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தினம் ஒரு குறள்

குறள் எண் 433
குற்றங்கூறாமை

தினைத்துணையாங் குற்றம் வரினும் பனைத்துணையாக் கொள்வர் பழிநாணு வார்.

பழிக்கு நாணுகின்றவர்கள், தினையளவு குற்றத்தையும் பனையளவாகக் கருதி, அதைச் செய்யாமல், தங்களைக் காத்துக் கொள்வார்கள் — மு. கருணாநிதி

Changing the frame

India must use forecast to better prepare for calamities

India received 8% more monsoon rain this year than normal. From a bird's eye view, this is bountiful. Official numbers suggest that the total area sown under *kharif* crops, until mid-September, increased by around 15 lakh hectares to about 1,110 lakh hectares. Rice cultivation has seen significant growth of over 8.45 lakh hectares to over 438 lakh hectares, compared to 430 lakh hectares during the same period last year. Pulses, coarse cereals and oilseeds have shown similar trends. In India's main reservoirs, the total available water capacity is, as of late September, 163 BCM (billion cubic metres) up from the 157.8 BCM last year. 1 BCM is trillion litres. However, torrential rains, particularly in August and September, saw several districts in Himachal Pradesh, Jammu and Kashmir and Punjab inundated – even cut off – after swollen rivers breached their flood marks. In Punjab, entire villages have been inundated, sinking farmland. While not a story unique to this year, there have been several landslides and flooding (urban and rural). Land erosion and siltation were widespread across the country leading to colossal damage.

Seasonal rainfall over northwest India, central India and the south peninsula were 27%, 15% and 10% more than their seasonal averages. In several instances, there were reports of 'cloudburst' – in meteorological terms, a very specific definition when State officials reported a deluge. Only in a single instance, in Tamil Nadu, did this actually bear out. While technical definitions might appear as a quibble, they influence the public perception of such events. A 'cloudburst' suggests something that is exceedingly rare and unforeseen, whose brunt must only be borne. On the other hand, even terms such as 'normal' rainfall – even though their visible impact can be, frequently, as damaging – also tend to convey fait accompli. A resignation to fate. Since April, the India Meteorological Department (IMD) has consistently pointed to seasonal rainfall being "above normal" or at least 4% more than the long period average of 87 cm as per its forecast. Whenever its figures bear out, it is framed as a victory of forecasting and less a failure of adequately preparing for calamity. While the establishment has forever been psychologically primed to treat a warning of drought as worth bracing for on a 'war footing', excess rains are seen as natural munificence. With developments in forecasting technology and the know-how to improve infrastructure, it is high time that this framing is modified. Failure to do so ought to be seen as an abdication of the government's responsibility to the public.

Context

India's 2025 monsoon season brought **8% excess rainfall** compared to the long-period average. While this has benefited agriculture — with higher sowing of rice, pulses, cereals, and oilseeds — it has also caused **severe flooding, landslides, and erosion** across several States like Himachal Pradesh, Jammu & Kashmir, and Punjab. The paradox is that the same rains that secure water in reservoirs and increase agricultural output can also devastate infrastructure, livelihoods, and communities. Despite advances in weather forecasting, the **policy and public narrative** around monsoon remains skewed: drought warnings trigger urgent responses, but excess rainfall is often framed as "natural abundance" rather than a calamity that demands equal preparation.

Main Focus Points

Excess Rainfall – Dual Impact

- +8% above average rainfall → higher crop sowing and fuller reservoirs.
- Simultaneous destruction due to floods, landslides, and siltation.

Regional Variations

- Northwest India: 27% above normal.
- Central India: 15% above normal.
- South Peninsula: 10% above normal.
- Severe localised flooding and reports of "cloudbursts."

Perception vs Reality

- "Normal" or "above-normal" rainfall often framed positively.
- "Cloudburst" used loosely → fuels perception that disasters are rare/unpreventable.
- Excess rainfall should be recognised as a **predictable risk**, not divine bounty.

Forecasting and Preparedness Gap

- IMD predicted above-normal rainfall since April.
- Forecast accuracy celebrated, but **disaster preparedness remains weak**.
- Floods and landslides show inadequate infrastructure and early response systems.

Need to Change the Framing

- Treat **excess rainfall with the same urgency** as drought.
- Recognise that forecasting is not just for validation but for **policy action**.
- Government failure to prepare for floods should be seen as **administrative lapse**, not an unavoidable natural disaster.

Way Forward

- Invest in **resilient infrastructure**, floodplain management, and silt removal.
- Improve **localised warning systems** and early evacuation plans.
- Mainstream flood risk into agricultural, urban planning, and disaster management policies.
- Frame excess rains as a **governance challenge**, not just a weather event.

Previous Year Mains Questions on Disaster Management

2023 : Dam failures are always catastrophic, especially on the downstream side, resulting in a colossal loss of life and property. Analyse the various causes of dam failures. Give two examples of large dam failures. [150 Words] [10 Marks]

2022

Explain the mechanism and occurrence of cloudburst in the context of the Indian subcontinent. Discuss two recent examples. [150 Words] [10 Marks]

Explain the causes and effects of coastal erosion in India. What are the available coastal management techniques for combating the hazard? [250 words] [15 Marks]

2021

Describe the various causes and the effects of landslides. Mention components of the important components of National Landslide Risk Management strategy. [250 Words] [15 Marks]

Discuss about the vulnerability of India to earthquake related hazards. Give examples including the salient features of major disasters caused by earthquakes in different parts of India during the last three decades. [150 Words] [10 Marks]

2020

Discuss the recent measures initiated in disaster management by the Government of India departing from the earlier reactive approach. [250 Words] [15 Marks]

2019

Vulnerability is an essential element for defining disaster impacts and its threat to people. How and in what ways can vulnerability to disasters be characterized? Discuss different types of vulnerability with reference to disasters. [150 Words] [10 Marks]

