



Safety as Key Business Theme!

- Indian Railways
Perspective.



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What is Safety!



- Product of Adherence to good specified practices at all levels of functioning-
 - Design
 - Manufacturing
 - Maintenance
 - Operation



Vital Signs of Safety Infringement!



- Failure of Assets like Track, Rolling Stock, Signaling System.
- With weak infrastructure accidents are only waiting to happen.



How Asset Failures Affect Railway?



- Heavy Financial burden
- Disrepute
- Loss of Popularity
- **Loss of Business?**



Indian Railways- Mega-size Railway System



- 63000 route kilometers
- 39900 coaching vehicles
- 7700 locomotives
- 215 thousand wagons
- 6906 block stations
- 1472 thousand work force
- Rs.1 billion revenue expenditure daily.

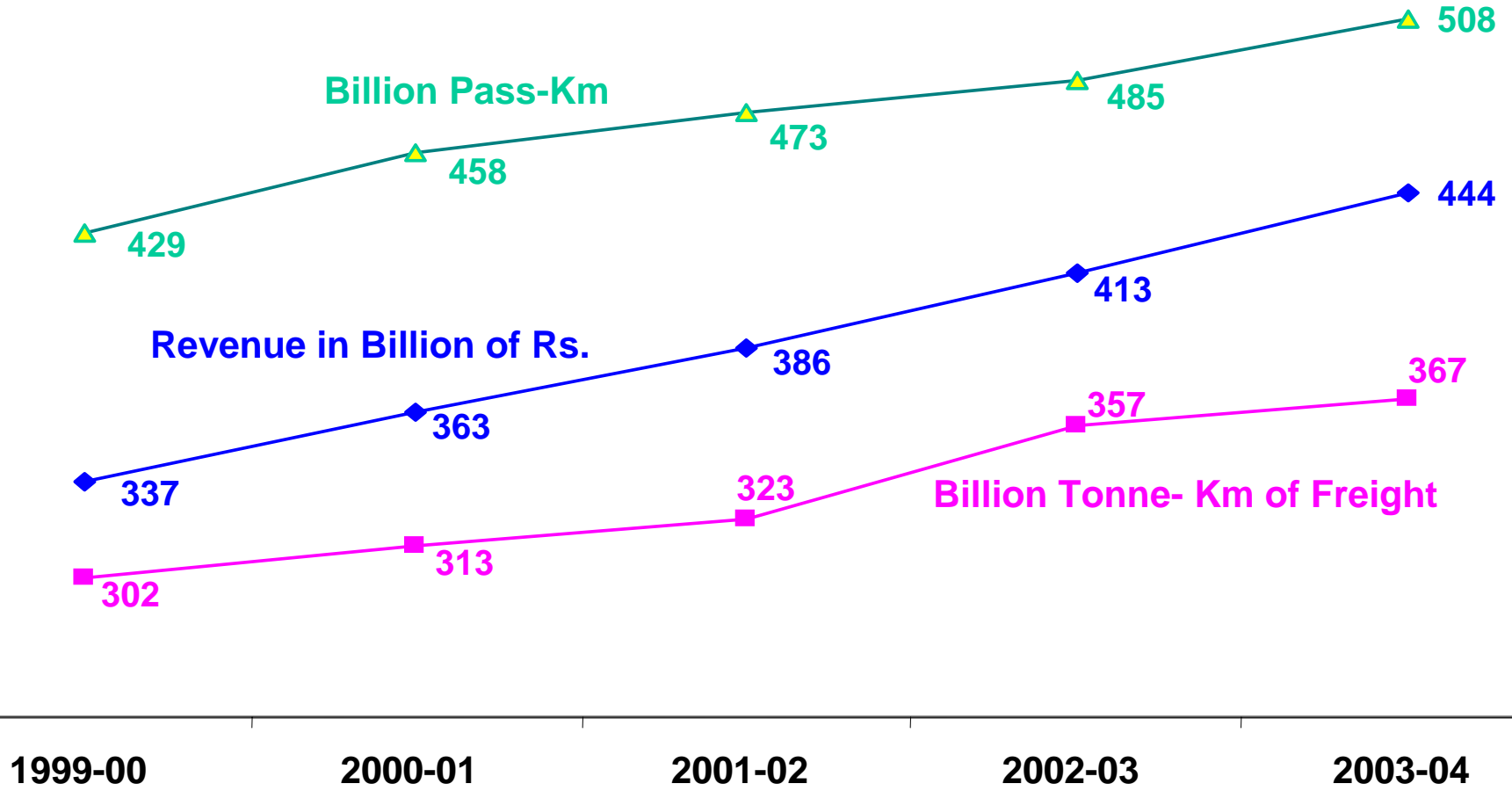


Indian Railways- Daily Transport Output



- 2 Million Train Kilometers.
- 14 Million Passengers
- 1.5 Million Tonnes freight loading
- 8700 Passenger trains run
- 5700 Freight trains run

