



Quit India Movement Day

For Prelims: [Quit India Movement](#) , [World War II](#) , [Mahatma Gandhi](#), [Muslim League](#)

For Mains: Significance of the Quit India Movement in India's freedom struggle, Indian National Movement

[Source: IE](#)

Why in News?

India celebrates **8th August** every year as **Quit India Movement Day**, also known as **August Kranti Diwas**, to commemorate the [Quit India Movement \(QIM\)](#), which demanded the immediate end of British rule in India.

What was the Quit India Movement?

- **Launch and Purpose:** Launched by [Mahatma Gandhi](#) on **8th August 1942** during the **All-India Congress Committee session** in Bombay, the movement demanded the immediate end of British rule following the failure of the **Cripps Mission**.
- **Gandhi's Call:** Gandhi gave the powerful call of **"Do or Die"** at the **Gowalia Tank Maidan** (now August Kranti Maidan), urging Indians to demand an immediate end to British rule.
- **Slogan and Symbolism:** The slogan **"Quit India"** was coined by **Yusuf Meherally**, a socialist and trade unionist from Bombay, who had also created the earlier slogan **"Simon Go Back."**
 - During the movement, **Aruna Asaf Ali** became a prominent figure, famously hoisting the Indian flag at the Gowalia Tank maidan as a symbol of defiance.
- **Rise of New Leaders:** New leaders like [Dr. Ram Manohar Lohia](#), [Jayaprakash Narayan](#) rose to prominence during this movement.
 - Women also played a significant role, leading protests and sacrificing their lives, such as **Matangini Hazra**, who died with the Tricolour in hand, and [Sucheta Kripalani](#), who later became **India's first female Chief Minister (Uttar Pradesh)**.
- **Nature of the QIM:** The QIM was distinct from earlier peaceful protests like [Non-Cooperation](#) and **Civil Disobedience**, as it was a mass uprising demanding the complete withdrawal of British rule.
 - Though **Gandhi emphasized non-violence**, the movement was accommodating of **violence in self-defense**. It allowed spontaneous actions like **sabotage and guerrilla attacks against British properties**.
 - Widespread protests, strikes, and sabotage erupted across India, with **students and youth taking the lead**, especially in urban centers, after Congress leaders were arrested.
 - The **Muslim community** largely stayed absent from the QIM, it was seen as a **Hindu nationalist cause**, highlighting the growing communal divide and the [Muslim League's](#) push for a separate state.
- **Legacy:** The movement became a key turning point in India's freedom struggle, demonstrating unity and determination that ultimately led to the end of British rule.
 - The Quit India Movement was a **watershed moment that shaped India's future**

politics. In his speech at Gowalia Tank Maidan, Gandhi said **power would belong to the people of India.** The movement marked the freedom struggle truly belonging to **“We the People.”**

What were the Events that Led to the Quit India Movement?

- **Impact of World War II (1939-1945):** Britain involved India in [World War II](#) without consulting Indian leaders. The Congress demanded full independence in exchange for support, but Britain refused, causing widespread anger.
- **Failure of the Cripps Mission (March 1942):** The Cripps Mission was sent by the British in March 1942 to secure **India's support in World War II** and resolve the political crisis.
 - **Stafford Cripps** proposed granting **India dominion status after the war**, with a **Constituent Assembly** where provinces and princely states could opt out.
 - Gandhi met Cripps but rejected the **proposal, calling it a “post-dated cheque on a crashing bank”** because it **encouraged division and failed to offer immediate independence.** The mission ultimately failed to meet Indian demands.
- **Nationalist Sentiment and Economic Hardships:** By 1942, growing frustration over British **delays in granting independence**, political repression, **wartime exploitation**, and the export of rice from Bengal during the war caused a food crisis that eventually led to the [Bengal famine of 1943.](#)
 - The famine worsened public suffering and fueled anger against British rule.
- **Fall of Burma (1942):** The **Japanese invasion of Burma** brought the war to India's doorstep, heightening invasion fears and urgency for British withdrawal.
 - Meanwhile, [Netaji Subhas Chandra Bose](#) formation of the **Indian National Army** intensified the fight for independence.
- **Mahatma Gandhi's Leadership:** Facing rising demands for independence, Gandhi launched the Quit India call, declaring, **“We shall either free India or die in the attempt.”**
 - On **8th August 1942** the All-India Congress Committee passed the Quit India Resolution, urging non-violent mass resistance.

