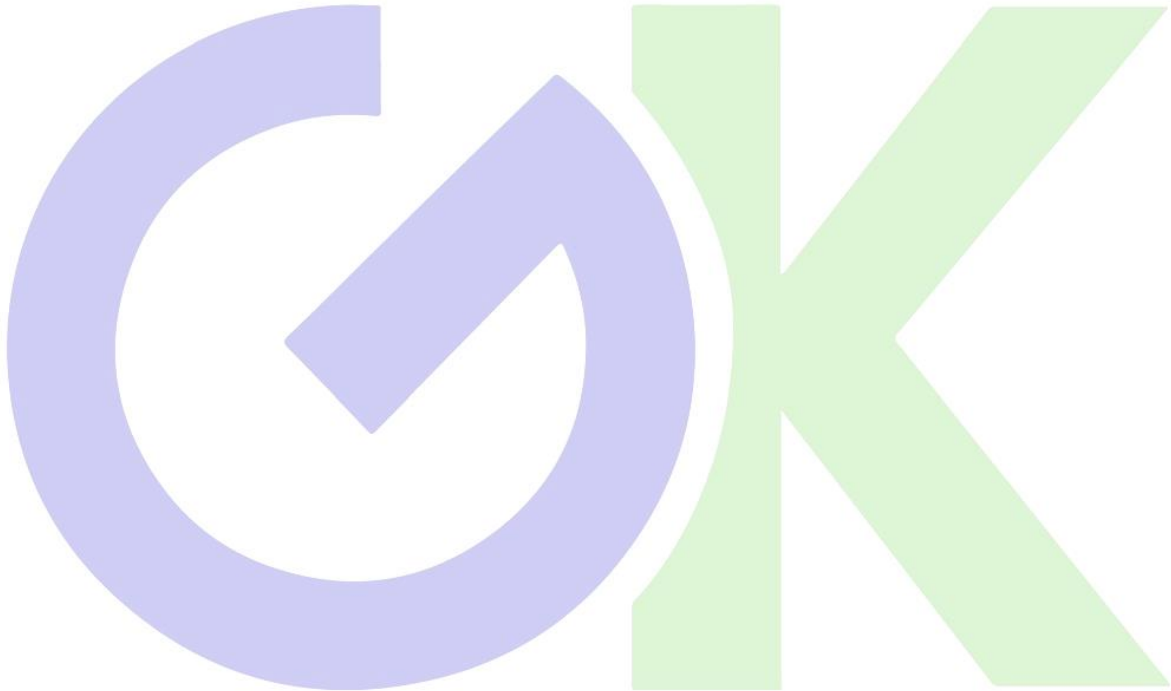
Places in News:

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## Daily News Analysis

- **Nayakkarpatti, Madurai:** The Union Ministry of Mines canceled the auction of a tungsten mineral block due to protests from locals and concerns over the Arittapatti biodiversity heritage site.
- **Arittapatti Biodiversity Heritage Site:** Tamil Nadu's first biodiversity heritage site, Arittapatti, boasts rich biodiversity, including raptors like the Laggar Falcon and Shaheen Falcon. It also features historical sites like megalithic structures and rock-cut temples..



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The news discusses the health risks of Rhodamine B, a synthetic dye linked to cancer.

# The hidden dangers of Rhodamine B: a global and local perspective

Rhodamine B is a synthetic dye utilised in industries such as textiles, paper, and leather. Its application extends to scientific research due to its fluorescent properties. However, its use in consumable products is fraught with health risks. Studies indicate it can cause DNA damage, leading to mutations and potentially triggering cancerous growths

Monisha Madhumita

Imagine indulging in an appetizing looking, sweet treat, only to discover it contains a dye primarily used in textiles and linked to cancer. This alarming reality has prompted significant health interventions worldwide, including recent decisive actions in India.

Rhodamine B is a synthetic dye known for its bright pink hue, commonly utilised in industries such as textiles, paper, and leather. Its application extends to scientific research due to its fluorescent properties. However, its use in consumable products is fraught with health risks. Studies indicate that Rhodamine B can cause DNA damage, leading to mutations and potentially triggering cancerous growths.

Animal research has demonstrated tumour development in organs like the liver and bladder following prolonged exposure to the dye.