Turnover Indices of IR





Indian Railways- In Perennial Quest for Safety



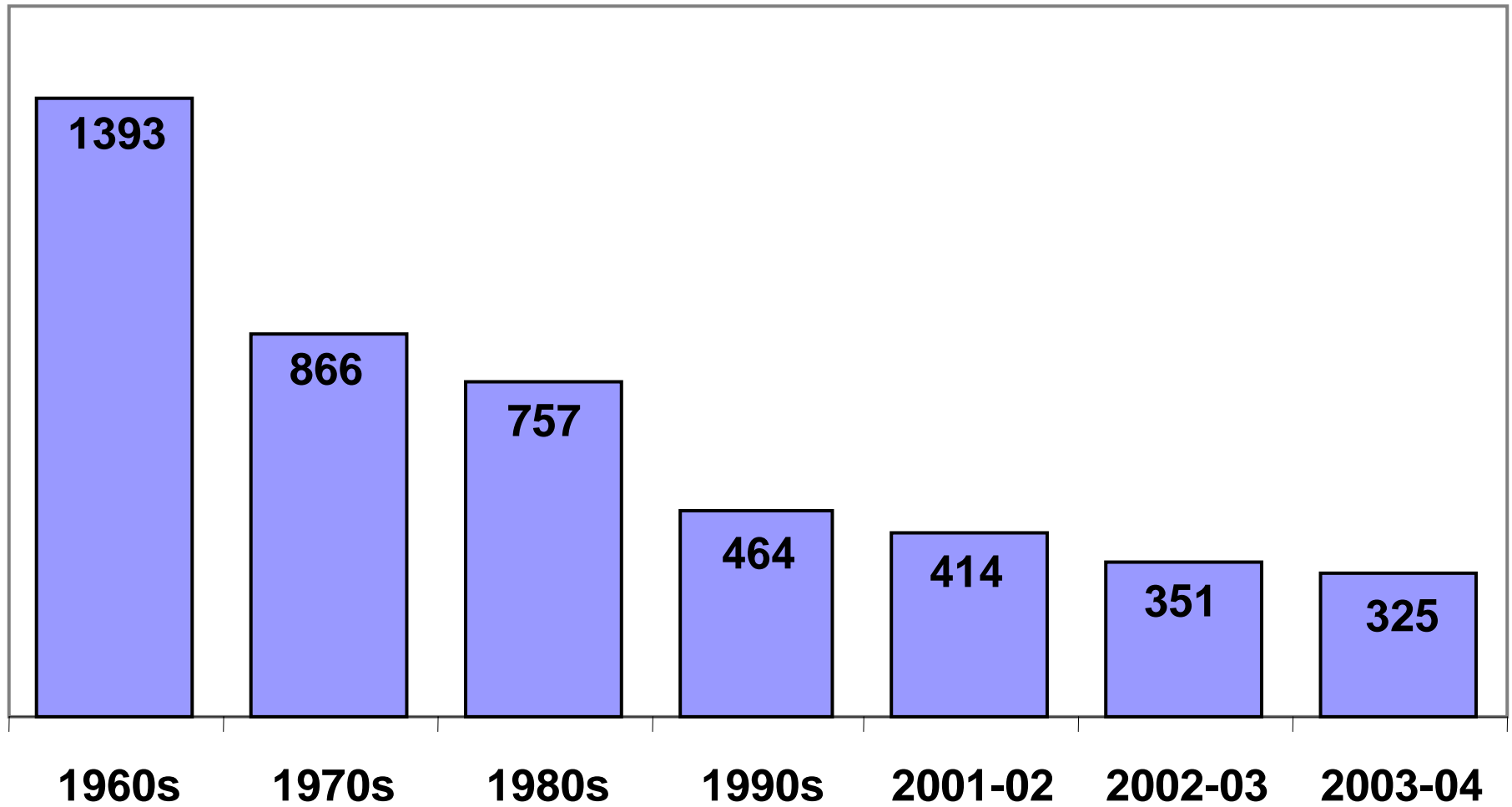
Expert Committees to review Safety



- Kunzru Committee -1962
- Wanchoo Committee -1968
- Sikri Committee -1978
- Khanna Committee -1998