What were the Outcomes of the Quit India Movement?

- **British Repression:** The British government responded with harsh repression, arresting key leaders, but the movement caused a temporary collapse of **British authority in several regions.**
- **Emergence of Parallel Governments:** In places like **Ballia (Uttar Pradesh), Tamluk (West Bengal), and Satara (Maharashtra),** local parallel governments briefly challenged British authority, signaling the strong desire for self-rule.
- **Increased National Unity:** The movement unified Indians across regions and classes in the struggle for full independence, strengthening the collective resolve against colonial rule.
- **Divisions within Indian Politics:** The movement also exposed divisions within Indian politics, with the **Muslim League largely staying away**, highlighting the growing rift between Congress and the League over the future of India.
- **Path to Independence:** While the movement did not immediately end British rule, it set the stage for India's independence in 1947, as it showed the **British that their hold on India was no longer tenable.**

Conclusion

The Quit India Movement was a watershed moment in India's freedom struggle, a **bold, fiery demand for liberty** that captured the spirit of millions willing to sacrifice everything for their country's independence.

Drishti Mains Question:

Discuss the significance of the Quit India Movement in shaping India's struggle for independence.

UPSC Civil Services Examination, Previous Year Questions (PYQs)

Prelims

Q. With reference to 8th August, 1942 in Indian history, which one of the following statements is correct? (2021)

- (a) The Quit India Resolution was adopted by the AICC.
- (b) The Viceroy's Executive Council was expanded to include more Indians.
- (c) The Congress ministries resigned in seven provinces.
- (d) Cripps proposed an Indian Union with full Dominion Status once the Second World War was over.

Ans: (a)

Q. With reference to Indian freedom struggle, consider the following events: (2017)

1. Mutiny in Royal Indian Navy
2. Quit India Movement launched
3. Second Round Table Conference

What is the correct chronological sequence of the above events?

- (a) 1 - 2 - 3
- (b) 2 - 1 - 3
- (c) 3 - 2 - 1
- (d) 3 - 1 - 2

Ans: (c)

Mains

Q. What were the events that led to the Quit India Movement? Point out its results. (2024)

Inland Water Transport in India

For Prelims: [PM Gati Shakti](#), National Waterway, Inland Waterways Authority of India, [Multi-Modal Logistics Park](#), [PM MITRA parks](#), [Mega Food Parks](#)

For Mains: Role of Inland Waterways in India's transportation network, Infrastructure & Development

[Source: PIB](#)

Why in News?

National Waterway-57 (Kopili River) in Assam has been operationalised, boosting **Inland Water Transport** under [Maritime India Vision 2030](#) and [PM Gati Shakti](#).

- Now, **four** National Waterways in Assam- **Brahmaputra (NW 2)**, **Barak (NW 16)**, **Dhansiri (NW 31)**, and **Kopili (NW 57)**, are fully operational.

Key Facts Related to Inland Waterways and Transport in India

- **Inland Waterways:** Inland Waterways are stretches of water such as **navigable rivers, lakes, and canals** (excluding the sea), used for transporting goods and people.
 - **Key Features:** For a waterway to be classified as an inland waterway, it must support vessels with a **minimum carrying capacity of 50 tonnes** when fully loaded.
 - **National Transport Policy Committee (1980)** recommended the following few criteria for declaring a national waterway:
 - **45m wide channel** and a **minimum depth of 1.5m**.
 - **Continuous stretch** of at least **50 km**, with exceptions for urban or intra-port areas.
 - The **Inland Waterways Authority of India (IWAI)**, established in **October 1986**, is the **nodal agency** for the **development and regulation** of **inland waterways** for **shipping and navigation**.
 - Only **National Waterways** are under the **Central Government**; others fall under **State Government** jurisdiction.
- **Inland Water Transport (IWT):**
 - **About:** Inland Water Transport (IWT) involves the movement of cargo and passengers through **navigable rivers, canals, backwaters, and creeks**. It is **cost-effective** and **environmentally sustainable**.
 - India has **14,500 km of navigable waterways**.
 - **Legislative Framework:**
 - [Inland Waterways Authority of India Act, 1985](#) established **IWAI** to oversee the development and management of IWT.
 - [National Waterways Act, 2016](#) declared **111 inland waterways** as National Waterways.
 - [Inland Vessels Act, 2021](#) introduced to streamline regulations around inland vessels, ensuring safe, efficient, and modern water transport.
 - The **National Waterways (Construction of Jetties/Terminals) Regulations, 2025** aims to **boost private investment and streamline terminal development**.
 - **Growth of IWT in India:**
 - **Operational National Waterways (NWs)** grew by an impressive **767%** from 3 (2014-15) to 29 (2024-25).
 - The **total operational length of National Waterways** expanded from 2,716 km (2014-15) to 4,894 km (2023-24).
 - **Cargo traffic surged dramatically** from 18.07 MMT (2013-14) to **133 MMT (2023-24)**, reflecting a **CAGR** of 22.10%.
 - **Future Projections:** The IWAI aims to increase the **freight share of inland waterways from 2% to 5% by 2030**, with a target of 200+ MMT of cargo traffic.
 - By 2047 (Maritime Amrit Kaal Vision), India aims to achieve **500+ MMT of cargo movement via inland waterways**.