Disaster preparedness is the first step in any disaster management process. Explain how hazard zonation mapping will help disaster mitigation in the case of landslides. [250 Words] [15 marks]

2018

Describe various measures taken in India for Disaster Risk Reduction (DRR) before and after signing 'Sendai Framework for DRR (2015-2030)'. How is this framework different from 'Hyogo Framework for Action, 2005'? [250 Words] [15 marks]

2017

On December 2004, tsunami brought havoc on 14 countries including India. Discuss the factors responsible for occurrence of Tsunami and its effects on life and economy. In the light of guidelines of NDMA (2010) describe the mechanisms for preparedness to reduce the risk during such events. [250 Words] [15 marks]

2016

The frequency of urban floods due to high intensity rainfall is increasing over the years. Discussing the reasons for urban floods, highlight the mechanisms for preparedness to reduce the risk during such events. [200 Words] [12.5 Marks]

2016

With reference to National Disaster Management Authority (NDMA) guidelines, discuss the measures to be adopted to mitigate the impact of the recent incidents of cloudbursts in many places of Uttarakhand. [200 Words] [12.5 Marks]

2015

The frequency of earthquakes appears to have increased in the Indian subcontinent. However, India's preparedness for mitigating their impact has significant gaps. Discuss various aspects. [200 Words] [12.5 Marks]

2014

Drought has been recognized as a disaster in view of its spatial expanse, temporal duration, slow onset and lasting effects on vulnerable sections. With a focus on the September 2010 guidelines from the National Disaster Management Authority (NDMA), discuss the mechanisms for preparedness to deal with likely El Nino and La Nina fall outs in India. [200 Words] [12.5 Marks]

2013

How important are vulnerability and risk assessment for pre-disaster management? As an administrator, what are key areas that you would focus on in a Disaster Management System? [200 Words] [10 Marks]

The battlefield, change and the Indian armed forces

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With paradigm shifts in how global wars are being fought, India faces immense challenges from its adversaries in all domains. Artificial intelligence (AI), automation, drones and cheap precision weapons have lowered the cost of force yet have heightened the risks of operation. Against this backdrop of a two-front threat scenario, India is reshaping its structure, doctrine, technology, force composition, professional military education (PME) and military readiness. However, past attempts at building jointness have delivered only limited results. Reforms must now advance at a speed and scale that can match the operational needs of the armed forces.

From 'coordination' to 'command'

At the combined commanders conference last month in Kolkata, with the theme of 'Year of Reforms - Transformation for the Future', Prime Minister Narendra Modi emphasised the intention to move from service silos to integrated theatre commands. The Ministry of Defence has prioritised a review of structural, administrative, and operational matters such as the Inter-Services Organisations (Command, Control and Discipline) Rules, 2025, wherein commanders in organisations are empowered to exercise disciplinary and administrative authority for jointness in coordinated operations. However, these measures must be evaluated against real metrics. A decade after Mr. Modi emphasised jointness as a priority, it is only now that the Indian military has arrived at joint PME, underlining that the progression is not proportionate to the needs of today.

Meanwhile, the Defence Ministry has already raised tri-service agencies for cyber, space, and special operations under Headquarters Integrated Defence Staff (HQ IDS). New battle formations such as the "Rudra" and "Bhairav" units reflect this shift by combining infantry, artillery, armour, air defence, engineers, and surveillance elements into modular, mission-specific combat groups. These enable faster reaction times and more flexible operational deployment, especially along volatile borders (China and Pakistan).

Changing battlefield dynamics require an adaptive military

The recent declassification of India's Joint Doctrine for Amphibious Operations also details the framework for amphibious operations by integrating maritime, air, and land forces. However, theatrisation as understood by several militaries around the world, has yet to be contextualised in the Indian context. China has embodied integrated theatre commands for years. Indian theatrisation must be indigenous in design. This is all the more important when the jointness of all services has not been tested until now. While Operation Sindoor was a show of strength, the confrontation was largely aerial and did not require jointness for complete mobilisation.

Doctrine and tech evolution for war

The Joint Doctrine of the Indian Armed Forces (2017) and the Army's Land Warfare Doctrine (2018) set the basics for synergy and jointness. The recent Ran Samvad (the first tri-service seminar on war, warfare and warfighting) deliberated on preparing for future hybrid warriors (scholar, tech, and information warriors) who can read an adversary, code a solution, and shape the narrative. In changing times, doctrinal evolution must consider that future wars will be multi-domain from beginning, in which speed and information will decide the outcomes as much as conventional firepower.

Recent procurement has been critical and in alignment with creating seamless jointness. The MQ-9B drones deepen persistent intelligence, surveillance, and reconnaissance (ISR) and precision strike across land and sea. This deal underpins tri-service employment. The Navy's Rafale-M order stabilises carrier aviation and opens new options for maritime strike and fleet air defence. Akashteer, an AI-enabled, automated command-and-control network for Army air defence, is being integrated with the Air Force's Integrated Air Command and Control System (IACCS). This is a standard but important step in advancing jointness.

Creating a modern force

The Army's Integrated Battle Groups is emerging as an all-arms brigades ("Rudra") specifically designed to deploy within 12 to 48 hours with armour, infantry, artillery, engineers, loitering munitions and drones tailored to specific areas of confrontation. Momentum is now needed to translate into functioning brigades with joint training, logistics, and firepower. The Pralay quasi-ballistic missile completed back-to-back user trials in July 2025, strengthening land-based theatre fires. At sea, a carrier-centred maritime posture is being developed. The Rafale-M supports near-term air wings while the Navy charts a 15-year capability road map to manage air, subsurface, and unmanned growth.

India's next step is to place integration and learning at the centre of military power. This means establishing a stable and effective jointness that sets common data and interface standards. Despite inter-services differences, theatre commands should be activated, maybe with initial mandates and expanding authorities assessed over time. Professional military education must raise cadres of technologist-commanders embedded into every field exercise where failure is dealt with course correction. To make it effective, civil-military fusion is indispensable with the Defence Research and Development Organisation, defence public sector undertakings, private industry and universities for code, data, test ranges and rapid prototyping embedded in PME and exercises. A strong industrial complex management base should be tied into this cycle through rapid and repeated trials that keep what works and retire what is outdated. Where change shifts the dynamics of the battlefield, only an adaptive military moves the front.

