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International & National News

<p><b>ISRO to hold more tests for Gaganyaan in the coming months</b></p> <p><b>Upcoming Tests by ISRO</b></p> 	<p><b>Context</b></p> <ul style="list-style-type: none"> <li>• Successful completion of Test Vehicle-D1 (TV-D1) mission on <b>October 21</b>.</li> <li>• Planned a series of test missions to further the Gaganyaan program.</li> </ul> <p><b>Upcoming Tests by ISRO</b></p> <p><b>TV-D2 Mission</b></p> <ul style="list-style-type: none"> <li>• Demonstrates in-flight abort capability under varied initial conditions.</li> <li>• Features control system for crew module re-orientation upon separation.</li> <li>• Utilizes the same expendable version based on L40 strap-on from GSLV.</li> </ul> <p><b>G-X Unmanned Orbital Demonstration Flight</b></p> <ul style="list-style-type: none"> <li>• Involves crew module with service module.</li> <li>• Launches aboard a <b>human-rated LVM3</b>.</li> <li>• Introduces '<b>Vyommitra</b>' – a robot astronaut developed by ISRO Inertial Systems Unit (IISU).</li> <li>• Tests control systems, reduced life support systems, thermal protection, and parachute systems.</li> </ul> <p><b>Integrated Air-Drop Test (IADT) Pad Abort Test</b></p> <p><b>Reuse of TV-D1 Crew Module</b></p> <ul style="list-style-type: none"> <li>• Consideration of TV-D1 crew module recovery for future tests.</li> <li>• Module retrieved from the sea after parachute-assisted splash-down.</li> <li>• Requires detailed inspection due to saltwater exposure.</li> <li>• Plan to assess the feasibility of reuse and determine suitable future test programs.</li> </ul>
<p><b>RBI Maintains 6.5% GDP Growth Projection</b></p>	<p><b>Context:</b></p> <p><b>Reserve Bank of India's Outlook (October 6):</b></p> <ul style="list-style-type: none"> <li>• RBI maintains its 6.5% GDP growth projection for the year.</li> <li>• Risks include geopolitical tensions, economic fragmentation, volatile financial markets, and an uneven monsoon.</li> <li>• Domestic demand is strengthening.</li> </ul> <p><b>Key Points:</b></p> <p><b>Emerging Uncertainties (Fortnight Since):</b></p> <ul style="list-style-type: none"> <li>• New uncertainties have arisen since the RBI's projection.</li> </ul>



	<ul style="list-style-type: none"><li>• The <b>Israel-Hamas conflict</b> has widened, raising concerns about global food, fuel, and fertilizer supplies.</li><li>• India's dependence on <b>fuel and fertilizer</b> imports could be problematic.</li><li>• <b>Rising U.S. bond yields</b> and mixed data points add to uncertainties.</li><li>• Sharp sell-off on Indian bourses observed.</li></ul>
The T.N. experience on caste survey	<b>Key Points</b> <ul style="list-style-type: none"><li>• The Second BC Commission was established in Tamil Nadu in 1982, following a government decision to increase the BC reservation from <b>31% to 50%</b>.</li><li>• The Commission surveyed in two stages in 1983-84, focusing on <b>enumeration and classification of BCs</b>.</li><li>• The Commission's findings showed that BCs constituted a significant portion of the State's population, <b>leading to a 50% reservation quota for BCs in Tamil Nadu</b>.</li><li>• Differences arose between the Commission's Chairman, Ambasankar, and other members regarding the quantum of BC reservation and the inclusion of certain castes.</li><li>• Despite these differences, the government chose to maintain the <b>50% reservation quota for BCs</b> and included some new communities while rejecting the exclusion of others.</li></ul>
China-Bhutan boundary talks	<b>Context</b> <ul style="list-style-type: none"><li>• China and Bhutan held their 25th round of boundary talks in Beijing.</li><li>• They signed a Cooperation Agreement on the <b>"Responsibilities and Functions of the Joint Technical Team (JTT) on the Delimitation and Demarcation of the Bhutan-China Boundary."</b></li></ul> <b>Significance of the Talks:</b> <ul style="list-style-type: none"><li>• After a seven-year gap, Bhutan and China resumed boundary talks.</li><li>• Indicative of significant progress in resolving border disputes.</li><li>• The talks were paused after the <b>Doklam Standoff in 2017</b> and the COVID-19 pandemic in 2019-2021.</li><li>• Talks at other levels occurred during the pause, and an Expert Group met in 2021 to agree on a <b>3-step roadmap</b>.</li><li>• Bhutan's Prime Minister stated that they were <b>"inching towards" completing the roadmap</b>.</li><li>• Further progress was made during FM Tandi Dorji's visit to Beijing.</li></ul> <b>The 3-Step Roadmap:</b> <p><b>A roadmap was established in 2021 with three key steps: Agreeing on the border "on the table."</b></p> <ul style="list-style-type: none"><li>• Visiting the border sites on the ground.</li><li>• Formally demarcating the boundary.</li><li>• Aim to delineate Bhutanese and Chinese territory clearly for the first time.</li></ul>



