

# HOW MUCH SAFETY ON INDIAN RAILWAYS?

## Part II

**“The ultimate Goal to prevent that People are killed or injured in Railway Accidents” should become the Imperative for Indian Railways!**

**Train-Passenger`s Freedom from Injury and Bodily Harm should take highest Priority in Investment Schemes.**

**What can we expect to be done in Terms of better Life-saving Investments, Systems and Methods?**

**Higher Capital Investment-Schemes in Safety and Track-Quality of all Routes up to 110 kmph is the Challenge!**



# TRAIN-PASSENGER`s FREEDOM FROM INJURY and BODILY HARM matters!

By Dr. Frank Wingle, Germany, December 2016

## **FAZIT & MESSAGE:**

In order to bring down the increasing number of killed and injured train-passengers incurred by Derailment-Disasters like recently on 20<sup>th</sup> November 2016 on the Jhansi-Kanpur Link Route a

**MASSIVE SAFETY DRIVE IN FORM OF CAPITAL INVESTMENT SCHEMES FOR HIGH QUALITY TRACKS THROUGHOUT THE NETWORK**

is in urgent need.

## **FOREWORD:**

More trains and higher speed means more stress on the tracks. A low quality track deteriorates faster than a high quality track. Many routes are of low track-quality.

The most of the network is saturated. And 40% of the routes running at over 100% of line capacity are already overstrained. There is a shortage of funds to meet track maintenance and track renewal. Under such circumstances several routes deteriorate faster than they can be maintained or repaired.

In 2014-15 the number of causalities increased with the number of Train-Derailments. **This speaks for an increasing backlog in spending for maintenance and renewal.**

Tracks have to match the Traffic load they have to carry. If not, they deteriorate under the strain of the traffic load, and it comes to derailments killing and injuring train-passengers.

Increased strain on the track by more trains and higher train-speed has to be counterbalanced by **TRACK QUALITY**. A low quality track deteriorates faster than a high quality track under given traffic load.

A Railway Track behaves like an elephant. It can tolerate for a longer period ill-treatment and negligence. But suddenly, like an elephant, the track takes revenge and runs berserk throwing trains off the track. In **Derailment-Disasters Train-Passengers get killed or injured.**

However, the picture is not bright. For either a lack of adequate working capital and manpower, or on account of procedural and administrative bottlenecks and deficiencies, work schedules are lagging behind.

The technical knowledge, competence, designs, specifications and working procedures/manuals/schedules for less derailment prone high quality tracks are at hand in order to bring down the number of killed or injured train-passengers in Derailment-Accidents. However, it lacks in implementations due to unsatisfactory investment-schemes, underfunding, lack of well trained manpower, not enough appropriated heavy track machinery and organisational deficiencies.

Safety will not only be achieved by appeals and circulars of Safety Commissioners or by those strong words after a bad unwanted event of politicians or ministers, who only want to demonstrate their strength.

To bring down the number of killed and injured train-passengers India needs investment-schemes resulting in high **CAPITAL INVESTMENT for safety related works**. By sweeping structural reforms efficiency has to be improved.

More well trained manpower has to be recruited and more modern heavy track machinery for track renewal and track maintenance has to be acquired.

**TRAIN-PASSENGER`S FREEDOM FROM INJURY and BODILY HARM** should rank with highest priority in Investment-Schemes. In cost-benefit evaluations for Capital Investment in Safety related works not only the losses of assets incurred by Railway Accidents, but also the socio-economical losses incurred by killed and injured train-passengers have to be considered.

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**P**art I informs that despite great efforts of INR the number of train accidents per million kilometres-run has again increased in 2014-15. 46.5% of these accidents were due to **Derailments of Trains**. In 2014-15 the number of casualties also increased with the number of Train-Derailments. **This speaks for an increasing backlog in spending for maintenance and renewal.**

**Derailments** occur at the **Rail-Wheel Interface** when something goes wrong or when some abnormalities developed either at the wheel or at the rail or at both; see **Chapter-5 DERAILMENTS** page 61ff of the handbook by Aryan Bhushan and M.M. Agarwal, **INDIAN RAILWAY SAFETY – Ultimate Goal to prevent Railway Accidents**, revised Edition 2015, Bahiri Brothers Publishers & Book Sellers, Delhi, 2015; see also **Chapter 20, DERAILMENT INVESTIGATION**, page 587ff of the handbook by J.S. Mundrey/F.Wingler **INDIAN RAILWAY TRACKS – a TRACK ENGINEERING COMPENDIUM** free for download under the rubric **PUBLICATIONS** from the website <http://www.drwingler.com>.