Context

India today faces a **two-front security challenge** from China and Pakistan amid rapid changes in the nature of warfare. Global conflicts are increasingly defined by **AI, drones, automation, and precision weapons**, which lower costs but increase risks. To keep pace, India is restructuring its military doctrine, force composition, professional military education (PME), and technology integration. While reforms such as **tri-service agencies** (cyber, space, special operations), **integrated battle groups**, and **new joint doctrines** have begun, the transition from service-specific silos to **integrated theatre commands** remains unfinished. The emphasis now is on moving beyond coordination towards **command-level jointness**, aligning doctrine, procurement, and education with the needs of multi-domain modern warfare.

Main Focus Points

Evolving Nature of War

- AI, drones, automation, and precision weapons redefining warfare.
- Future wars will be **multi-domain from the start**, with speed and information as decisive as firepower.

India's Reforms and Challenges

- Past efforts at jointness delivered **limited results**.
- Current reforms: moving from **coordination** → **command** with integrated theatre commands.
- PME (Professional Military Education) only recently made joint, highlighting slow progress.

Institutional and Structural Measures

- New rules (Inter-Services Organisations, 2025) give commanders disciplinary/administrative authority.
- Tri-service agencies under HQ IDS for cyber, space, and special operations.

- New modular formations like **Rudra & Bhairav units** for faster deployment.

Doctrinal Evolution

- Joint Doctrine of Indian Armed Forces (2017), Land Warfare Doctrine (2018).
- Amphibious Operations Doctrine declassified recently.
- **Ran Samvad seminar** emphasised hybrid warriors (tech + strategy).

Technology and Procurement

- MQ-9B drones → ISR + precision strike across tri-services.
- Rafale-M → strengthens carrier aviation & maritime strike.
- Akashteer (AI-enabled C2 for Army air defence) linked with IAF's IACCS.
- Pralay missile → boosts land-based theatre fires.

Integrated Battle Groups (IBGs)

- Designed for **12–48 hours deployment** with all arms (infantry, artillery, drones, loitering munitions).
- Needs acceleration in training, logistics, and operational readiness.

Way Forward – Creating a Modern Joint Force

- Activate **theatre commands** with phased mandates.
- Embed **technologist-commanders** in PME and exercises.
- Strong **civil-military fusion** with DRDO, DPSUs, private industry, and academia.
- Continuous **testing, prototyping, and rapid adaptation** to battlefield changes.
- Build a **defence industrial ecosystem** to sustain modernisation.

Should Ladakh get statehood?

Sajjad Kargili

Member of the Kargil Democratic Alliance

Rangarajan R.

Former IAS officer and author of 'Courseware on Quality Simplified'

PARLEY

On September 24, when protesters in Ladakh clashed with the police, four people died in the violence. Two days later, climate activist and educator, Sonam Wangchuck, who had been spearheading a hunger strike with 15 others, was detained under the National Security Act, 1980, and taken to Jodhpur Central Jail in Rajasthan. The Union government has accused him of instigating the violence, a charge that he has denied. Ladakh, which was turned into a Union Territory (UT) in 2019, has been protesting for statehood and tribal status under the Sixth Schedule of the Constitution. The government has been in talks with two civil society groups – the Leh Apex Body (LAB) and the Kargil Democratic Alliance (KDA), representing the Leh and Kargil regions, respectively – for three years. Should Ladakh get statehood? Rangarajan R. and Sajjad Kargili discuss the question in a conversation moderated by **Vijaita Singh**. Edited excerpts:

Should Ladakh get statehood?

Sajjad Kargili: When Ladakh was part of Jammu and Kashmir (J&K), we had representation in the J&K Assembly, a voice, and some powers to elect the Chief Minister of the State. After becoming a UT, Ladakh has become voiceless. Bureaucrats come here for two years and try and impose policies according to their own wishes, without the consent of the people. Second, as far as land is concerned, we don't have any safeguards. Earlier, we had safeguards under Article 370 and Article 35A of the Constitution. The BJP promised to include Ladakh under the Sixth Schedule of the Constitution, but it is not fulfilling that promise. For the last six years, not a single person from Ladakh has been recruited for gazetted posts and there is no Public Service Commission. Ladakh has been disempowered for six years. So yes, we need statehood, democracy, and a voice. The idea of making Ladakh a UT has failed to address the aspirations of the people.

Rangarajan R.: The decision of bifurcating J&K into two UTs was a sensitive matter. The Supreme Court upheld that decision, so there is nothing more to discuss about that. But it is true that people had very serious apprehensions about the way in which it was done.

There is still a Member of Parliament from Ladakh, so Ladakh does have democratic representation. Ladakh has a unique landscape. It is vast, but the population is limited and is primarily concentrated in Leh, Kargil, and a few other places. Including Ladakh under the Sixth Schedule would be a logical first step (towards constitutional safeguards) and would offer its population – about 3.5 lakh according to the 2011 Census – some protection over land. Statehood is something which has to be deliberated further considering the population size. Ladakh should start with (demanding) Sixth Schedule status because that, if provided, will give Ladakhis more financial power, democratic representation, and protection for tribal and land-related rights in that region.

Two of the four people who lost their lives during the September 24 violence in Leh were cremated under tight security. ANI

The 2020 Chinese aggression and incursion happened when Ladakh became a UT, not when it was part of J&K. Many States share international borders, so why have a different yardstick for Ladakh?