Recognising its potential dangers, many countries have put in place strict regulations on use of Rhodamine B. In the United States, the Food and Drug Administration (FDA) has long prohibited its use in food products, classifying it as unsafe for human consumption. A recent ban issued by the FDA in January 2025 further reinforces these restrictions, prohibiting the use of Rhodamine B in any food-related applications due to increasing evidence of its carcinogenic properties.

The FDA cited growing concerns over children's exposure to high levels of the dye in candies, baked goods, and other processed foods, prompting an urgent call for manufacturers to reformulate their products. This ban stems from studies indicating its potential carcinogenicity and other health risks. Similarly, the European Union classifies Rhodamine B as a substance of very high concern, restricting its use in cosmetics and other consumer goods.

## Indian perspective

In India, the rampant use of Rhodamine B in food items has raised significant health concerns. The dye has been illegally employed to enhance the visual appeal of various consumables, posing serious health risks to consumers. Over the last few years, action has been taken by various Indian states and these highlight the growing awareness of these dangers. In February 2024, Tamil Nadu banned the production and sale of cotton candy after the Government Food Analysis Laboratory in Chennai detected Rhodamine B in samples collected from



Animal research has demonstrated tumour development in organs such as the liver and bladder following prolonged exposure to the dye. FILE PHOTO.

vendors. Health Minister Ma Subramanian emphasised that the use of Rhodamine B in food violates the Food Safety and Standards Act of 2006, categorising such products as unsafe. The ban aims to raise public awareness about the hazards associated with coloured candies and ensure that only safe, colour-free cotton candy is available.

Following Tamil Nadu's lead, other Indian states and territories have taken similar measures. Karnataka, in March 2024, prohibited the use of Rhodamine B in popular street foods like "Gobi Manchurian" and cotton candy. Minister for Health and Family Welfare in the Government of Karnataka, Dinesh Gundu Rao, announced stringent penalties for violators, including imprisonment of up to seven years and fines reaching ₹10 lakh. Laboratory tests revealed the presence of harmful chemicals in numerous samples collected across the state.

Puducherry also followed suit by banning the sale of cotton candy containing Rhodamine B. Food safety officers have been directed to conduct inspections and take strict action against violators to safeguard public health. In May 2024, Himachal Pradesh instituted a one-year ban on the production, sale, and storage of cotton candy after detecting Rhodamine B in samples. This preventive measure aims to protect consumers from the potential carcinogenic effects of the dye.

Mohammed Mithi, Consultant Surgical Oncologist at Saifee Hospital in Mumbai, explains, "Synthetic dyes, including Rhodamine B, may pose carcinogenic risks due to certain chemical components. Some dyes, like azo dyes,



Synthetic dyes, when used in concentrations approved by regulatory bodies, are generally safe. However, in sensitive individuals, they can lead to allergic reactions such as itching, redness, and skin thickening

can break down into aromatic amines, which are known carcinogens. Laboratory studies have shown that specific synthetic dyes can induce DNA damage, oxidative stress, and promote tumour growth in animal models. While concrete evidence in humans is limited, long-term exposure to unregulated products remains a concern." He further adds that certain groups, such as children, the elderly, and immunocompromised individuals, are more susceptible to these harmful effects due to their body's reduced ability to metabolise and detoxify harmful substances.

Abyramy Balasundaram, consultant dermatologist at Cosmediq Hair Transplant and Skin Clinic, Chennai, states, "Synthetic dyes, when used in concentrations approved by regulatory bodies, are generally safe. However, in sensitive individuals, they can lead to allergic reactions such as itching, redness, and skin thickening. Long-term exposure to synthetic dyes like Rhodamine B can result in chronic allergic reactions and permanent skin pigmentation changes. Although there is no definitive link to cancer in humans through topical application, it is always advisable to opt for products from reputable brands with

proper labeling."

She further notes, "The European Union was among the first to ban Rhodamine B in cosmetics in the early 1990s due to concerns about its potential carcinogenic effects and skin sensitisation risks. This move has paved the way for stricter global regulations on synthetic dyes in personal care products."

