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National and International News

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



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	<p>fragmentation, volatile financial markets, and an uneven monsoon.</p> <ul style="list-style-type: none"> • Domestic demand is strengthening. <p>Key Points: Emerging Uncertainties (Fortnight Since):</p> <ul style="list-style-type: none"> • New uncertainties have arisen since the RBI's projection. • The Israel-Hamas conflict has widened, raising concerns about global food, fuel, and fertilizer supplies. • India's dependence on fuel and fertilizer imports could be problematic. • Rising U.S. bond yields and mixed data points add to uncertainties. • Sharp sell-off on Indian bourses observed.
<p>The T.N. experience on caste survey</p>	<p>Key Points</p> <ul style="list-style-type: none"> • The Second BC Commission was established in Tamil Nadu in 1982, following a government decision to increase the BC reservation from 31% to 50%. • The Commission conducted a survey in two stages in 1983-84, focusing on enumeration and classification of BCs. • The Commission's findings showed that BCs constituted a significant portion of the State's population, leading to a 50% reservation quota for BCs in Tamil Nadu. • Differences arose between the Commission's Chairman, Ambasankar, and other members regarding the quantum of BC reservation and the inclusion of certain castes. • Despite these differences, the government chose to maintain the 50% reservation quota for BCs and included some new communities while rejecting the exclusion of others.
<p>China-Bhutan boundary talks</p>	<p>Context</p> <ul style="list-style-type: none"> • China and Bhutan held their 25th round of boundary talks in Beijing. • They signed a Cooperation Agreement on the "Responsibilities and Functions of the Joint Technical Team (JTT) on the Delimitation and Demarcation of the Bhutan-China Boundary." <p>Significance of the Talks:</p> <ul style="list-style-type: none"> • After a seven-year gap, Bhutan and China



	<p>resumed boundary talks.</p> <ul style="list-style-type: none"> • Indicative of significant progress in resolving border disputes. • The talks were paused after the Doklam Standoff in 2017 and the COVID-19 pandemic in 2019-2021. • Talks at other levels occurred during the pause, and an Expert Group met in 2021 to agree on a 3-step roadmap. • Bhutan's Prime Minister stated that they were "inching towards" completing the roadmap. • Further progress was made during FM Tandi Dorji's visit to Beijing. <p>The 3-Step Roadmap:</p> <p>A roadmap established in 2021 with three key steps:</p> <p>Agreeing on the border "on the table."</p> <ul style="list-style-type: none"> • Visiting the border sites on the ground. • Formally demarcating the boundary. • Aims to delineate Bhutanese and Chinese territory clearly for the first time. <p>India's Concerns:</p> <ul style="list-style-type: none"> • India is closely monitoring these talks due to its strained relations with China since the 2020 Line of Actual Control standoff. • India is particularly concerned about demarcation discussions over Doklam, where China has proposed a land swap. • Doklam is strategically significant as it is close to India's Siliguri corridor, connecting the North Eastern States to the rest of India. • China has continued to build infrastructure in disputed areas in neighboring Bhutan, eroding India's strategic advantages. • India is worried about China's demand for full diplomatic relations with Bhutan and opening an embassy in Thimphu. • This concern arises from India's challenges with Chinese projects and influence in neighboring countries.
India's green hydrogen move	<p>Context</p> <ul style="list-style-type: none"> • India aims to produce 'green hydrogen' with no fossil fuel emissions. • A study by Climate Risk Horizons (CRH) warns of potential pollution if proper checks are not in place.

**Key Points:****National Green Hydrogen Mission**

- The Ministry of New and Renewable Energy (MNRE) leads the National Green Hydrogen Mission.
- The mission targets **five million tonnes of green hydrogen production by 2030**.
- 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.

Current Renewable Energy Capacity

- As of August 2023, India's renewable energy capacity is **131 GW**.
- The 2030 green hydrogen plan necessitates adding a similar capacity by 2030.
- India's commitment to install 500 GW of renewable energy capacity by 2030 as part of the Paris Agreement.
- India installed only **15 GW of new solar and wind capacity in 2023**, falling short of the annual 45 GW target.

Challenges in Green Hydrogen Definition

- MNRE defines **green hydrogen as producing no more than two kg of carbon dioxide per kg of hydrogen**.
- Current '**grey hydrogen**' production emits nine kg of carbon dioxide per kg.
- The definition leaves room for interpretation.

Electricity Source for Electrolysers

- The main concern is the **source of electricity for electrolysers, 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



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- 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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