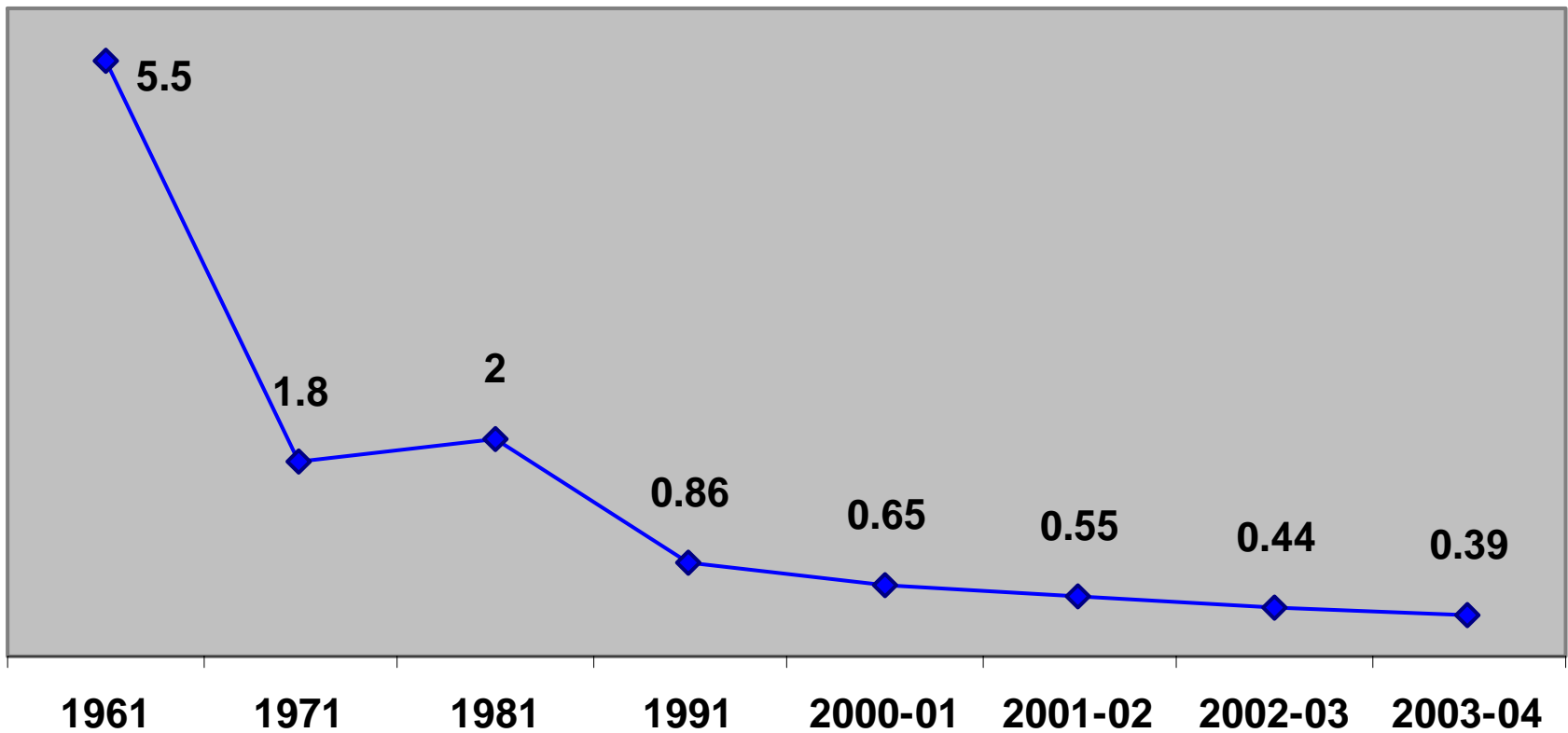
Major recommendations of first three committees have been implemented and implementation of recommendations of Khanna committee is underway.