## India's food safety ecosystem

Priyadarshini Chidambaram, Community Health Specialist and Researcher, Bengaluru, says, "The ecosystem in India for research into food dyes safety is weak. There is a need for proactive funding and commissioning of independent research by the Food Safety and Standards Authority of India (FSSAI) to study the impact of additives, especially synthetic dyes, on public health based on Indian diet practices through collaborations with academic and research institutions. We must build a robust system of rapid scientific reviews and proactive policy implementation to be on par with international recommendations on food safety instead of reacting to a public health crisis or just joining the bandwagon of international ban trends."

She adds, "There needs to be active testing for harmful food dyes and enforcement of strict action against both errant big brands and smaller establishments and vendors. The fact that a state-level ban was necessary to bring attention to harmful dyes like Rhodamine B is a wake-up call. It underscores the need for FSSAI to play a more visible role in educating the public about unsafe food practices. There is a definite knowledge gap among the public on food standards. We must harness the growing digital and social media influence to disseminate information on safe food additives and food label warnings. Community education and engagement are needed to tackle the menace of harmful additives."

The case of Rhodamine B serves as an important reminder of the hidden dangers that lurk in seemingly innocuous products. It underscores the collective responsibility of governments, industries, and consumers to prioritise health over aesthetics. By staying informed and vigilant, we can ensure that the foods we enjoy are not only appealing but also safe. As medical professionals aptly put it, "The health of a nation begins with the safety of its food. It's time we prioritise long-term well-being over short-term convenience."

(Dr. Monisha Madhumita is a consultant dermatologist at Saveetha Medical College, Chennai and member of the International Alliance for Global Health Dermatology, London, UK. mail.monisha.m@gmail.com)

## THE GIST

In the U.S., the FDA has long prohibited Rhodamine B in food due to evidence of its carcinogenic properties. The FDA cited growing concerns over children's exposure to high levels of the dye in candies, baked goods, and other processed foods.

In February 2024, Tamil Nadu banned production and sale of cotton candy after it detected Rhodamine B. Such products are graded as unsafe and substandard. The ban aims to raise public awareness and ensure only safe, colour-free cotton candy is available.

According to doctors: 'Specific synthetic dyes can induce DNA damage, oxidative stress, and promote tumour growth in animal models. While concrete evidence in humans is limited, long-term exposure to unregulated products remains a concern'

Rhodamine B serves as an important reminder of the hidden dangers that lurk in seemingly innocuous products. It underscores the collective responsibility of governments, industries, and consumers to prioritise health over aesthetics.

## Use of Rhodamine B and Its Health Risks

- ➡ Rhodamine B is a synthetic dye, widely used in textiles, paper, and leather.
- ➡ It is also found in food products, though its use in consumables poses serious health risks.
- ➡ Studies show it can cause DNA damage, mutations, and potentially lead to cancer.

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- ➡ Animal studies have linked prolonged exposure to tumor development in organs like the liver and bladder.

## Global and Indian Actions

- ➡ The FDA in the U.S. has banned Rhodamine B in food, citing concerns over its carcinogenic effects.
- ➡ The European Union also restricts its use in cosmetics and consumer products.
- ➡ In India, several states have taken actions against its use in food.
- ➡ Tamil Nadu banned cotton candy in February 2024 after detecting the dye in samples.
- ➡ Karnataka followed suit, imposing severe penalties on violators.
- ➡ Puducherry and Himachal Pradesh also implemented similar bans.

## Health Risks of Rhodamine B

- ➡ Experts warn of the carcinogenic risks associated with synthetic dyes like Rhodamine B, especially for children, the elderly, and those with weakened immune systems.
- ➡ Long-term exposure to such dyes may lead to chronic allergic reactions and skin issues.
- ➡ Experts suggest India needs more research on the safety of food dyes.

The India's digital economy will grow at twice the rate of the overall economy.

➔ The digital economy will reach 13.42% of national income by 2024–25, up from 11.74% in 2022–23.

# Digital economy to constitute fifth of Indian GDP by 2030: ICRIER report

**Aroon Deep**  
NEW DELHI

India's digital economy will grow twice as fast as the rest of the economy, and constitute 13.42% of national income by the end of 2024-25, as against 11.74% in 2022-23, according to a report prepared by the Indian Council for Research on International Economic Relations (ICRIER) based on a study by the Ministry of Electronics and Information Technology.