How Can Inland Waterways Support India's Maritime Vision 2030?

- **Eco-friendly Transport:** IWT is an environmentally friendly option, emitting only **32-36 g CO₂ per ton-km**, far lower than **51-91 g by road**.
 - It causes **negligible noise and water pollution**, aligning with India's **Maritime India Vision 2030** and **Panchamrit** climate goals.
 - IWT seamlessly **integrates with rail, road, and sea transport**, strengthening multimodal logistics hubs and also aids in **decongesting transport systems**, facilitating **faster cargo movement**.
- **Cost-effective & Fuel Efficient:** IWT is the most **cost-effective** mode of transport, costing just **Rs 0.25-0.30 per ton-km**, significantly cheaper than **Rs 1.0 by rail** and **Rs 1.5 by road**.
 - It is also highly **fuel-efficient**, moving **105 ton-km per litre**, compared to **85 by**

rail and 24 by road.

- **Logistics & Economic Gains:** Inland Waterways can reduce **logistics costs from 14% to 9% of GDP**, saving India approximately **USD 50 billion annually**.
 - This improves India's global competitiveness, helping achieve the goal of becoming a **top 25 logistics performer by 2030**.
 - Inland **cruise tourism & ferry services** on rivers like **Ganga, Brahmaputra, Kerala backwaters** boost **employment**, promote **eco-tourism**, and align with **Blue Economy** goals.
- **Strategic Connectivity:** IWT requires **minimal land acquisition**, avoiding displacement and **ecological disruption**.
 - It ensures **last-mile access to remote and eco-sensitive regions**, such as the **Northeast, and Sundarbans**.
 - It also supports **national security and disaster resilience** by enabling efficient movement of goods and personnel during emergencies.

Maritime India Vision (MIV) 2030

- **About: Maritime India Vision (MIV) 2030** is a **strategic blueprint** to position India as a **global maritime hub**, focusing on enhancing **port-led development** and **blue economy growth**.
- **Objective:** It outlines **150 initiatives** under **10 core themes**, including **port infrastructure, logistics efficiency, shipbuilding, coastal and inland waterways, technology adoption, and environmental sustainability**.
- **Key Targets:**

MIV 2030 – Key targets

Key Performance Indicator		Current (2020)	Target (2030)
1	Major Ports with >300 MTPA cargo handling capacity	-	3
2	% of Indian cargo transshipment handled by Indian ports	25%	>75%
3	% of cargo handled at Major Ports by PPP/ other operators	51%	>85%
4	Average vessel turnaround time (containers)	25 hours	<20 hours
5	Average container dwell time	55 hours	<40 hours
6	Average ship daily output (gross tonnage)	16,500	>30,000
7	Global ranking in ship building and ship repair	20+	Top 10
8	Global ranking in ship recycling	2	1
9	Annual cruise passengers	4,68,000	>15,00,000
10	% share of Indian seafarers across globe	12%	>20%
11	% share of renewable energy at Major Ports	<10%	>60%

What are the Key Challenges in Unlocking the Full Potential of Inland Waterways in India?