Accidents do not **“fall from the blue sky”**! Mostly prevailing latent **UNSAFE CONDITIONS, FAILURES IN THE SYSTEM** and/or **ORGANISATIONAL FAILURES/SHORTCOMINGS/DEFICIENCIES** of often far reaching history are the **“PARENTS OF UNWANTED EVENTS”** - see James Reason, **MANAGING THE RISKS OF ORGANIZATIONAL ACCIDENTS**, Ashgate Publishing, Farnham, UK, ISBN 978 1 84014 105 4; **THE HUMAN CONTRIBUTION**, Ashgate Publishing, Farnham, UK, ISBN 978-0-754- 7402-3; **A LIFE IN ERROR**, Ashgate Publishing, Farnham, UK, ISBN 978-1-472 418418, 2013; see also Frank Wingler **RISK & HUMAN ERROR MANAGEMENT and ACCIDENT INVESTIGATIONS**, based on the **DOCTRINS of J. REASONS** and Studies & Researches on the **NATURE OF HUMAN ERROR**, private publication; free for download from the website <http://www.drwingler.com>.

Politicians, Ministers, General Managers do not like, if they are regarded to be responsible for **UNSAFE CONDITIONS, FAILURES IN THE SYSTEM** and/or **ORGANISATIONAL FAILURES/SHORTCOMINGS/DEFICIENCIES** – as **“the breeding swamp for the hazard-mosquitoes”**. They want to show their strength with strong words after a bad unwanted event and by finding out, who are the culprits to be made responsible in lower ranks so that **“strictest possible**

***action can be taken against those who could be made responsible for the accident”.***

***Upper echelons like to be praised at ceremonies for new infrastructures, new opened lines, stations and for the inauguration of new faster trains. But they do not like to be reminded of killed or injured train-passengers in train accidents*** ( = David Briginshaw, Editor-in-Chief of International Railway Journal, IRJ, UK).

Responsibility in higher echelons gets shirked.

A “**LUCKY**” but unsafe organisation can survive for a longer period without a bad unwanted event. But then suddenly the **UNSAFE CONDITIONS, FAILURES IN THE SYSTEM** and/or **ORGANISATIONAL FAILURES/SHORTCOMINGS/DEFICIENCIES** culminate to an unexpected outbreak of a disaster, so in the early morning of the 20<sup>th</sup> November 2016 at Pukhraya on the Group ‘D’ Spl.- (speeds up-to 110 kmph and annual traffic density of 20 GMT or more) Jhansi-Kanpur link-route, when over 150 passengers got killed and over 200 passengers got wounded by a Train-Derailment. This is the highest **DEATH TOLL** incurred by a Derailment Disaster in the last decades. This recent disaster exceeds by far the fatalities of the Howrah-Kalka-Mail Derailment of 10.07.2011 at Malwan on the Fathepur-Kanpur route, where 71 train-passengers got killed, 91 grievous injured and 173 injured:



Howrah-Kalka-Mail Derailment on 10.07.2011 at Malwan on the Fathepur-Kanpur Route

After each fatal derailment important recommendations are made and circulars issued by the Commission of Railway Safety and Safety Railway Board.

The costs of damages to railway property are estimated, but the estimations do not contain the losses incurred by **KILLED and GRIEVOUS INJURED PASSENGERS**. The **VALUE OF KILLED** or grievous **INJURED PEOPLE** does not appear in any governmental cost-benefit analysis or cost-estimation, as if the life of killed or injured train-passengers have no value. That train-passengers are killed and injured by railway accidents should hurt the governmental INR more than the incurred losses of assets. The **IMPERATIVE** for INR should be:

## **“The ultimate Goal to prevent that People are killed or injured in Railway Accidents!”**

Passenger deaths from rail accidents have remained a regular occurrence in India, while INR has been unable to spare the funds for safety-related works. The Anil Kakodkar headed safety committee report released in February 2012 outlined an estimated spending of Rs. 1.03 trillion over a five year period to address issues, but since it is gathering dust.

Three weeks before the Pukrayan Disaster the Adviser Safety of the Railway Board, Mr. A.S. Upadhyay had issued a Safety Drive on Derailment, No. 2016/SAFETY-I/3/5, dated 31.08.2016, mentioning that the General Manager has expressed serious concern about the rising trend of derailments, especially of passenger trains, due to **TRACK DEFECTS**. This circular has gone with the wind and could not prevent, that on 20<sup>th</sup> November 2016 over 152 train-passengers got killed by a consecutive **DERAILMENT-DISASTER**.

There should be also serious concerns about the rising number of train-passengers killed by Railway Accidents. But INR has not to cover the socio-economical costs for the losses by death and injuries. The number of fatalities is for the governmental INR only a moral issue and not an economical.

The Safety drive-circulars will remain only a blunt weapon in the everlasting battle against hazards penetrating through all safety defence-layers and out-bursting in fatal train disasters, unless the main root, the underfunding and the organisational deficiencies can be addressed to bring **HIGH QUALITY ONTO ALL RAIL TRACKS** by repairs, maintenance and renewal.