By 2030, the report says, India's digital economy will account for nearly a fifth of overall GDP. This is the first such attempt by the government to quanti-

**This is the first such attempt by the government to quantify the size of India's digital economy**

fy the size of India's digital economy.

To quantify the size of the digital economy, ICRIER has combined definitions by the Organisation for Economic Co-operation and Development (OECD) and the Asian Development Bank (ADB), but also included the "Digital share of traditional industries like trade, bank-

ing, financial services, and insurance (BFSl) and education," essentially casting a wider net to measure the share that digitally-enabled services and activities have in the economy.

Under this framework, "The digital economy in 2022-23 was equivalent to ₹28.94 lakh crore (-\$368 billion) in [Gross Value Added (GVA)] and ₹31.64 lakh crore (-\$402 billion) in GDP," the report says. Even under the expanded definition that includes digitising industries, the "traditional ICT" sector remains the largest portion included in these measures and estimates.

## Analysis of the news:

- ➡ The report is based on a study by the Ministry of Electronics and Information Technology and was prepared by the Indian Council for Research on International Economic Relations (ICRIER).
- ➡ By 2030, India's digital economy is expected to account for nearly 20% of GDP.
- ➡ This is the first government attempt to quantify the digital economy's size.
- ➡ ICRIER's definition combines those from the OECD and ADB, while also including digitally-enabled sectors like BFSI and education.
- ➡ In 2022–23, India's digital economy was valued at ₹28.94 lakh crore (GVA) and ₹31.64 lakh crore (GDP).



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## In News : India's Deep Ocean Mission

India is set to launch its first human underwater submersible, a deep-sea manned vehicle, in 2025.

### India's First Human Underwater Submersible

- This submersible will operate at a depth of 500 meters, with a future goal of reaching 6,000 meters by next year.
- This achievement will position India among six countries with the technology to undertake such ambitious projects.

### Boosting the Blue Economy

- The submersible and the Deep Ocean Mission aim to advance scientific capabilities and strengthen the blue economy, which involves utilizing ocean resources for sustainable economic growth.
- The initiative is designed to explore vast underwater resources, including minerals, rare metals, and marine biodiversity, crucial for economic growth and environmental sustainability.
- The project is fully based on indigenous technology developed in India, emphasizing the country's self-reliance in cutting-edge science.

### Dual Achievements in Scientific Exploration

- The Deep Ocean Mission aligns with India's other landmark missions, such as the Gaganyaan space mission, showcasing significant achievements in both space and marine exploration.
- The mission also aims to enhance understanding of deep-sea ecosystems, contributing to sustainable fisheries and biodiversity conservation.

### Conclusion

- The mission faced delays due to the pandemic but has made notable progress.
- It promises long-term benefits for India's economy, scientific community, and environmental resilience.

### UPSC Mains Practice Question

**Ques :** Discuss the objectives and significance of India's Deep Ocean Mission. How does it contribute to the country's scientific advancements and blue economy? **(150 Words /10 marks)**

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**Page : 08 Editorial Analysis**  
*India's winding road to '#EndTB'*

Last year, tuberculosis (TB) emerged, once again, as the leading infectious disease killer globally. The goals, i.e., End TB targets of 90% reduction in TB deaths, 80% reduction in new cases, and zero TB-affected families facing catastrophic costs by 2030, seem to be a distant dream. In 2018, India extended the highest level of political commitment for the cause by pledging to achieve End TB targets on an accelerated timeline by 2025. However, the COVID-19 pandemic was a huge pushback to the efforts.

According to the World Health Organization's Global Tuberculosis Report 2024, India continues to lead in the global TB burden (26% of cases) and is also the hub for drug-resistant TB (DR-TB) and TB deaths. While ambitious policies and initiatives are rolled out from the national level, the ground reality in India needs to be better understood to translate them into effective interventions.

**Focus on vulnerable groups**

India's National Tuberculosis Elimination Programme (NTEP) clearly defines the high-risk or vulnerable groups that are at risk of contracting TB and developing adverse outcomes.

