Train Safety in India

Why in news?

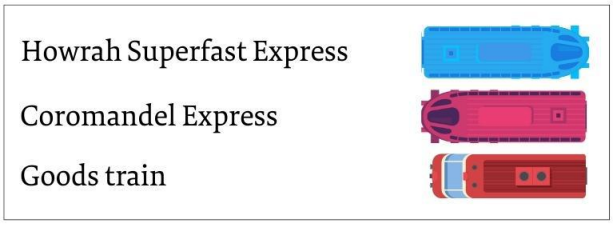
The triple-train collision in Odisha's Balasore, one of the deadliest in India, raises questions about safety in rail travel.

How did the trains collide?

- The ***Coromandel Express*** (Kolkata to Chennai), The ***Howrah Superfast Express*** (From Yeshwantpur) and a stationary goods train collided at the Bahanaga Bazar station in Balasore, Odisha.
- The Coromandel Express headed towards Chennai, collided with the goods train stationed and derailed, after failure of signal.
- The derailed train coaches fell on and derailed the last few coaches of the Howrah Superfast Express which was passing by.
- The tragic collision led to the death of nearly 300 passengers.
- None of the trains in the crash were equipped with anti-collision equipment nor was the section covered by Kavach System.
- The accident has drawn attention to the safety preparedness of the Indian Railways.

How Odisha train crash may have happend

The incident is still under investigation.



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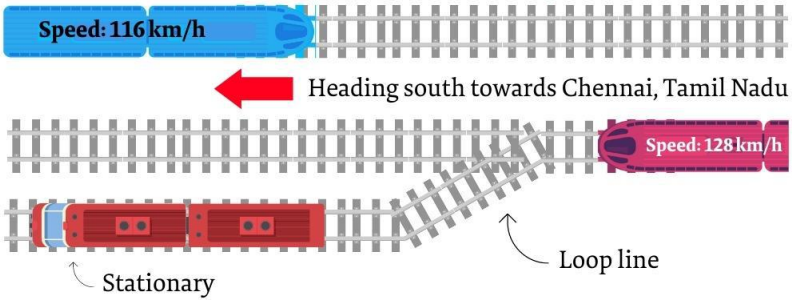
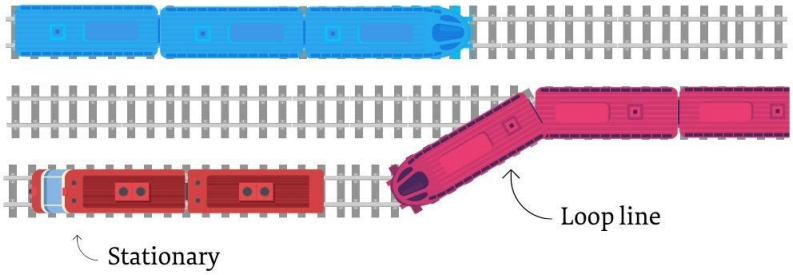
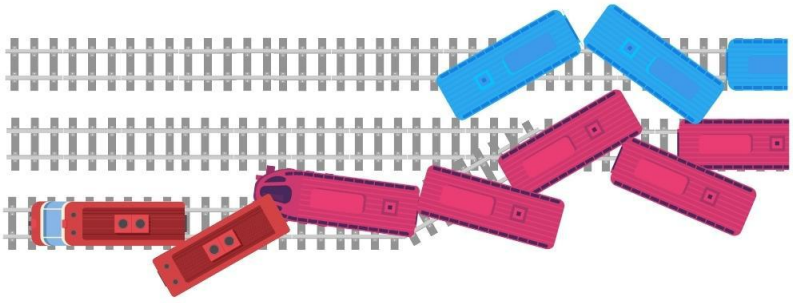
Heading north towards Howrah, West Bengal



2 Coromandel Express enters loop line due to technical glitch in signaling system and collides with the stationary goods train



3 Derailed carriages of Coromandel Express collide with last coaches of Howrah Express or the shock waves that could have passed through the ground derail Howrah Express coaches



THE HINDU

Source: Based on the preliminary probe by Railway Ministry

What is the status of safety of Indian Railways?

- The Indian Railways (IR) saw an average of about 1,390 accidents per year in the 1960s.
- The number has dramatically dropped to 80 per year in the past decade.
- **Reasons -** IR's safety record improved over the years because of -
    - The track works and its maintenance.
    - Elimination of unmanned level crossings.
- Though there is a fall in number of train accidents, the focus on safety measures of Indian Railways is still on decline.