RR: I am not getting into the security angle. The border areas are secured by the armed forces, and that will be the case irrespective of whether Ladakh is a UT or a State. Punjab, Uttarakhand, Sikkim are full-fledged States, but the Army is always present in those regions. That is not the point here. Various criteria are considered for Statehood: the area, sensitivity of the area, the population size... The people on the ground have reasons (for demanding statehood) and the administrators also have valid reasons for why (granting statehood) is not appropriate at this point in time. I am not saying that I am against it. But as someone who has been observing the situation and who understands the Constitution, I feel it has to be a staggered approach.

Also, the Sixth Schedule or even statehood is not a panacea for all ills. Ultimately, it also depends on how well these things are implemented. There are areas with Sixth Schedule status in Assam; the State still has grouses. Meghalaya and Mizoram also fall under the Sixth Schedule, but they still don't get autonomy, as rights have not been granted fully.

> Statehood is something which has to be deliberated further considering the population size. Ladakh should start with (demanding) Sixth Schedule status because that, if provided, will give Ladakhis more financial power, democratic representation, and protection for tribal and land-related rights in the region
>
> R. RANGARAJAN

The LAB and KDA have announced that they are not going ahead with any talks with the Ministry of Home Affairs (MHA), but the MHA has said it is open to dialogue. The MHA has also stated that the high-powered committee on Ladakh has yielded positive outcomes, including increased reservations for Scheduled Tribes, provision of women's reservation in the Hill Councils, and steps towards protecting local languages. It also said that the recruitment process for 1,800 government posts in the UT has begun. How true is this statement? And if it is true, shouldn't you give the government adequate time to keep up with the promises?

SK: We have four demands: Sixth Schedule status, statehood, a Public Service Commission, and separate Lok Sabha seats for Leh and Kargil regions. We never demanded 33% reservation for women. They proposed it; we didn't oppose it. The same goes for protecting languages. The government is not discussing the real agenda of the LAB and KDA. The reservation policy and the domicile law they brought in are executive orders, not constitutional guarantees. They can be amended or abolished any time. That is why we want constitutional guarantees for these reservations.

Second, Ladakh is a peaceful region. The dialogue should be held in a dignified manner, not by arresting our youth and by imposing draconian laws. We hope that the government will conduct a judicial probe as to what happened on September 24.

I don't agree with Mr. Rangarajan that we should start with Sixth Schedule status. The Lieutenant Governor (LG) administration is ignoring our elected representatives. Till now, the LG has not called a meeting with the elected bodies. So, you can imagine the extent of lack of democracy. The Hill Councils and the UT administration have failed to establish business rules.

Ladakh has two hostile powers on the either side – Pakistan and China – and the people of Ladakh are patriotic. But today, the government is supporting lobbies and organisations which are trolling Ladakhis, calling them anti-national, pro-Chinese and pro-Pakistan. That is unfortunate. The people of Ladakh have given blood to save these frontiers.

Also, when Sikkim was granted statehood, it had nearly the same population that Ladakh has today. The Government of India announced five new districts for Ladakh and in some of the regions, the population is just 5,000-7,000. So, I don't think population is the only criteria. The absence of governance and democracy should be the criteria for granting statehood. The government will also gain more trust from the people; today the people feel betrayed.

RR: I also take Mr. Sajjad's data point at face value – his point that ever since the State was converted into a UT, not one or not a significant number of people have been recruited from the region into public service. That needs to be addressed. Ladakh is such a vast region that it would make sense to create maybe even separate Class A and Class B services just for the area. Since it's a UT, the UPSC (Union Public Service Commission) could handle recruitment.

Some members of the LAB and KDA also believe that the autonomous councils should be strengthened more. Could you settle for more empowered autonomous councils rather than demanding statehood?

SK: We have seen this happen before – even in Delhi – where the elected government had to sit in protest outside the LG's office every day, because of constant interference from the LG in matters that should have been handled by the elected government. A UT with a legislature is worse than a UT without a legislature. We have Hill Councils and the Act (Ladakh Autonomous Hill Development Council Act, 1995) mentions that the Chief Executive Councillor (CEC) will have the power and protocol of a Cabinet Minister of a State and the Executive Councillors would have the power and protocol of a Minister of State. But in Ladakh, business rules have not been defined yet. That is why the CEC or the Council Chairman is compelled to visit the Chief Secretary's office for routine matters. The government has a budget of ₹6,000 crore for Ladakh but only ₹600 crore for Ladakh's Hills Councils. We get a small chunk from the Centre, while a large amount, nearly 80%, is utilised by the bureaucrats through the LG administration.

To listen to the full interview
Scan the code or go to the link
www.thehindu.com

Background

- In **2019**, Jammu & Kashmir was bifurcated into two Union Territories (UTs): **J&K (with legislature)** and **Ladakh (without legislature)**.
- Since then, Ladakh has had **no elected assembly**, and administration rests with the **Lieutenant Governor (LG)** and bureaucrats.
- Civil society groups — **Leh Apex Body (LAB)** and **Kargil Democratic Alliance (KDA)** — have been demanding **statehood** and **Sixth Schedule protections** for land, jobs, and cultural rights.
- On **September 24, 2025**, protests turned violent in Ladakh; climate activist **Sonam Wangchuck** was detained under the **National Security Act (NSA), 1980**, intensifying the debate.

Constitutional Context

- **Article 1 & 2** → Parliament can admit or establish new states.
- **Article 3** → Parliament can form new states, alter boundaries, or change status of UTs.
- **Article 370 & 35A** (revoked in 2019) → Earlier gave Ladakh safeguards under J&K's special status.
- **Sixth Schedule (Articles 244 & 275)** → Provides autonomy for tribal areas (currently in Assam, Meghalaya, Mizoram, Tripura).

Arguments for Statehood

Democracy & Representation

- No Assembly → People feel **voiceless**. Earlier, Ladakh had MLAs in J&K Assembly.
- Bureaucrats govern without local accountability.

Land & Job Protection

- Loss of Article 370/35A → No safeguards over land, resources, or recruitment.

- No **Public Service Commission (PSC)**, and locals struggle for government jobs.

Constitutional Guarantees

- Executive orders (reservations, language protection) can be revoked anytime.
- Sixth Schedule or statehood gives **permanent safeguards**.