Dr. Pavitra Mohan, paediatrician and founder of Basic Healthcare Services, a non-governmental organisation working in south Rajasthan, says, "We get around 1000 persons with TB in our clinics every year and many of them have severe lung damage owing to fine dust inhalation from mining and stone carving. They are at risk for TB due to contributory factors like silicosis, undernutrition, overcrowding, and uncontrolled co-morbidities like diabetes."

Migrant workers also have an added disadvantage of poor access to health-care facilities. Dr. Mohan says, "They prefer to go back to their native place if they fall ill and hence it is not easy for the healthcare delivery system also to keep track of their treatment."

While a lot of attention is being paid to tackling undernutrition among persons with TB (pwTB), a host of other contributory factors in each geography needs to be addressed, requiring multisectoral action.

TB is a curable disease with effective and free drugs from NTEP. A significant achievement for India is the treatment initiation in more than 95% of notified cases. This was possible, over the years, by establishing an exclusive procurement and supply chain system for the NTEP.



**Swathi Krishna Njarekkattu-valappil**

is a public health physician and researcher based in Pune, working in tuberculosis, health policy and systems research



**Parth Sharma**

is a community physician and public health researcher based in Delhi and is the founder of the public health advocacy organisation, Nivarana

The chances of ending TB by 2025 appear bleak, but there is some hope

However, in 2023, there was a country-wide break in the supply chain – it still continues in many parts. Shortage of key drugs in the centres, many of which are unavailable in the open market, left the beneficiaries and their families in a struggle. Nandita Venkatesan, data journalist and two-time TB survivor, says, "It takes many a mile for pwTB to reach the finishing line of treatment combating a wide range of side effects. Shortage of such critical medicines disrupts the treatment, risking resistance to antibiotics and poor disease outcomes. Moreover, having to buy drugs from outside leads to catastrophic health expenses."

**On extrapulmonary TB**

Extrapulmonary TB (EP-TB) affects any organ of the body – lymph nodes, the kidneys, the brain, the spinal cord, bones, joints, and skin. However, the NTEP's main focus has been on pulmonary TB affecting the lung, as it is most common and transmissible.

The share of EP-TB is about 24% of the notified cases, but with wide geographical variations. It is often missed/delayed from being diagnosed due to symptoms which are vague and mimic other diseases. Dr. Deepak Chandra Badhani, a surgeon working in rural Chhattisgarh, says, "Doctors in Indian settings should have a high index of suspicion for TB in the cases they see. Proper history taking, thorough clinical examination and simple tests such as pus staining from a non-healing ulcer can help diagnose TB. But sadly, we wait for expensive, advanced tests just to start treatment and depend heavily on specialists to diagnose, leading to substantial delays and advanced disease." He lays emphasis on the training of general practitioners to pick up EP-TB at the earliest and of the need to sensitise frontline workers and integrating EP-TB into their screening algorithms.

A study by Daniels and colleagues in Mumbai shows that only 35% of private practitioners and 75% of government doctors could correctly diagnose a patient presenting with classical symptoms of TB. Dr. Vasundhara Rangaswamy, a microbiologist working in rural Chhattisgarh, says the reluctance to notify the disease further impacts diagnosis as private practitioners prescribe antibiotics and refer without any diagnostic tests.

TB is an area where guidelines are updated quite frequently. However, studies done by Shah and colleagues and also Hiremath and colleagues show that a shortage of adequately trained

human resources is a major challenge affecting implementation of the NTEP. Dr. Rangaswamy says, "Molecular tests are expensive and often take time to access as they are mostly available only at district level. Results take time due to the heavy workload and shortage of trained staff. In effect, patients have to travel and incur more expenses."

Dr. Mohan says, "The CBNAAT [Cartridge-based Nucleic Acid Amplification Testing] and Truenat machines are not available at many places, [as they are] mostly placed at [the] district level. And very often, when a machine is available, the lab technician will not be there and if the lab technician is there, cartridge supply for the test would not be there." The staff pattern within the NTEP does not meet the growing demands, with most now having more work.

**What needs to be done**

Ownership at all levels is essential to make programmes work. Idukki district in Kerala collaborated with Kudumbashree, one of the largest women's self-help networks in the world, for their TB elimination efforts. This resulted in widespread community participation and advocacy by government/leadership levels created a huge impact. "It helped us achieve our targets and sustain the activities," says Dr. Cency B., former District TB Officer of Idukki district, and current Assistant Director, Kerala Health Services.