Trend of Train Accidents per year





Trend of Accidents per million Train Kms

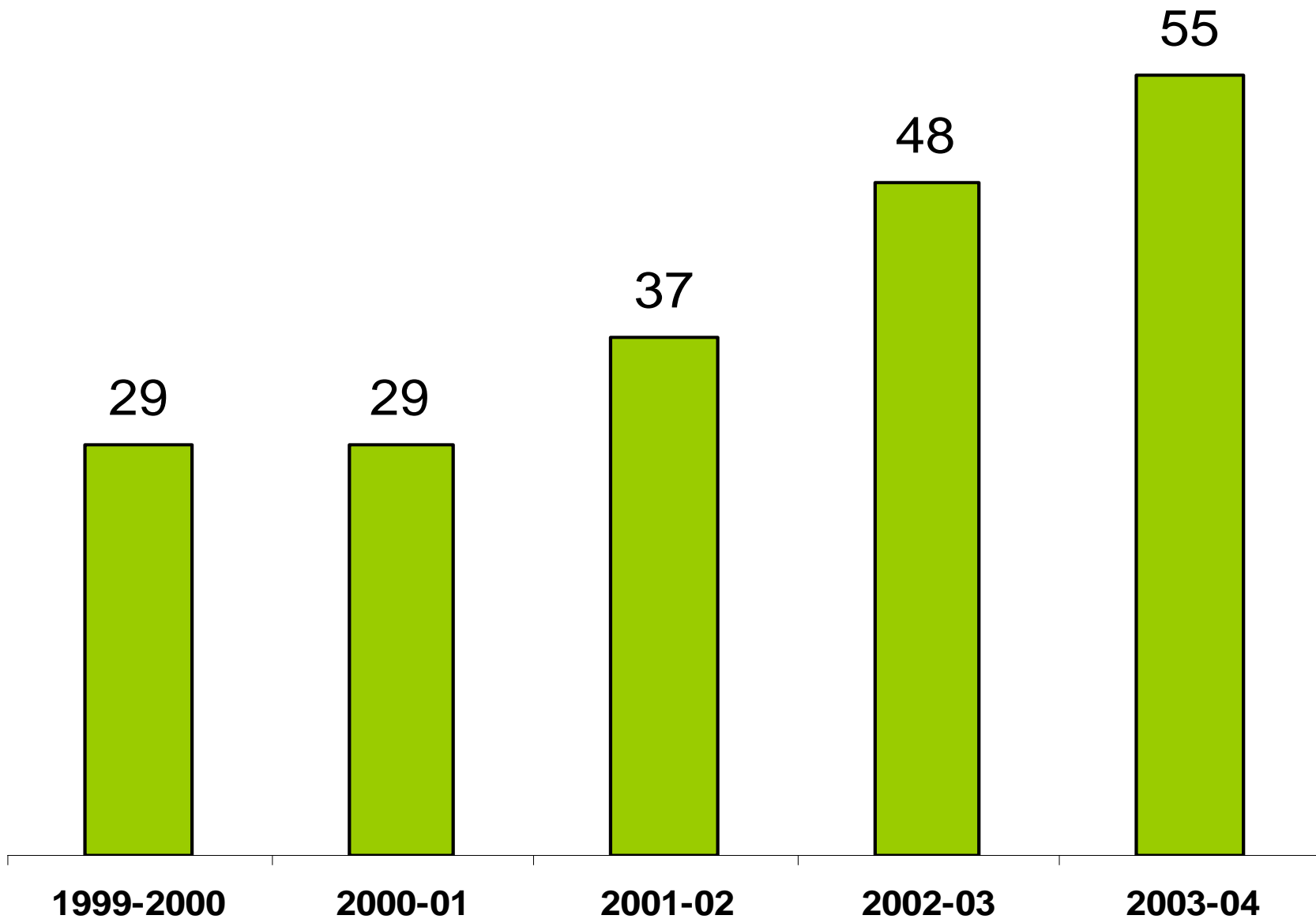




Top Priority to Safety Related works like replacement of overaged assets, technological improvements, etc.