Security Argument Not Valid

- Other border states (Sikkim, Arunachal Pradesh, Punjab) have statehood with Army presence.

Trust Building

- Statehood could build confidence among Ladakhis, who feel alienated after bifurcation.

Arguments Against Immediate Statehood

Small Population

- Only **~3 lakh (2011 Census)** → very low compared to other states.
- May not justify a separate state apparatus.

Administrative Efficiency

- As UT, Centre can directly fund and administer Ladakh.
- Statehood could slow decision-making due to political tussles.

Step-by-Step Approach

- Sixth Schedule protection first → later statehood if needed.
- Empower Hill Councils to function like mini-legislatures.

Security & Sensitivity

- Ladakh borders **China & Pakistan**. Some argue direct central control ensures faster response to crises.

How to include Ladakh under the Sixth Schedule?

- The **Sixth Schedule** (Articles **244(2)** & **275(1)**) currently applies only to **Assam, Meghalaya, Mizoram, Tripura**.
- To extend it to **Ladakh**, Parliament must pass a **Constitutional Amendment Bill**.

Steps:

- **Bill introduced** in either Lok Sabha or Rajya Sabha (as a **Constitutional Amendment Bill** under Article 368).
- **Simple majority** is **not enough** → requires a **special majority**:
    - 2/3rd of members present and voting **+** more than 50% of total membership in each House.
- Since the Sixth Schedule is not in the **federal structure list** (like Articles dealing with Union–State relations), **ratification by half the State legislatures is not required**.
- After Parliament passes, the **President gives assent**.
- Parliament can then notify the **autonomous district councils** for Ladakh (Leh & Kargil).

☞ In short: **Only a Constitutional Amendment by Parliament is needed**.

How to grant Statehood to Ladakh?

This is covered under **Article 2 and 3** of the Constitution.

Steps:

- **Bill for statehood** is introduced in **Parliament** (Lok Sabha/Rajya Sabha).
    - Can only be introduced with the **recommendation of the President** (Article 3, proviso).
- The President refers the Bill to the **Legislature of the concerned State/UT** for its views.
    - Since Ladakh is a UT without a legislature, this step is not applicable.
- Parliament debates and passes the Bill by a **simple majority** (not special majority).

- Once passed, and **President gives assent**, Ladakh becomes a **full-fledged State** with its own legislature, CM, and Governor.

☞ **Unlike Sixth Schedule**, statehood **does not require a constitutional amendment**; just a **law by Parliament under Article 3** is enough.

Previous Year Questions

UPSC Prelims 2012

Which of the following provisions of the Constitution of India have a bearing on Education?

1. **Directive Principles of State Policy**
2. **Rural and Urban Local Bodies**
3. **Fifth Schedule**
4. **Sixth Schedule**
5. **Seventh Schedule**

Select the correct answer using the codes given below:

(a) 1 and 2 only

(b) 3, 4 and 5 only

(c) 1, 2 and 5 only

(d) 1, 2, 3, 4 and 5

Ans: (d)

UPSC Prelims 2019

Under which Schedule of the Constitution of India can the transfer of tribal land to private parties for mining be declared null and void?

(a) Third Schedule

(b) Fifth Schedule

(c) Ninth Schedule

(d) Twelfth Schedule

Ans: (b)

UPSC Prelims 2013

The Government enacted the Panchayat Extension to Scheduled Areas (PESA) Act in 1996. Which one of the following is not identified as its objective?

(a) To provide self-governance

(b) To recognize traditional rights

(c) To create autonomous regions in tribal areas

(d) To free tribal people from exploitation

Ans: (c)

UPSC Mains 2016

Why are the tribals in India referred to as 'the Scheduled Tribes? Indicate the major provisions enshrined in the Constitution of India for their upliftment.

Will China capture the electrolyser market?

Why are green hydrogen technologies rapidly advancing? What are the two electrolysers used in commercial plants? How was China able to capture the global solar PV modules market? Why will China have a difficult time in replicating its success in the solar market when it comes to electrolysers?

EXPLAINER

Bhumika Sevkani

The story so far:

In the clean energy market, the limelight has recently shifted from solar and wind towards green hydrogen. Hydrogen is widely used in industries for oil refining and ammonia and methanol production, but most of it is currently produced using fossil fuels, which add to carbon emissions. Green hydrogen technologies used in production, storage, transportation and application are rapidly advancing, with electrolysers at the core of this transformation. Electrolysers are central to its production, much like photovoltaic (PV) modules are to solar power. And just as no discussion on solar PVs is complete without examining China's dominance in its supply chain, a similar story seems to be unfolding with electrolysers.

Is China a dominant player?

By 2024, China had become the world's leading hydrogen producer, reaching an annual production of 36.5 million tonnes. China produced a total of 1,20,000 tonnes of green hydrogen, which represents almost half of the world's green hydrogen output. With respect to electrolysers, China has come to dominate nearly 85% of the global manufacturing capacity of Alkaline electrolysers. Currently, Alkaline (ALK) and Proton Exchange Membrane (PEM) electrolysers are used in commercial plants, with ALK electrolysers being a more mature technology. While the costs of ALK electrolysers are low, they are less efficient than PEM electrolysers in producing hydrogen using renewable energy, given problems of fluctuating loads. PEM electrolysers, on the other hand, offer higher efficiency even at fluctuating loads as well as higher purity hydrogen as output. For now, China's dominance rests on its manufacturing capacity of ALK electrolysers, both for domestic consumption and exports.

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Looking at China's growing electrolyser manufacturing capacity, and its roll-out of large-scale green hydrogen production plants, concerns over its increasing global share in green hydrogen production and supply chain are beginning to emerge.

How did China establish dominance?