- **Seasonal Navigability Constraints:** Most Indian rivers are **non-perennial**, with significant **depth fluctuations** during dry seasons, limiting **year-round navigation**.
- **Infrastructure Gaps: National Waterways** lack essential infrastructure such as **jetties, terminals, vessels, and navigational aids**.
 - There's inadequate **multimodal integration**, **poor mapping of industrial clusters**, and **high capital costs** with limited access to **financing**.
- **Inadequate Depth:** Many waterways **lack the required draft (minimum water depth)**, limiting navigation for large cargo vessels and reducing efficiency and cargo capacity.
- **Underutilisation of Waterways:** Only **3.5% of trade in India** moves via waterways, much lower than China (47%), Europe (40%), and Bangladesh (35%), signaling underuse of the potential.
- **High Siltation & Environmental Concerns:** **Frequent siltation** requires **regular and costly dredging** to maintain the necessary **channel depth** and ensure **navigability**.
 - **Limited first/last-mile connectivity** and time delays push industries towards **road/rail** transport.
 - **Dredging and port developments** also degrade **aquatic ecosystems** and disrupt **riverine communities**.

What are the Key Initiatives to Boost Inland Waterways?

- [**Jalvahak-Cargo Promotion Scheme \(2024\)**](#): Aimed at **incentivising modal shift** from road/rail to IWT with a **35% reimbursement of operational costs** for cargo owners.
- **Extension of Tonnage Tax:** Announced in **Union Budget 2025-26** to promote **tax certainty** and boost **private investment** in IWT.
- **Port Integration:** Multi-modal terminals being integrated to streamline cargo handling between ports and IWT.
- **Digitisation & Centralised Database:** A **unified digital portal** for vessel and crew registration to enhance **transparency, logistics planning, and ease of doing business** in IWT.
- [**Eastern and western Dedicated Freight Corridors \(DFCs\)**](#)
- [**Sagarmala Project**](#)
- [**Jal Marg Vikas Project**](#)
- [**PM Gati Shakti**](#)

What Measures Should be Taken to Improve the IWT in India?

- **Integrated & Sustainable Infrastructure Development:** Enhance multimodal connectivity under **PM Gati Shakti** and **Sagarmala** by linking IWT with rail, road, and coastal networks.
 - Revive dormant waterways (e.g., **Kopili model**) in states like Bihar, Odisha, and West Bengal with **sustainable dredging, EIA compliance, and green vessels** for eco-friendly navigation.
- **Private Participation & Financial Incentives:** Promote **PPP** in vessel manufacturing, terminal development, and cargo handling by offering **tax benefits, financial incentives**, and setting up **Inland Waterways Development Funds**.
 - Encourage innovation in logistics through **e-platforms, River Information Systems (RIS)**, and **GPS tracking**.
- **Cargo & Passenger Movement Boost:** Integrate IWT with economic hubs like **PM MITRA Parks** and **Mega Food Parks** to improve cargo flows.
 - Expand passenger transport via **Cruise Bharat Mission** and incentivize cargo movement under the **Jalvahak Scheme** through scheduled services on key **National Waterways**.
- **Capacity Building & Community Development:** Invest in skilling workforce in riverine areas for IWT operations and maintenance.
 - Conserve traditional navigation through **Riverine Community Development Scheme**, fostering employment and sustainable livelihoods at the grassroots level.

Conclusion

Inland Water Transport (IWT) is a cost-effective, fuel-efficient, and eco-friendly mode of cargo movement. Its development under initiatives like **Sagarmala** and **PM Gati Shakti** can Strengthen IWT to achieve **sustainable logistics** and India's **USD 5 trillion economy** vision.

Drishti Mains Question:

Discuss the potential and challenges of Inland Water Transport (IWT) in India. Suggest measures for its effective integration into the national logistics network.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q. Enumerate the problems and prospects of inland water transport in India. (2016)

ISRO Space Analog Mission 'HOPE'

Source: [ISRO](#)

Why in News?

[Indian Space Research Organisation \(ISRO\)](#) has inaugurated the **Himalayan Outpost for Planetary Exploration (HOPE)** space analog mission at [Tso Kar Valley](#) (Ladakh) to simulate and study challenges linked to **long-duration space missions**.

What is the HOPE Mission?