Expenditure on Safety Works

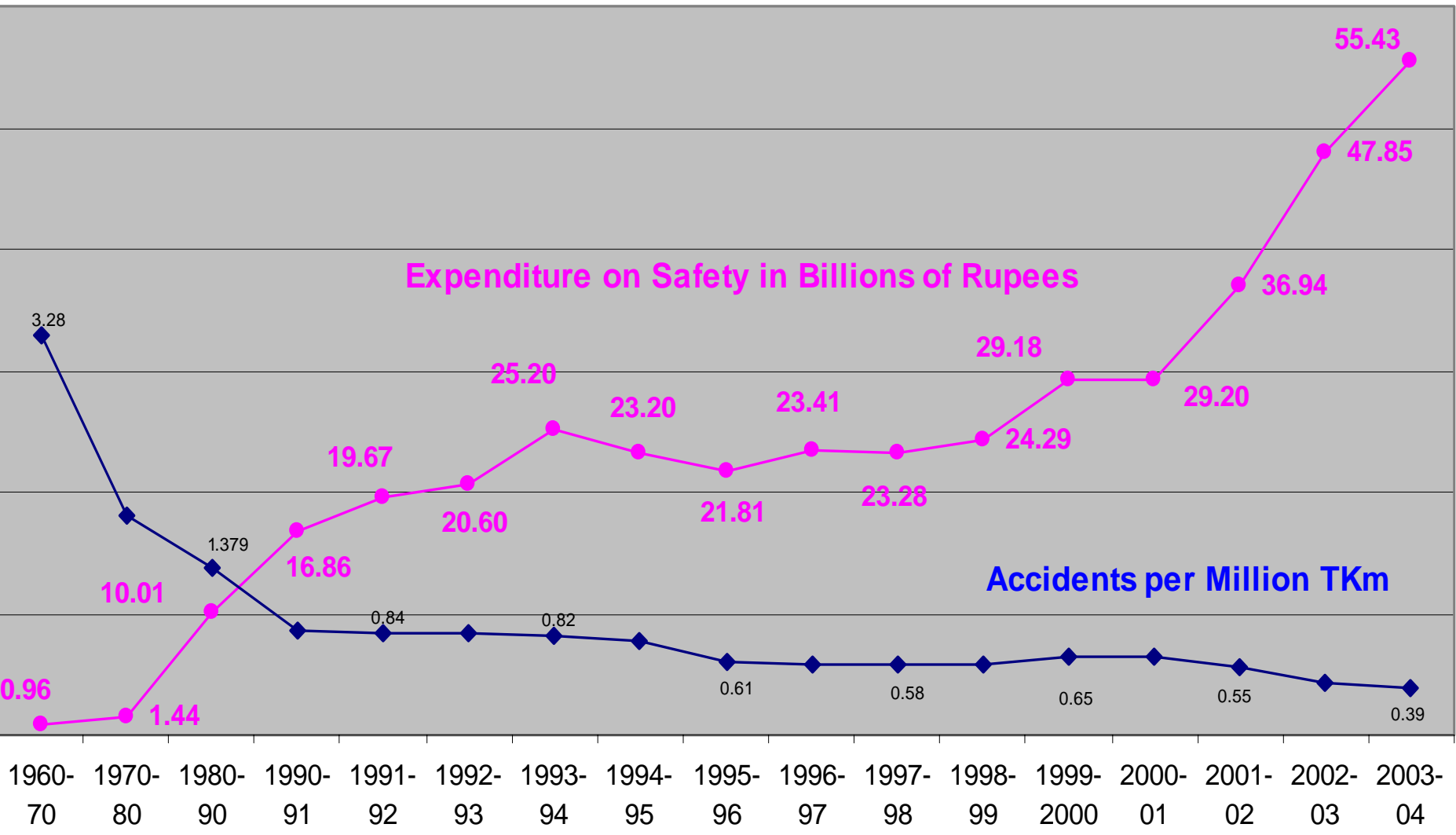
Billions of Rupees



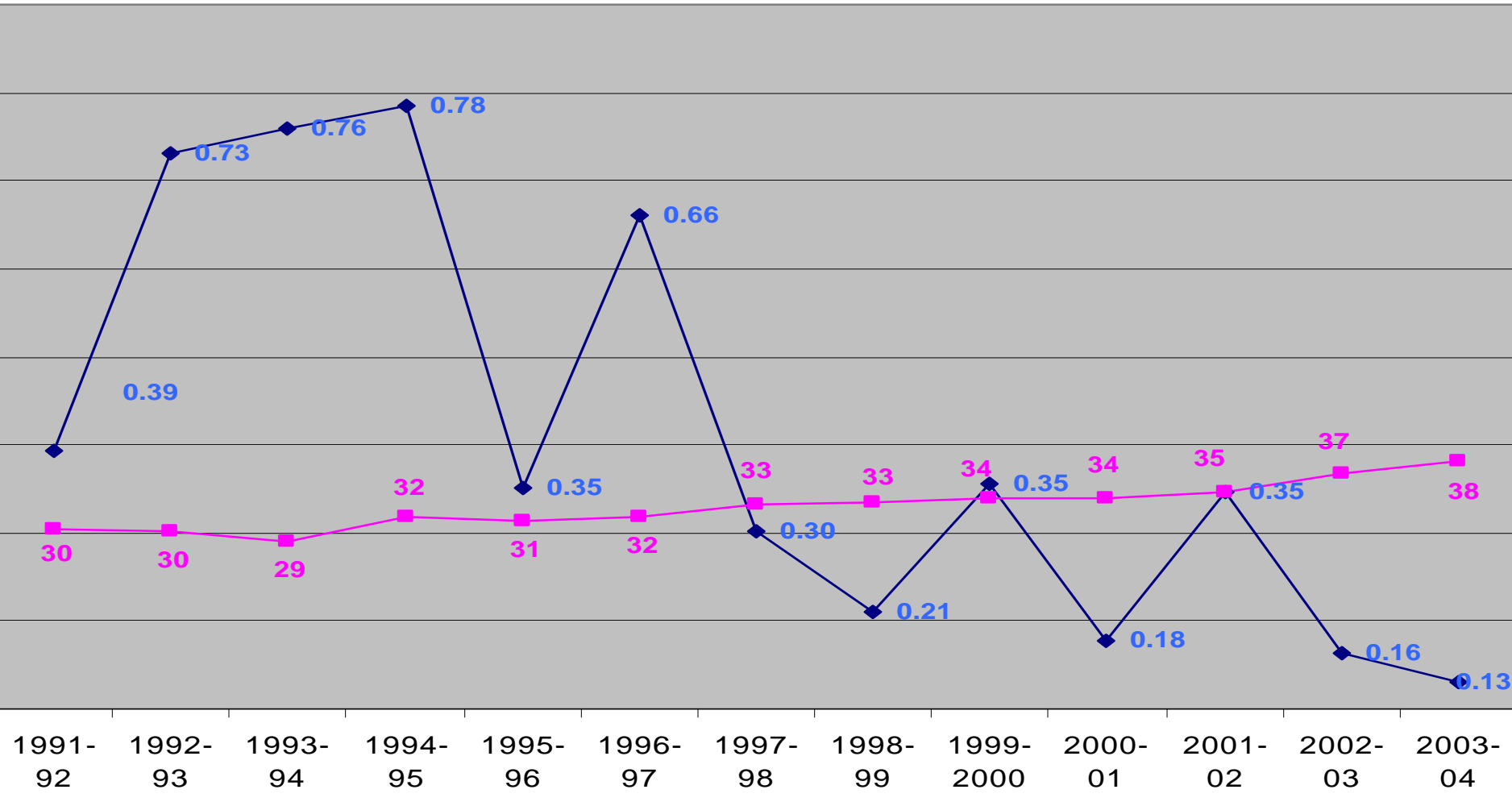
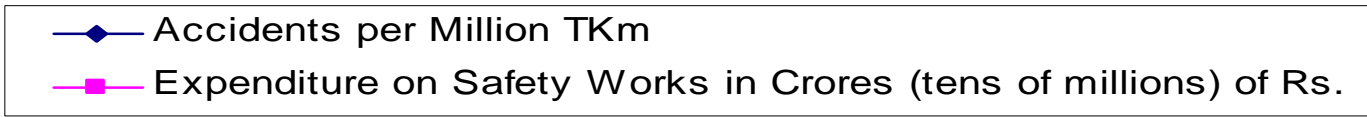


Accidents have reduced with
Increase in Expenditure on
Safety Related Works both at
Macro & Micro levels