China was able to capture the global market of solar PV modules by offering cheaper rates due to state subsidies; integrated supply chains; control over raw materials; and quicker rollout of production facilities. In the case of electrolysers, the average price of ALK electrolysers supplied by China has been significantly lower than the average overseas price. Utilising Chinese ALK electrolysers can offer up to 45% of cost advantages in setting up hydrogen production plants in Europe. Electrolyser prices in China are decreasing further due to supply chain maturity and increasing entrants in the market. In 2024, a 1,000 Nm3/h (5MW) ALK electrolyser system was priced at six million yuan (approx. 1,200 yuan/kW or $167/KW), a 20% drop from 2023 whereas, a 200 Nm3/h (1MW) PEM electrolyser system was also priced at about six million yuan (- 6,000 yuan/kW or $838/KW) which is a reduction of 32% from 2023.

Further, ALK electrolysers are made with nickel and steel both of which are abundantly available in China. PEM electrolysers, however, rely on precious metals such as iridium, platinum, and titanium, making significant cost reductions challenging – even for China. Despite its manufacturing prowess, China remains one of the world's largest importers of these critical materials. Moreover, hydrogen production requires system integration that varies with the required hydrogen purity. The final application of the hydrogen produced determines the specific systems that must be installed. As a result, competing purely on price might not be enough in the green hydrogen industry; exporters will have a greater advantage in delivering fully integrated systems.

Chinese solar and wind equipment manufacturers like LONGi and Envision are entering the green hydrogen space. Besides manufacturing electrolysers, the firms have also signed deals to construct hydrogen production facilities overseas. For instance, China-based Guofu Hydrogen is partnering with German companies to develop electrolyser systems and hydrogen production facilities in Germany. Envision Energy launched the world's largest green hydrogen and ammonia plant, powered entirely by renewable energy sources.

Have other competitors emerged?

China is poised to become a dominant force in the global green hydrogen equipment market, as its firms proactively scale up production facilities and expand their international presence. However, this dominance is subject to significant advancements in technology and greater integration of their supply chains.

Despite their aggressive expansion, Chinese firms will face considerable hurdles in replicating their past success. Unlike solar, the green hydrogen sector is highly prioritised by many countries that have rolled out national plans and wish to maintain their local competitiveness. As a result, Chinese imports are likely to face significant scrutiny, restrictions, and stringent regulations, making it more challenging for them to compete on the same terms as they did in previous industries. Concerns over supply chain security are likely to play a larger role in shaping the market for green hydrogen technologies, potentially limiting the unhindered entry of Chinese products.

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THE GIST

- By 2024, China had become the world's leading hydrogen producer, reaching an annual production of 36.5 million tonnes. With respect to electrolysers, China has come to dominate nearly 85% of the global manufacturing capacity of Alkaline electrolysers.
- Chinese solar and wind equipment manufacturers like LONGi and Envision are entering the green hydrogen space. Besides manufacturing electrolysers, the firms have also signed deals to construct hydrogen production facilities overseas.
- Despite their aggressive expansion, Chinese firms will face considerable hurdles in replicating their past success. Unlike solar, the green hydrogen sector is highly prioritised by many countries that have rolled out national plans and wish to maintain their local competitiveness.

Context

- The global energy transition is pushing focus from solar/wind towards **green hydrogen**.
- Hydrogen is widely used in industries, but most is produced from fossil fuels → high carbon emissions.
- **Electrolysers** (like PV modules for solar) are central to green hydrogen production.
- Just as China dominates the **solar PV supply chain**, it is rapidly emerging as the **leader in electrolysers** and green hydrogen.

Main Focus Points

China's Current Position

- World's leading hydrogen producer: **36.5 million tonnes annually (2024)**.
- Green hydrogen output: **1,20,000 tonnes (~50% of global share)**.
- Dominates **85% of global Alkaline (ALK) electrolyser manufacturing capacity**.
- ALK → cheaper but less efficient; PEM → costlier, higher efficiency & purity.
- China's dominance is mainly in **ALK electrolysers**.

How China Built Dominance

- **Solar strategy repeated**: subsidies, integrated supply chains, raw material control, and rapid rollout.
- Electrolyser costs:
    - ALK: ~$167/kW (20% drop in 2024).
    - PEM: ~$838/kW (32% drop in 2024).
- Cost advantages: Chinese ALK electrolysers **45% cheaper in Europe**.
- Raw material availability:
    - ALK → nickel & steel (abundant in China).
    - PEM → platinum, iridium, titanium (import-dependent).

- Companies like **LONGi, Envision, Guofu Hydrogen** expanding into international partnerships & facilities.

Green Hydrogen

What is Green Hydrogen?

- **Hydrogen** is the lightest and most abundant element in the universe.
- It can be used as a **clean fuel** because, when burned, it produces only **water vapor** — no carbon dioxide.
- **Green hydrogen** refers to hydrogen produced using **renewable energy sources** (like solar, wind, hydro) through a process called **electrolysis**, where water (H_2O) is split into hydrogen (H_2) and oxygen (O_2).
- Unlike **grey hydrogen** (from natural gas/coal) or **blue hydrogen** (from fossil fuels with carbon capture), **green hydrogen is 100% clean**.

Why is Green Hydrogen Important?

Decarbonisation of Industries

- Sectors like steel, cement, shipping, and aviation are hard to electrify. Hydrogen provides a clean alternative fuel.

Energy Storage

- Hydrogen can store excess renewable energy (from solar/wind) for later use.

Reducing Oil & Gas Dependency

- Helps countries cut down on fossil fuel imports.

Climate Change Goals

- Supports global net-zero commitments (Paris Agreement).

India's Role & Potential

- India launched the **National Green Hydrogen Mission (2023)** with a target to produce **5 million tonnes annually by 2030**.
- Abundant **solar and wind resources** make India a potential global hub for low-cost production.
- Indian companies like **Reliance, Adani, NTPC, and Indian Oil** are investing heavily in electrolyser plants and hydrogen projects.