- **About:** It is part of **ISRO's Indian Human Spaceflight Programme**, aimed at **simulating space-like conditions** to test technologies and human health protocols for future **interplanetary missions**, particularly those involving the **Moon and Mars**.
- **Objective:** To study critical **physiological, psychological, and operational challenges** and improve **mission planning** and **preparedness** for **human space exploration** in human spaceflight.
 - It focuses on **epigenetic, genomic analysis, health monitoring protocols, and microbial sample techniques**.
- **Site Selection:** **Tso Kar Valley, Ladakh** was selected for its **Mars-like environment**-high **UV radiation**, low **air pressure**, salty frozen ground, and cold temperatures (15°C to -10°C).
 - Oxygen levels are only **40% of sea level**, and the rocky, sandy soil resembles **Martian soil**.
 - It enables **testing of life support systems, habitat technology, and rover movement**, while supporting research on using **In-situ resource utilization (ISRU)** and **astrobiology**.
- **Significance:** The mission plays a crucial role in preparing for future crewed missions to [Low Earth Orbit \(LEO\)](#) including [Gaganyaan](#), and an **Indian lunar landing by 2040**.
 - It generates **vital data**, strengthens **technological readiness** and **health protocols**, and promotes **Atmanirbhar** space research through **public-private-academic collaboration**.

Note:

- Tso Kar [Wetland](#) Complex in Ladakh is a [Ramsar site](#), a conservation status conferred

by [International Ramsar Convention on Wetlands](#).

Earlier Analog Missions in Space Research

- **India:**
 - **Ladakh Human Analog Mission (LHAM), Leh (2024):** [ISRO's first Mars and Moon analog mission](#) began to test **space habitat technologies** under simulated space conditions.
 - **Anugami (July 2025):** A 10-day analog experiment under **Gaganyaan Analog Experiment (GANEX)** to advance **human spaceflight readiness**.
- **Worldwide**
 - **Desert RATS (NASA):** Conducted in Arizona deserts to test **rovers** and **extravehicular activity (EVA)** for Moon and Mars missions.
 - **NEEMO (NASA):** Astronauts live in **Aquarius**, the world's only **undersea research station**, simulating space mission conditions.
 - **HI-SEAS: A Mars and Moon analog station** in Hawai'i, run by the **International MoonBase Alliance (IMA)** to support **lunar exploration** and research.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. Consider the following statements: (2016)

1. The Mangalyaan launched by ISRO
2. is also called the Mars Orbiter Mission
3. made India the second country to have a spacecraft orbit the Mars after USA
4. made India the only country to be successful in making its spacecraft orbit the Mars in its very first attempt

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Ans: (c)

WHO Classified Hepatitis D as Carcinogenic

Source: IE

The [World Health Organization \(WHO\)](#) has reclassified [Hepatitis D Virus \(HDV\)](#) as **carcinogenic**.

Hepatitis

- **About:** It is a **liver inflammation** from **viral infections, autoimmune disorders, alcohol/drug toxicity**. It can be **acute** or **chronic**, leading to **fibrosis, cirrhosis, or liver cancer**.
- **Symptoms:** Often asymptomatic initially, later **fever, fatigue, loss of appetite, dark urine, pale stools, joint pain, jaundice**.
- **Causes:** **Hepatotropic viruses (A, B, C, D, E)**, others like **Varicella, SARS-CoV-2 & non-viral causes** such as **alcohol, drugs, autoimmune hepatitis, fatty liver**.
- **Prevalence:** In 2022, WHO reported **254 million hepatitis B cases, 50 million hepatitis C cases, and 1.3 million deaths**, with **half of chronic cases** in those aged 30–54.
- **Hepatitis D:** It is a **defective virus** that depends on the **Hepatitis B Virus (HBV)** for **infection and replication**.
 - **Risk:** Causes **co-infection or superinfection** with HBV, increasing risk of **liver cirrhosis** and **hepatocellular carcinoma** (a type of liver cancer) by **2–6 times** compared to HBV alone.
 - **Prevalence:** Low but likely **underreported** in India, especially among **intravenous drug users** and **chronic HBV patients**.
 - **Diagnosis, Treatment & Prevention:** Diagnosis relies on the **HDV-RNA test**, with limited treatment options, though new drugs like **bulevirtide** show promise.
 - Prevention depends on **universal Hepatitis B vaccination**, which has about **50% coverage** in India.
 - Key measures include **safe blood transfusions, needle safety, safe sexual contact, and screening high-risk groups**.
- **Key Initiatives:**
 - **WHO's 2022–2030 Strategy:** **Reduce new hepatitis infections by 90% and deaths by 65%** from 2015 levels, targeting **520,000 cases and 450,000 deaths annually by 2030**.
 - **National Viral Hepatitis Control Program:** Eliminate viral hepatitis from India by 2030.
 - [National Viral Hepatitis Control Program.](#)
 - [India's Universal Immunization Programme \(UIP\).](#)
 - [World Hepatitis Day.](#)