Expenditure on Safety Works Vis-a-Vis Accidents per Million TKm



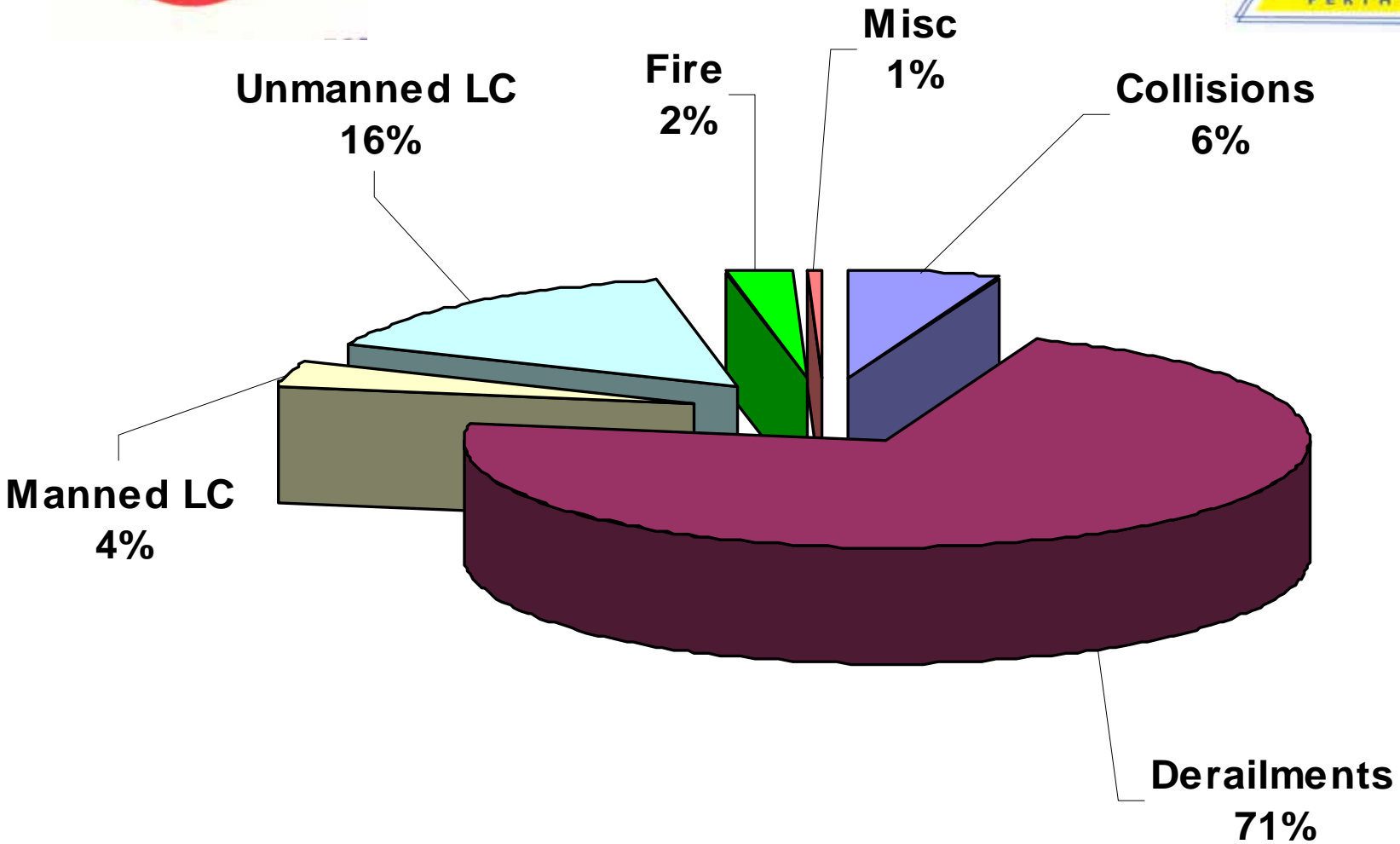
Expenditure on Safety Works Vis-a-vis Accidents per Million T Km on Allahabad Division