Previous Year Questions

UPSC Prelims 2023 Question:

With reference to green hydrogen, consider the following statements:

1. **It can be used directly as a fuel for internal combustion.**
2. **It can be blended with natural gas and used as fuel for heat or power generation.**
3. **It can be used in the hydrogen fuel cell to run vehicles.**

How many of the above statements are correct?

a) Only one

b) Only two

c) All three

d) None

Ans : c

How to safeguard India's digital economy

Cyber frauds have moved far beyond the fraudulent ATM withdrawals of earlier years. Today, criminals deploy more sophisticated and targeted strategies

Rajeev Kumar

India's digital transformation – powered by affordable Internet, digital banking, and e-commerce – while enhancing convenience and inclusion has also created a fertile ground for cybercrime. Fraudsters exploit system loopholes and human psychology, using tactics such as phishing, OTP/UPI frauds, identity theft, loan scams, and increasingly, digital arrests. These frauds rely less on hacking skills and more on manipulation of fear and trust.

Perils of social engineering

The most vulnerable victims include elderly citizens, rural populations, and weaker groups such as job seekers or loan applicants. Many senior citizens remain digitally illiterate yet hold substantial savings, making them prime targets. Fraudsters often obtain leaked banking or personal data to identify such customers, tailoring scams to exploit their weaknesses. Social engineering is at the core of these crimes – manipulating fear, greed, or urgency. Even educated individuals often surrender under sustained psychological pressure, showing how deeply criminals exploit human behaviour.

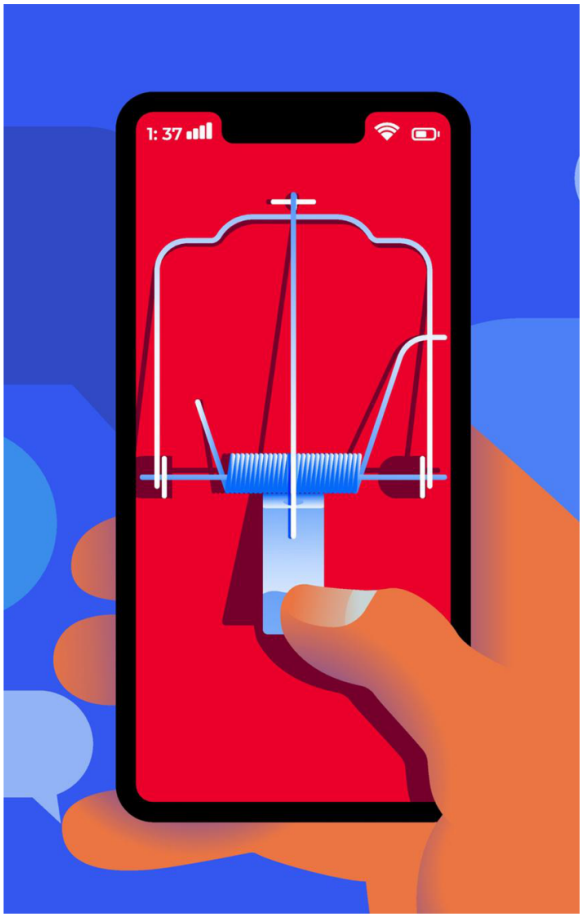
Two recent digital arrest cases highlight the role of fear. In the first, a 78-year-old retired banker was duped of ₹23 crore – siphoned through 21 transactions to 16 accounts. In the second, a lawmaker's wife was defrauded of ₹14 lakh but was able to recover it as she acted swiftly. Together, these cases show a stark contrast – delay leads to irreversible losses, while swift action can save victims from ruin. These cases underline the urgent need for systemic reforms such as AI-driven monitoring to flag abnormal transactions; banks mandated to act within the 24-hour window; cyber police equipped to respond swiftly etc. Proactive detection and rapid coordination between banks and law enforcement are essential to prevent such scams from succeeding.

However, institutions have failed to keep pace. Banks, entrusted with safeguarding public money, often limit their role to issuing generic advisories, while mule accounts with weak KYCs continue to thrive. Customer data – meant to be securely protected – often circulates freely across banks and even into the hands of fraudsters. Cyber police remain severely underequipped with respect to technology, training, and workforce, leaving victims trapped in bureaucratic delays and lost opportunities for recovery. Without advanced tools, specialised skills, and adequate manpower, they risk becoming symbolic entities rather than meaningful protectors in India's fight against cybercrime.

Thousands of fraud cases are reported daily, but the actual figures are far higher, as many victims avoid reporting due to stigma or lack of faith. This systemic apathy – both from banks and cyber police – has emboldened criminals and eroded trust, threatening the credibility of India's digital economy.

Increased sophistication

Cyber frauds have moved far beyond the fraudulent ATM withdrawals of earlier years. Today, criminals deploy more sophisticated and targeted strategies. Phishing attacks lure users into revealing sensitive data through fake emails or SMS messages. Remote access scams trick victims into downloading malicious apps that give criminals control of their devices. Job and loan scams prey on the aspirations of youth and financially vulnerable populations, while OTP and UPI frauds manipulate users into unknowingly authorising transactions.



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Equally damaging is identity theft, where Aadhaar, PAN, or bank details are misused to commit further crimes. Among the most alarming trends is the rise of digital arrests, where criminals impersonate police, customs, or government agencies. Victims are kept on continuous calls, shown fake warrants, and psychologically coerced into paying large sums to avoid fabricated charges. Such frauds demonstrate how criminals adapt faster than institutions. Their reliance on social engineering and technology-enabled deception shows us how they remain several steps ahead of current safeguards.

Large-scale frauds reveal recurring transaction patterns that should serve as early warning signals. First is scale. Fraudulent transfers are frequently many times larger than a customer's normal transactions. Secondly, the frequency of transactions; multiple high-value debits executed within a short span of time. In robust monitoring systems, both should trigger critical alerts. Yet banks often fail to send SMS, email, or phone verifications. Ironically, modest credit card spends and cheque clearances routinely invite confirmation calls, while multi-crore savings account debits pass without checks.