Types of Hepatitis

	TRANSMISSION	PREVENTION	TREATMENT
Hepatitis A	Eating contaminated food or drinking contaminated water	<ul style="list-style-type: none">• Practicing good hygiene• Vaccine	No treatment
Hepatitis B	Through contact with the blood or bodily fluids of an infected person	<ul style="list-style-type: none">• Practicing good hygiene• Vaccine• Blood screening	<ul style="list-style-type: none">• Alpha interferon• Peginterferon
Hepatitis C	Blood-to-blood contact	<ul style="list-style-type: none">• Practicing good hygiene• Avoid sharing needles, toothbrushes, razors or nail scissors	Direct-acting antiviral drugs
Hepatitis D	Contact with infected blood (only occurs in people already infected with hepatitis B)	<ul style="list-style-type: none">• Hepatitis B vaccine• Avoid sharing needles, toothbrushes, razors or nail scissors	Interferon
Hepatitis E	Eating contaminated food or drinking contaminated water	<ul style="list-style-type: none">• Practicing good hygiene• Avoid drinking water that has come from a potentially unsafe source	No treatment

Read More: [Global Hepatitis Report 2024](#), [World Hepatitis Day](#)

First Auction for Green Ammonia by SECI

Source: [PIB](#)

[Solar Energy Corporation of India \(SECI\)](#) has conducted its first-ever auction for [Green Ammonia](#) procurement under the **SIGHT Scheme**, as part of the [National Green Hydrogen Mission \(NGHM\)](#).

- SECI is a **Navratna Central Public Sector Undertaking (CPSU)** under the **Ministry of New and Renewable Energy (MNRE)**, and plays a key role in the promotion and implementation of renewable energy projects across India.

SIGHT Scheme

- The **Strategic Interventions for Green Hydrogen Transition (SIGHT) Scheme** is a flagship initiative under the **NGHM**.
- It aimed at **strengthening** the **supply side** of [green hydrogen](#) production through **financial**

incentives to manufacturers.

- It is implemented by the [Ministry of New and Renewable Energy \(MNRE\)](#) through **SECI**.

Green Ammonia

- It is **carbon-free ammonia** produced using **green hydrogen** (via water electrolysis) and **nitrogen** (from air).
- It is used in **climate-neutral fertiliser production**, as a **zero-carbon fuel** in engines or fuel cells, and as a **clean marine fuel** alternative.
- It can be **easily stored and transported** as a **liquid** under **moderate pressure or low temperature**, making it ideal for **renewable energy storage and long-distance energy trade**.

'Green' Ammonia

Green ammonia is key to meeting the twin challenges of the 21st century.

SIEMENS



By 2050 there will be ten billion people on the planet.

Using ammonia as fertilizer makes land more productive. Increasingly vital as the population grows and living standards improve.

People need food and energy and it must be CO₂ free – that's where green ammonia comes in.

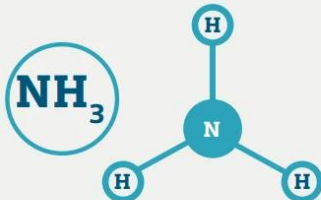
Ammonia

Ammonia is a compound made of nitrogen and hydrogen. Chemical formula NH₃. Ammonia's main use is in fertilizer.



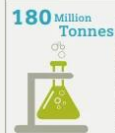
Nitrogen is a harmless odourless gas that makes up 78% of the air around us.

Hydrogen is the most abundant element in the universe. There are 2 hydrogen atoms in every molecule of water.



By using water electrolysis and renewable electricity, ammonia production can be made completely carbon-free.

Ammonia



Ammonia feeds the world: 180 million tonnes were produced in 2015, mainly for use in fertilizers. Growing demand for food means this must rise 3% each year.



Today, ammonia is made using the Haber-Bosch process invented and perfected in the early 1900s. Its two inventors won Nobel prizes in 1918 and 1931.

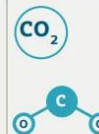


In the Haber-Bosch process hydrogen and nitrogen are converted to ammonia using high temperature and a catalyst.



The global trade in ammonia means we already know how to transport and store it safely.