She says, "Advocacy by political leadership helps in providing platforms for cross learning from best practices across geographies. But programme implementers will have to go beyond their routine work scope to achieve this."

While the chances of ending TB by 2025 look bleak, there is some hope. India's case notification reached the highest level and deaths due to TB declined by 24% as compared to 2015, which is way more than the global decline.

The administrative levels of the NTEP are designed to adapt to the innumerable contextual challenges. New bodies of knowledge from different parts of the world need to be considered. Vietnam, a high burden country, recently showed the effective use of active case finding for TB (advocated for high-risk groups) among the general population, so that targeted interventions could work better. Perhaps India too needs to restructure and redefine its many conventional frameworks, to combat this deadly disease.

**GS Paper 02 : Social Justice – Health**

**UPSC Mains Practice Question:** Despite significant efforts, India struggles to eliminate tuberculosis (TB). Analyze the challenges and suggest measures to achieve the End TB targets by 2025. (150 Words /10 marks)

## Context :

- ➔ The article discusses challenges faced by India in achieving its End TB targets due to high global TB burden, drug-resistant cases, and systemic healthcare gaps.

## Tuberculosis: A Global and National Challenge

- ➔ Tuberculosis (TB) remains the leading infectious disease killer globally.
- ➔ The End TB targets, which aim for a 90% reduction in TB deaths, 80% reduction in new cases, and zero catastrophic costs for TB-affected families by 2030, are far from being achieved.
- ➔ India pledged in 2018 to achieve these targets by 2025 but faced setbacks due to the COVID-19 pandemic.
- ➔ According to the WHO Global Tuberculosis Report 2024, India accounts for 26% of global TB cases and remains a hub for drug-resistant TB and TB-related deaths.

## Vulnerable Groups at Risk

- ➔ High-risk groups include individuals exposed to factors like silicosis, undernutrition, overcrowding, and comorbidities such as diabetes.
- ➔ Migrant workers face challenges due to poor access to healthcare and difficulty continuing treatment when moving back to native places.
- ➔ Addressing undernutrition is a priority, but other contributory factors require multisectoral actions tailored to specific regions.

## Achievements and Challenges in TB Treatment

- ➔ India's National Tuberculosis Elimination Programme (NTEP) offers free and effective drugs, achieving treatment initiation in over 95% of notified cases.
- ➔ However, a supply chain disruption in 2023 led to a shortage of key drugs, causing treatment delays, risk of antibiotic resistance, and catastrophic health expenses.

## Focus on Extrapulmonary TB (EP-TB)

- ➔ Extrapulmonary TB (EP-TB) affects organs other than the lungs, such as lymph nodes, kidneys, brain, and bones, accounting for 24% of cases.
- ➔ EP-TB is often missed or diagnosed late due to vague symptoms resembling other diseases.
- ➔ General practitioners need better training to detect EP-TB early through simple tests and thorough clinical examinations.

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## Gaps in Diagnosis and Healthcare Resources

- Studies indicate that only 35% of private practitioners and 75% of government doctors can correctly diagnose classical TB symptoms.
- A shortage of trained staff and limited access to molecular tests like CBNAAT and Truenat delay diagnosis.
- Many testing facilities are district-based, and logistical issues like cartridge shortages and technician availability worsen the problem.

## Successful Interventions and Best Practices

- In Idukki, Kerala, collaboration with Kudumbashree, a women's self-help network, led to significant community participation and advocacy, helping achieve TB targets.
- Advocacy by political leaders and cross-learning from successful practices across regions can enhance TB elimination efforts.

## Progress and Future Directions

- India achieved a 24% decline in TB deaths compared to 2015, exceeding the global decline rate.
- Learning from countries like Vietnam, which used active case finding among high-risk groups, could improve interventions.
- India must adapt its strategies and frameworks to address regional challenges and accelerate progress toward eliminating TB.

## Conclusion

- Achieving the End TB targets by 2025 remains challenging due to systemic issues, but progress in case notification and reduced deaths offers hope.
- Strengthened healthcare systems and community-driven interventions are crucial to eliminating TB.