Guidance for how to achieve **HIGH TRACK QUALITY** can be obtained from the handbook **INDIAN RAILWAY TRACKS – a TRACK ENGINEERING COMPENDIUM**, free for download under the rubric **PUBLICATIONS** from the website <http://www.drwingler.com>, amongst from other technical papers and books.

According Prof. P. Veith, Austria, a Railway Track behaves like an Elephant. It can tolerate for a longer period ill-treatment and negligence. But suddenly, like an elephant, the Track takes revenge and runs berserk throwing trains off the track, and train-passengers get killed or grievous injured.

Tracks have to match the traffic load they have to carry. If not, they deteriorate, and it comes to derailments killing and injuring train-passengers.

The technical knowledge, competence, designs, specifications and working procedures/manuals/schedules for less derailment prone high quality tracks are at hand in order to bring down the number of killed or injured train-passengers in

Derailment-Accidents. However, it lacks in implementations due to unsatisfactory investment-schemes, underfunding, lack of well trained manpower, not enough appropriated heavy track machinery and organisational deficiencies.

To bring down the number of killed and injured train-passengers India needs investment-schemes resulting in high **CAPITAL INVESTMENT for safety related works**. By sweeping structural reforms efficiency has to be improved. More well trained manpower has to be recruited and more modern heavy track machinery for track renewal and track maintenance has to be acquired.

The recommendations made by Director (Safety) III Shri P. Srinivas in the **Disaster Management Plan**, April 2016,” of the Ministry of Railways as approved by the Railway Board, Paragraph 27.09 **“Measures to prevent Accidents”** need a high input in capital investment;

(see:

[www.indianrailways.gov.in/railwayboard/view\\_section.jsp?id=0,1,304,366,389](http://www.indianrailways.gov.in/railwayboard/view_section.jsp?id=0,1,304,366,389)).

In the International Railway Journal October 2016 Rajhuv Thaker highlights under the headline (see also <http://www.railjournal.com/index.php/asia/railways-minister-faces-uphill-battle-to-ac...>)

### ***“Railways Minister faces uphill Battle to achieve meaningful Reforms”:***

***Various heads of different committees of experts have expressed their desire for a revamp and restructure of the British-era architecture of India’s rail bureaucracy as a measure to reduce red tape and improve efficiency.***

***Passenger deaths from rail accidents have remained a regular occurrence, while INR has been unable to spare the funds for safety related works. The Anil Kakodkar-headed Safety Committee Report released in February 2012 outlined estimated spending of Rs 1.03 trillion (\$US 15.4bn) over a five-year period to address these issues, but it has since been gathering dust. As several Railways Ministers had previously, Minister Prabhu sent a letter last July to the Finance Ministry requesting an additional grant of Rs 1.1 trillion for Rail Safety Works. He is still awaiting a response.***

***INR also has no money for its array of pending projects, which require a whopping Rs 4.92 trillion to complete. The railway’s share of India’s GDP has also been sliding. The National Transport Development Policy Committee (NTDPC) estimates that IR will need to invest Rs 900bn in the 12th five-year plan from 2012-17, Rs 1.9 trillion in the 13th plan and Rs 4.6 trillion in the 15th plan to regain its lost share in the transport sector.***

***It is clear that India`s rail reform story remains in its early stages with many significant hurdles yet to be cleared.***

*The network is saturated, with 492 of the total of its 1219 sections, or 40%, running at over 100% of line capacity. There is also a shortage of funds to meet track maintenance.*

*However, the picture is not altogether bright. For either a lack of adequate manpower or working capital, or on account of procedural and administrative bottlenecks/deficiencies, work schedules are lagging behind.*

*For example, many months after securing work on the Western DFC, Soma Construction has been unable to begin work due to an arbitration case involving the company. Similarly, GMR Associates was awarded a contract for the Western Corridor in March, but it has not since started work due to the company's inability to find the right calibre of people to implement the project.*

*Within Dedicated Freight Corridor Company of India (DFCCIL), there are reports of low morale. Several employees, including two General Managers, have quit the corporation in recent months. In addition, no applications were reportedly received for the post of chief project manager at Mughalsarai, despite the placement of two advertisements for the post in the last few months.*

A paradigm shift would be prudent so that **TRAIN-PASSENGER`S FREEDOM FROM INJURY and BODILY HARM** will achieve the highest priority in Investment-Schemes. Investment in safety related works preventing that train-passengers are killed and injured should rank higher than the investments in prestigious programmes as for example for **HIGH-SPEED** and **SEMI-HIGH SPEED**. The Challenge is higher **Capital Investment** in safety and quality of all routes up to 110 kmph.



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