But there is a problem



Today the lowest cost way to get hydrogen is from natural gas but this produces carbon-dioxide (CO₂) which is a cause of manmade climate change.



Ammonia production requires energy, and today this energy also comes from fossil fuels. Together with the fossil hydrogen feedstock, current ammonia production accounts for over 1% of global CO₂ emissions.



To keep under 2 degrees warming humans must emit no more than 600 billion tonnes more CO₂. That's less than 25 years at the rate today.



Once CO₂ is released into the atmosphere it will change the climate for the next 10,000 years.

The good news – innovating to create carbon free "green" ammonia



We can make hydrogen from water using electricity – a process known as electrolysis. Passing an electric current through water separates the hydrogen and oxygen.

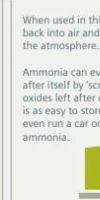


Green ammonia can support the business case for renewables, by providing an alternative revenue stream that is not dependent on a grid connection (particularly in remote areas), and by being used for load-balancing.



By switching to renewable electricity to make ammonia we could save over 40 million tons of CO₂ each year in Europe alone, or over 360 million tons worldwide.

We can also burn ammonia to make electricity when the wind is not blowing.



When used in this way ammonia turns back into air and water, so doesn't pollute the atmosphere.

Ammonia can even be made to clean up after itself by 'scrubbing' any nitrogen oxides left after combustion. Ammonia is as easy to store safely as LPG. You can even run a car on ammonia.

NATIONAL GREEN HYDROGEN MISSION

NODAL MINISTRY

- Ministry of New and Renewable Energy

OBJECTIVE

- Decarbonise energy/industrial/mobility sector
- Develop indigenous manufacturing capacities
- Create export opportunities for GH₂ and its derivative

COMPONENTS OF NGHM

- Strategic Interventions for Green Hydrogen Transition Programme (SIGHT)
- Strategic Hydrogen Innovation Partnership (SHIP) (PPP for R&D)

GH₂ is not commercially viable at present; current cost in India is around ₹350-400/kg.
The National Hydrogen Energy Mission aims to bring it down under ₹100/kg.

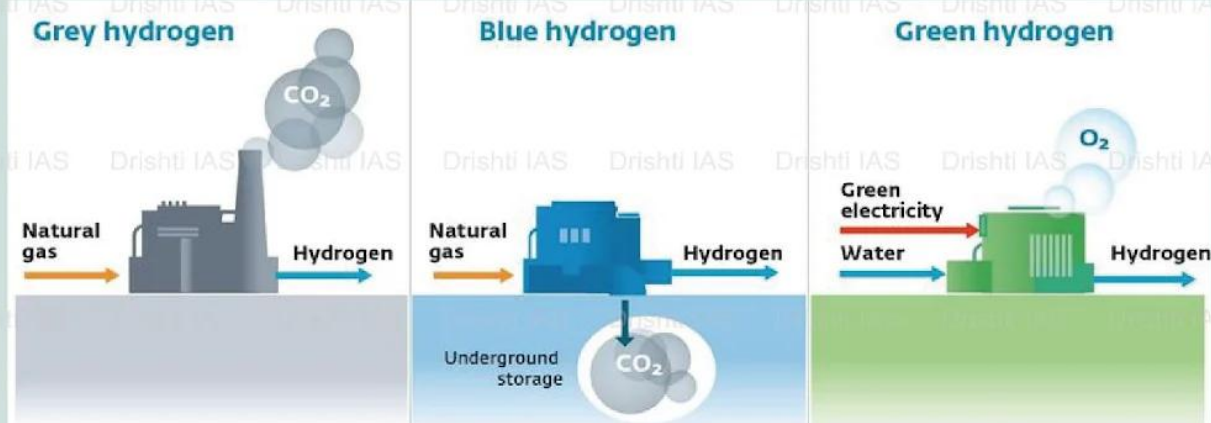
Expected Outcomes by 2030

- ◆ Atleast 5MMT GH₂ annual production
- ◆ Rs 1 lakh crore fossil fuel import savings
- ◆ 6 lakh jobs
- ◆ 50MMT CO₂ annual emissions averted
- ◆ ₹ 8 lakh crore investment

HYDROGEN AND GREEN HYDROGEN

Hydrogen is the most common element in nature but exists only in combination with other elements. It has to be extracted from naturally occurring compounds (like water).

Green Hydrogen (GH₂) is made by splitting water through an electrical process called electrolysis, using an electrolyser powered by renewable energy (RE).