	<p><b>India's Concerns:</b></p> <ul style="list-style-type: none"><li>• India is closely monitoring these talks due to its strained relations with China since the 2020 Line of Actual Control standoff.</li><li>• India is particularly concerned about <b>demarcation discussions over Doklam</b>, where China has proposed a land swap.</li><li>• Doklam is strategically significant as it is close to <b>India's Siliguri corridor</b>, connecting the <b>North Eastern States to the rest of India</b>.</li><li>• China has continued to build infrastructure in disputed areas in neighboring Bhutan, eroding India's strategic advantages.</li><li>• India is worried about <b>China's demand for full diplomatic relations with Bhutan</b> and opening an embassy in Thimphu.</li><li>• This concern arises from India's challenges with Chinese projects and influence in neighboring countries.</li></ul>
<p><b>India's green hydrogen move</b></p>	<p><b>Context</b></p> <ul style="list-style-type: none"><li>• India aims to produce '<b>green hydrogen</b>' with no fossil fuel emissions.</li><li>• A study by <b>Climate Risk Horizons (CRH)</b> warns of potential pollution if proper checks are not in place.</li></ul> <p><b>Key Points:</b> <b>National Green Hydrogen Mission</b></p> <ul style="list-style-type: none"><li>• <b>The Ministry of New and Renewable Energy (MNRE) leads the National Green Hydrogen Mission.</b></li><li>• The mission targets <b>five million tonnes of green hydrogen production by 2030.</b></li><li>• This requires 125 GW of renewable energy capacity and 250,000 gigawatt-hour units of power, equivalent to 13% of India's current electricity generation.</li></ul> <p><b>Current Renewable Energy Capacity</b></p> <ul style="list-style-type: none"><li>• As of August 2023, India's renewable energy capacity is <b>131 GW.</b></li><li>• The 2030 green hydrogen plan necessitates adding a similar capacity by 2030.</li><li>• India's commitment to install 500 GW of renewable energy capacity by 2030 as part of the Paris Agreement.</li><li>• India installed only <b>15 GW of new solar and wind capacity in 2023</b>, falling short of the annual 45 GW target.</li></ul> <p><b>Challenges in Green Hydrogen Definition</b></p> <ul style="list-style-type: none"><li>• MNRE defines <b>green hydrogen as producing no more than two kg of carbon dioxide per kg of hydrogen.</b></li><li>• Current '<b>grey hydrogen</b>' production emits nine kg of carbon dioxide per kg.</li><li>• The definition leaves room for interpretation.</li></ul>



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## Daily Current Affairs Encyclopedia

### Electricity Source for Electrolysers

- The main concern is the **source of electricity for electrolyzers, especially during nighttime.**
- The majority of India's electricity grid relies on coal generation, particularly during non-daylight hours.
- Most projects have not disclosed their electricity source, raising concerns about increased carbon emissions.
- It is unclear if projects committing to 100% clean energy can meet this requirement.

### Conclusion

- India's Green Hydrogen Mission faces challenges related to electricity sources and meeting ambitious renewable energy capacity targets.
- Proper checks and transparency are needed to ensure that **green hydrogen production does not worsen pollution.**

Color	GREY HYDROGEN	BLUE HYDROGEN	TURQUOISE HYDROGEN*	GREEN HYDROGEN
Process	SMR or gasification	SMR or gasification with carbon capture (85-95%)	Pyrolysis	Electrolysis
Source	Methane or coal 	Methane or coal 	Methane 	Renewable electricity 

Note: SMR = steam methane reforming.  
\* Turquoise hydrogen is an emerging decarbonisation option.

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