

## 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.



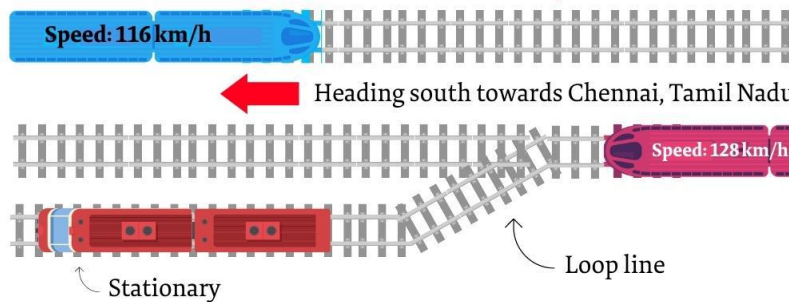
# How Odisha train crash may have happend

The incident is still under investigation.



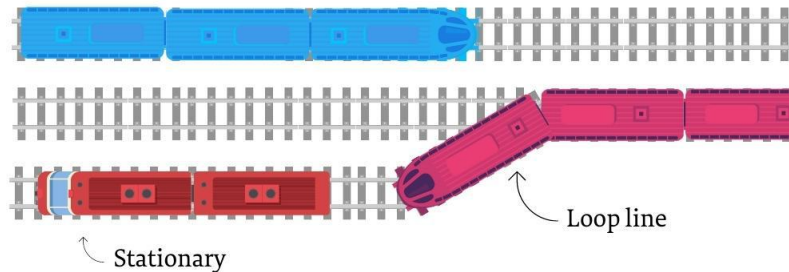
**1**

Heading north towards Howrah, West Bengal



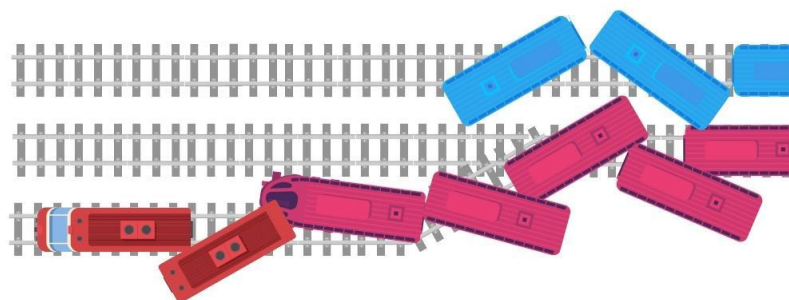
**2**

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

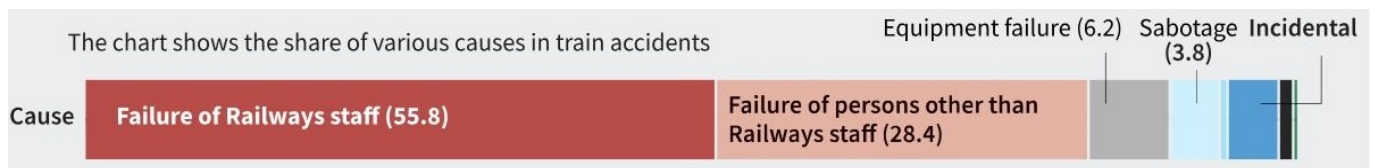


## What is the status of safety of Indian Railways?

- 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

1. [Business Line - Trains need not be slowed down](#)
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?](#)