The number of deaths in Odisha train incident is higher than the annual fatalities of the last 16 years

- **CAG's Report -** According to Comptroller and Auditor General's report for the period of April 2017 to March 2021, Indian Railways recorded 2,017 accidents from 2017 to 2021.
- Derailments accounted for majority (69%) of the accidents, resulting in 293 deaths.
- Among the consequential train accidents, 55% had occurred due to negligence or failure of the Railways staff.

What are the existing concerns over Indian Railways?

- **Staffing -** Understaffing in safety categories of work.
- Huge number of vacancies causes excessive stress on existing employees making them susceptible to make mistakes.
- **Expenditure -** Misuse or underuse of funds allocated for enhancement of safety mechanisms.
- **Control of Authority -** Dual control of the Commission of Railway Safety (CRS) where the committee is originally under the administrative control of Civil Aviation Ministry and the Commissioners are mostly from Railways.
- **Timeframe -** Railway departments delay in answering the Action Taken reports of CRS.
- **Legal upper hand -** Railway act of 1989 provides exclusive control to modify the rules to the Railways.
- **Technology -** Implementation and integration of upgraded technology in major tracks and services.

What are the existing safety mechanisms?

- Several safety technologies have been implemented in Indian Railways, both imported

and indigenous.

- **Automatic Signaling (ABS) -** To increase line capacity to run more trains on existing High Density Routes of Indian Railways.
- **Interlocking** - Provision of Electronic Interlocking (EI) to increase Safety and Flexibility to avoid collision of trains.
- So far 2837 stations have been provided with Electronic Interlocking covering 44% of IR.
- **Interlocking of Level Crossing Gates -** Safety at Level Crossing Gates (manned/unmanned) has been a major area of concern.
- So far, 10986 LC gates have been provided with gate signals for interlocking to enhance the safety at Level Crossings
- **SigDATE -** Signal Design Automation Tool for Electronic Interlocking (SigDATE), an indigenously developed automatic Route Control Chart generating system has been introduced to expedite infrastructural works, improving efficiency & enabling safe train operations
- **KAVACH -** The Train Collision Avoidance system (TCAS) or KAVACH is an indigenously developed comprehensive signalling system.
- Kavach is under deployment on Delhi-Mumbai & Delhi-Howrah corridors.
- Kavach overrides the driver in case of any unsafe situation and activates the train's braking system automatically.
- It also helps to increase sectional capacity to run more trains as the signal aspects are communicated to the driver fairly well in advance.

What are the recommendations for the future safety?

- The *CAG's 2022 report* on ***'Derailments in Indian Railways'*** had flagged multiple shortcomings and made several recommendations.
- **Administrative -** Railway system needs to prioritize safe tracks and collision protection.
- Vacancies in safety categories should be filled up post haste.
- Improving the skill of workmen and other existing employees.
- **Financial -** The Centre pumping substantial funds into Indian Railways (IR), so the IR should upgrade its systems when finance is not a problem.
- The *Rashtriya Rail Sanraksha Kosh* (RRSK), a special fund created by the Centre in 2017 to ramp up railway safety should be judicially utilized
- With indigenous signalling system like Kavach which costs far less than the imported ETCS (Level II) system, its implementation could cover more area.
- **Technical -** With 18 'Train 18s' (Vande Bharat) till date, operations to higher speeds should be made more convenient by inducting proper technology.
- Enhancement of safety and improvement in the capacity of the tracks should be done to run more trains.
- Thorough rehabilitation and upgradation of railway infrastructures apart from new trains and coaches.
- Renewal of complete track structure including sleepers with deep screening and provision of thick web switches should be done.
- IR's safety record improved after eliminating unmanned level crossings, now manned

level crossings should be upgraded through grade separation.

- **Supervision -** As far as CRS is concerned, instead of a single Commissioner heading an inquiry, in cases of serious accidents, the inquiry should be conducted by a panel of Commissioners.
- Fixed time frame for submission of the Action Taken Reports to CRS.

Quick Facts

Commission of Railway Safety (CRS)
• Commission of Railway Safety (CRS) is a government body that acts as the railway safety authority in the country. • CRS is headquartered in *Lucknow, Uttar Pradesh*. • It is under the administrative control of the *Ministry of Civil Aviation* (MoCA). • Such cross control is made to keep the CRS insulated from the influence of the country's railway establishment and prevent conflicts of interest. • **Functions -** CRS deals with matters related to safety of rail travel and operations. • It also does other statutory functions like inspectorial, investigatory, and advisory as laid down in the Railways Act, 1989. • Investigating serious train accidents is one of the key responsibilities of the CRS.

References

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2. The Hindu - Indian Railways' safety expenses remain low
3. The Hindu - CAG's 2022 report on 'Derailments in Indian Railways'
4. PIB - Ministry of Railways: Year End Review 2022
5. IE - Why is CRS under the Aviation Ministry?