Years

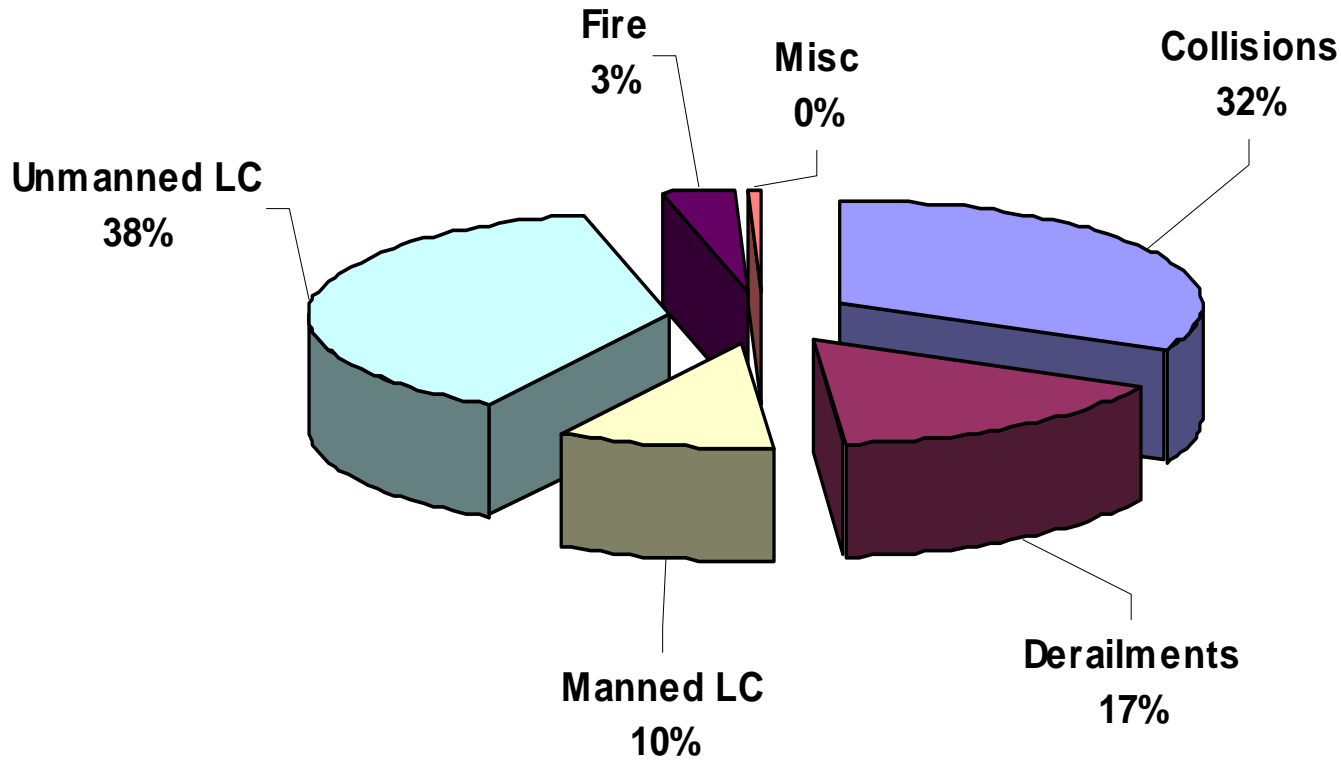


Type wise Accidents per Year (1994-95 to 2003-04)





Casualties in Train Accidents (1994-95 to 2003-04)





Corporate Safety Plan (2003-2013)
envisages Accident Prevention and
Mitigation directed towards
Continuous Reduction in Risk
Level to its Customers.



Features of Corporate Safety Plan (2003-2013)



- Elimination of Collisions (32% fatalities).
 - Upgradation of Signaling Systems.
 - Auxiliary Warning System/TPWS.
 - Anti-Collision Device (ACD).
 - Upgradation of skills/Simulators.
- Crashworthy coaches.



Features of Corporate Safety Plan

(2003-13)...Contd.



- Measures to reduce Derailments (17% fatalities):
 - Replacement of overaged tracks, bridges, S&T gears and Rolling Stock.
 - Elimination of derailment prone 4 wheeler wagons.
 - Reduction in Thermit welded joints.



Features of Corporate Safety Plan

(2003-13)...Contd.



- Improved Training Facilities for enhancing human skills.
- Use of State-of-Art SPURT Cars for Rail flaw detection.
- Tight lock couplers with Anti-climbing features



Features of Corporate Safety Plan



(2003-13)...Contd.

- Measures to reduce Level Crossing Accidents (48% fatalities):
 - Social awareness Programmes.
 - Construction of ROB/RUBs at level Crossing with TVUs >1 lakh.
 - Manning of Unmanned level Crossings.



Features of Corporate Safety Plan



(2003-13)...Contd.

- Provision of phones & Interlocking of Level Crossing Gates.
- Use of Train Actuated Warning Device (TAWD) and Anti-Collision Device.



Features of Corporate Safety Plan



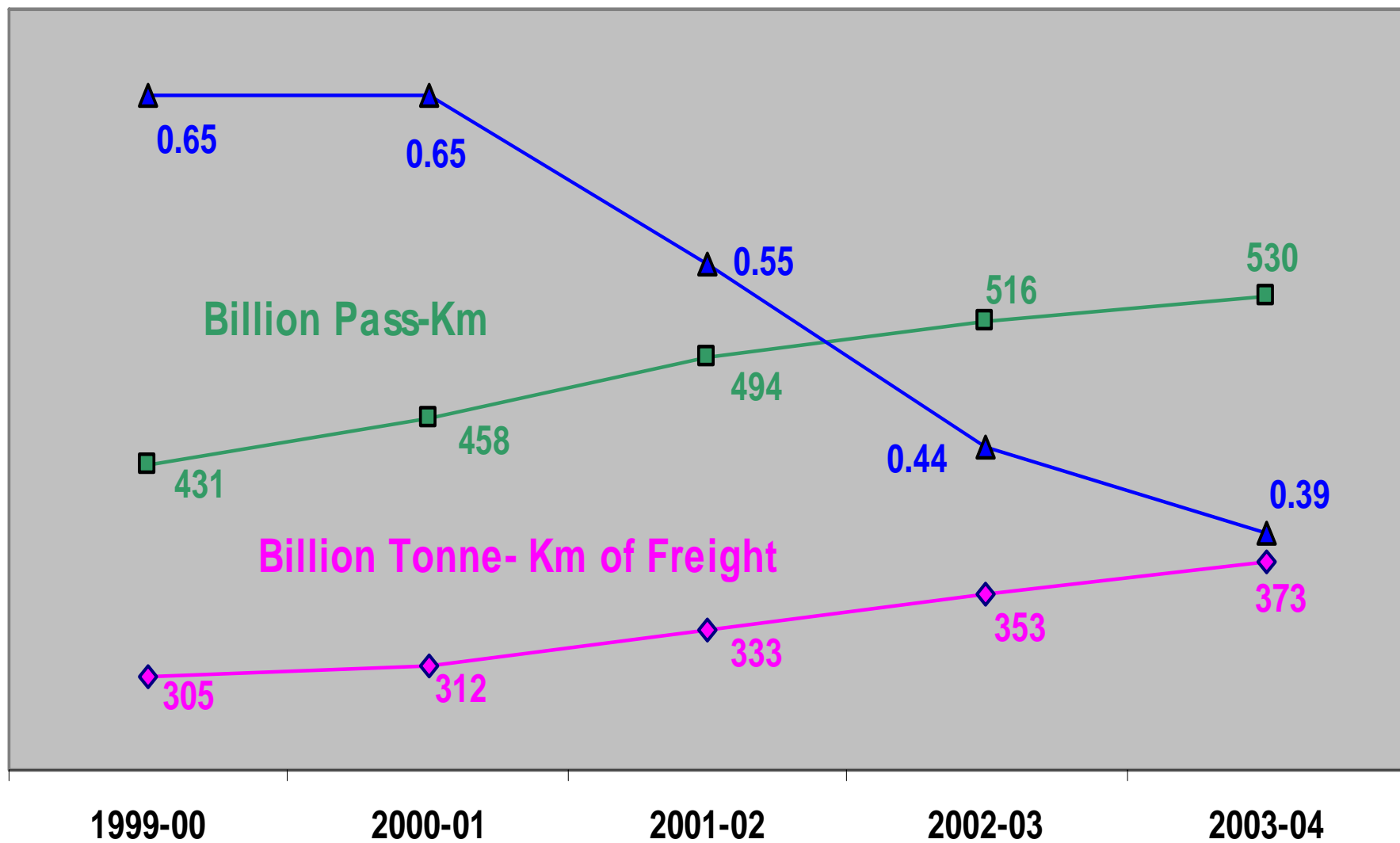
(2003-13)....Contd.