Swadesh Darshan Scheme

Source: [PIB](#)

The **Ministry of Tourism** undertook a review of the **Swadesh Darshan Scheme (SDS)** following the **CAG's** performance audit.

- The review emphasized **institutional strengthening, data-driven destination selection, infrastructure benchmarking**, and integration of **hard (infrastructure)** and **soft (capacity building)** interventions.
- Focus areas included **monitoring, sustainable operations, promotion, and impact assessment** for long-term sustainability.

Swadesh Darshan Scheme (SDS & SD2.0)

- Launched in **2014-15**, SDS is a **100% centrally funded Central Sector Scheme** aimed at **sustainable and responsible tourism** through integrated development of **theme-based circuits** (e.g., **Buddhist, Heritage**).
- It provides financial support to **States/UTs/Central Agencies** for infrastructure development.
- **SD2.0** shifts to **destination-centric, sustainable tourism**, aligned with '**Vocal for Local**' and **Aatmanirbhar Bharat**, encouraging **private sector investment** in tourism and hospitality.
- **Challenge-Based Destination Development (CBDD)**, a sub-scheme under **SD2.0**, follows a **competitive model** focusing on **sustainability, digitalization, skill development, MSME support, and efficient management**.

Key Initiatives for Tourism Development

- [National Tourism Policy, 2022](#)
- [Dekho Apna Desh Initiative](#)
- [Ek Bharat Shreshtha Bharat](#)
- [PRASAD Scheme](#)
- [HRIDAY](#)
- **Tribal Homestays** under [PM-JUGA](#)
- **Capacity Building for Service Providers (CBSP)** for skill and employability enhancement.

Read More: [Swadesh Darshan Scheme, Advancing Sustainable Tourism in India](#)

MS Swaminathan Centenary Conference

Source: [PIB](#)

The Prime Minister of India inaugurated the [MS Swaminathan Centenary International Conference](#) at **New Delhi** celebrating the legacy of the **father of India's Green Revolution**.

- **Theme:** *Evergreen Revolution: The Pathway to Biohappiness*. It focuses on **food security, sustainability, and inclusive development**.
- **Contribution of MS Swaminathan:** He introduced **high-yielding crops**, boosting India's [food](#)

security, and collaborated with **Norman Borlaug** (Father of Green Revolution in the world) on **semi-dwarf wheat**, leading to an increase in **wheat production**.

- He was also a pioneer in **mangrove restoration** and **sustainable farming**, promoting an **evergreen revolution** for eco-friendly agricultural growth.

- **Recognition & Legacy:** He was posthumously conferred the **Bharat Ratna** in **2024** and honoured as the **Father of Economic Ecology** by **UNEP** for linking **agriculture** with **sustainable ecological practices**.

MANKOMBU SAMBASIVAN SWAMINATHAN

(7 AUGUST 1925 – 28 SEPTEMBER 2023)

“If God appears to poor and hungry in the form of bread as said by Mahatma Gandhi, that God is Dr. Swaminathan who should be worshipped by every citizen while taking daily meals.”



Famously called

- Father of Green Revolution in India
- Father of Economic Ecology by UNEP

Timeline

- **1947-49:** After Independence, joined IARI, New Delhi
- **1949-54:** UNESCO Fellowship, Doctorate, and Postdoctoral
- **1965-70:** Led Green Revolution in India (with Norman Borlaug)
- **1972-88:** Headed ICAR, Revolutionised Rice research across Asia as DG-IRRI (First Asian)
- **1987-89:** Estd M.S Swaminathan Research Institute, Chennai
- **1990-02:** President of the Pugwash Conferences on Science and World (2002-07)
- **2004-13:** Chaired National Commission on Farmers
- **2013-23:** Steered M S Swaminathan Research Foundation (MSSRF) on sustainable agriculture, nutrition, security, etc.

Major Awards

- Padma Shri, 1967
- Ramon Magsaysay Award for Community Leadership, 1971
- Padma Bhushan, 1972
- Won inaugural World Food Prize, 1987
- Padma Vibhushan, 1989
- Mahatma Gandhi Prize of UNESCO, 2000
- Bharat Ratna, 2024 (Posthumously)

MS Swaminathan was included in List of 20 most Influential Asians of 20th century by TIMES Magazine



Read More: [MS Swaminathan](#)