The destination of funds also exposes familiar patterns. Money is funnelled into mule accounts with incomplete or fake KYCs, often with negligible balances before suddenly receiving massive inflows. These funds are quickly dispersed across smaller or cooperative banks in a process known as layering, making recovery nearly impossible. The delay in freezing accounts compounds the problem. Victims face hurdles when reporting fraud, and the crucial 24-hour window is rarely used effectively. By the time action begins, funds are already beyond reach.

These patterns are not isolated anomalies but hallmarks of organised cyber fraud. The failure to monitor them proactively reflects systemic negligence, leaving criminals ample room to thrive.

Possible interventions

The current institutional approach is largely reactive – fraud is addressed only after complaints are filed. Artificial Intelligence (AI) and Machine Learning (ML) can shift this model to proactive prevention through the following methods:

Personalised transaction profiles: AI can map each customer's typical transaction size, frequency, timing, and risk category (for example, senior citizens, rural users, high-net-worth individuals). Customers can be grouped into clusters to generate targeted alerts for deviations from normal activity. Unusual patterns – such as abnormally large transfers or frequent debits – can trigger alerts, require confirmation, or temporarily block the transaction until verified. Clustering algorithms and anomaly detection models can flag behaviours such as unusually large one-off transfers, multiple debits within short intervals, or mule accounts receiving sudden inflows. ML systems can also identify accounts with incomplete or fake KYCs, preventing them from becoming conduits for laundering.

Cross-institutional monitoring: Banks operate in isolation without sharing information with the cyber police or telecoms. An AI-enabled fraud intelligence and early detection network could enable real-time sharing of alerts across banks, payment systems, and telecom providers. If one bank identifies a suspicious account, others could be notified instantly, preventing fraudsters from exploiting institutional gaps.

Empowering the cyber police: AI offers real-time detection and automated alerts for law enforcement, allowing swift action within the crucial 24-hour window. With global data-sharing and stronger international cooperation, AI can make cyber policing faster, more agile, and citizen-friendly.

Strengthening accountability of banks: Banks must adopt AI-driven monitoring, plug KYC gaps, and explore Blockchain for secure, tamper-proof customer data management.

Frauds today are not invisible – they are detectable with the right tools. What is missing is not technology, but institutional will. With AI-driven monitoring, fraud detection can evolve from reactive firefighting to proactive prevention.

The way forward

India must shift to a protection-first framework, where citizen safety and digital trust are central to financial stability.

For banks, reforms should tighten KYCs, audit mule accounts, and secure customer data. Blockchain promises tamper-proof record sharing, while AI-driven monitoring and shared fraud intelligence platforms are necessities. Victims must also receive swift compensation, as mandated by the RBI, without unfair blame. For the cyber police, speed, tools, and capability are key. 24/7 rapid-response units must act within the 24-hour window, supported by stronger cross-border cooperation to address globalised fraud.

If pursued sincerely, these reforms can transform India's digital economy from vulnerable to resilient, where technology and trust work together to protect every citizen.

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India's Cybercrime Challenge: Social Engineering, Systemic Gaps, and the Way Forward

The Digital Boom and Its Dark Side

India's digital revolution — fuelled by **affordable internet, digital banking, and e-commerce** — has enhanced convenience and inclusion. But it has also opened a new frontier for **cybercrime**, where fraudsters exploit both **system loopholes and human psychology**.

Instead of relying on advanced hacking, today's cybercriminals depend on **social engineering** — manipulating fear, urgency, and trust. Common scams include:

- **Phishing & Remote Access Frauds**
- **UPI/OTP Frauds & Loan Scams**
- **Identity Theft** (Aadhaar, PAN, bank misuse)
- **Digital Arrests** (impersonation of police/government agencies)

The Human Factor: Social Engineering at the Core

- **Elderly citizens**: Digitally illiterate, yet holding large savings.
- **Rural users & job seekers**: Limited awareness, easier to manipulate.
- **Even educated citizens**: Fall prey under sustained psychological pressure.

📌 *Case in point:*

- A **78-year-old retired banker** lost ₹23 crore through layered mule accounts.
- A **lawmaker's wife**, targeted for ₹14 lakh, recovered funds due to quick reporting.

The contrast shows: **swift action saves, delay destroys**.

Institutional Gaps

Banks

- Generic advisories, weak KYC checks.
- Data leaks make customers soft targets.
- Large, abnormal debits often ignored while small card spends invite calls.

Cyber Police

- Underequipped, understaffed, and reactive.
- Victims face bureaucratic hurdles; crucial **24-hour recovery window** is lost.

Victim Response

- Many frauds go unreported due to stigma or lack of faith.
- This under-reporting emboldens criminals and erodes digital trust.

Evolving Sophistication of Scams

- **Digital Arrests**: Victims shown fake warrants, held on continuous calls, coerced into payments.
- **Layering of Funds**: Fraud proceeds funneled into mule accounts with fake KYCs, then rapidly dispersed.
- **Recurring Patterns**:
  - Transactions far larger than customer norms.
  - Multiple high-value debits in short intervals.
  - Sudden inflows into dormant accounts.

☞ These are **detectable red flags** — yet often ignored.

AI & Tech: Moving From Reactive to Proactive

AI-Driven Monitoring

- Build **personalised transaction profiles** for each customer.
- Flag anomalies: unusual transaction sizes, sudden bursts, or mule account inflows.
- Temporarily block suspicious transactions until verified.

Cross-Institutional Intelligence

- Create a **shared fraud detection network** linking banks, payment systems, and telecoms.

- Real-time alerts when suspicious accounts or patterns emerge.

Empowering Cyber Police

- AI-generated alerts → instant police notification.
- 24/7 rapid-response units with the tools and manpower to freeze accounts within hours.
- Stronger **cross-border cooperation**, as many fraud networks operate globally.

Strengthening Bank Accountability

- **Tighter KYC audits**, closure of mule accounts.
- Adoption of **Blockchain** for tamper-proof customer data security.
- **Mandatory compensation** for victims, shifting burden from individuals to institutions.