- Fire Accidents
 - Fire retardant materials in existing coaches.
 - Nearly Fire-Proof coaches.



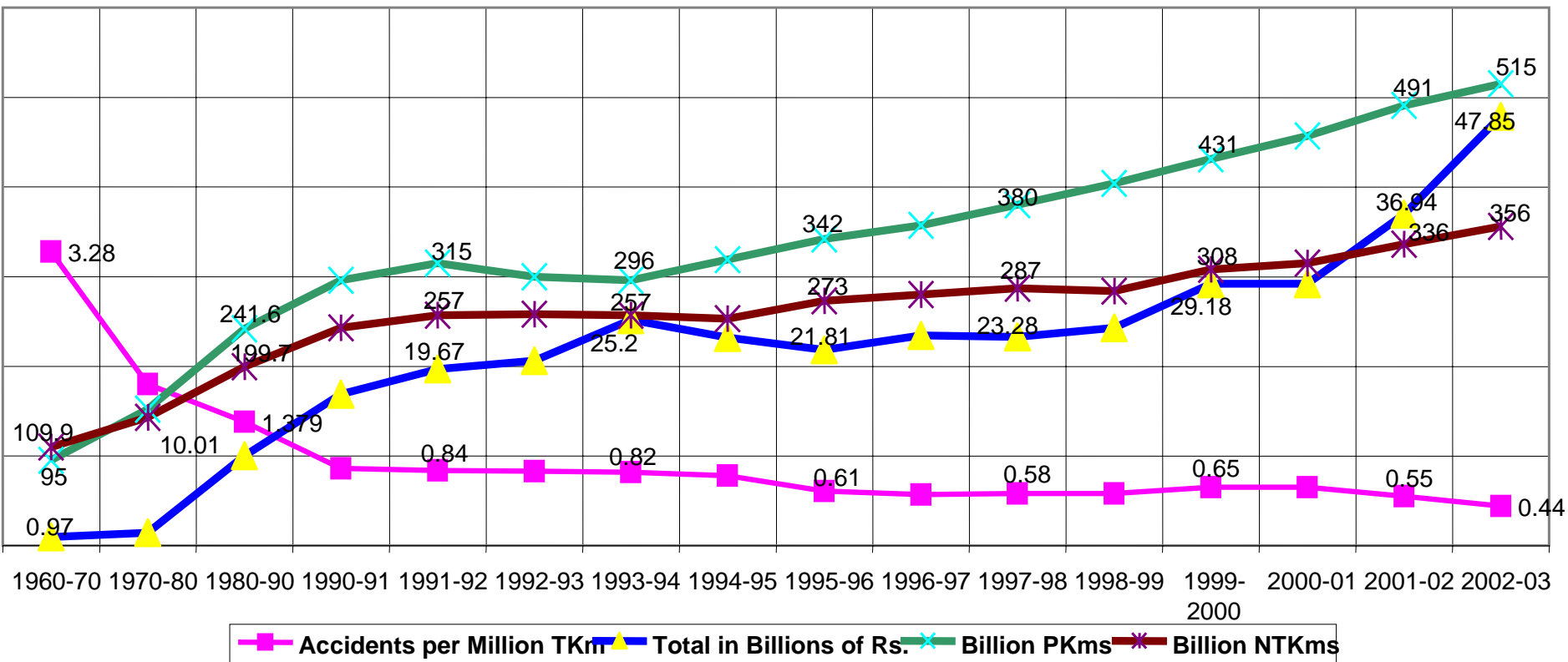
Reduction in overall
Consequential train accidents per
million train kilometers targeted
from 0.44 in 2002-03
to 0.17 in 2012-13.

IR Growth Vis-a-vis Safety Performance





Expenditure on Safety, growth in Goods & Passenger Traffic Vis-a-Vis Accidents per Million TKm





Conclusion



- Safety is the result of specified good practices.
- Asset failures are the initial symptoms of potential breach of safety.
- Asset failures cause disrepute to the organisation & loss of business.
- Safety has to be the core theme of Transportation business.



No Transport Organisation can flourish without Safety being its Business Ethos.



Thanks