READINGS ON REPORT OF

THE RAILWAY SAFETY REVIEW COMMITTEE, 1998

(SHRI H. R. KHANNA COMMITTEE REPORT, 1998)

PART II

COMPILED AND COMMENTED BY

Hari Shankar Verma, IRTS

Director General, IRITM



भारतीय रेल परिवहन प्रबंधन संस्थान

INDIAN RAILWAYS INSTITUTE OF TRANSPORT MANAGEMENT

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INDIAN RAILWAYS INSTITUTE OF TRANSPORT MANAGEMENT

(Hardoi By-Pass Road, P.O. Manak Nagar, LUCKNOW-226011, Uttar Pradesh, India.)

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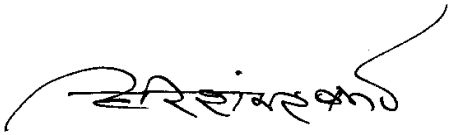
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Hari Shankar Verma, IRTS
Director General, IRITM
compiler and editor of
The Railway Accident Enquiry Committee
(popularly known as Khanna Committee)
as reading material at IRITM

हरि शंकर वर्मा
भारतीय रेल यातायात सेवा
महानिदेशक

Hari Shankar Verma
Indian Railway Traffic Service
Director General





PREFACE

Safety is integral part of railway operation. Since laying of first line of railway track, the Indian Railways is always in total commitment to provide safe, efficient, and economical rail transport in country. If any accident happens on railway system, it put a question mark on safe railway working to a common man, but it also majorly affects the moral and confidence among railwaymen. The management and staff are always working hard and in thought process to improve the safety in railways.

The training of railway staff and officers is greatly consisting of safety rules. There is no discipline in railways, where safety in rail transportation and maintenance is not taught. At Indian Railways Institute of Transport Management (IRITM), we conduct regular classes to the officers and senior supervisors about the safety and encourage the trainee officers to read and learn the material available in the library about safety.

The primary source of learning in safety are General & Subsidiary Rules (G&SR), several codes and manual, accident reports given by commissioners of railway safety and reports of past Railways Accident Enquiry Committee. Most of the literature is available with the library but Accident Enquiry Reports are not available in physical

form and there is no analysis of these reports in condensed form.

It is not possible by everyone to go through these reports in various digital platforms and read them. Some of the reports are also not available digitally and most of them are not in readable format. Secondly, the Accident Enquiry Reports are also having historical importance to learn from our past and not to repeat the same mistakes in future.

The recommendations given by various Safety Enquiries Committees are not subject to be agreed by Railway Administration at that time and carry immense value for further study and improvement in our working. Most of the reports are prepared by the best of mind during that time and worth for reading. The railway is dynamic organization which keep changing its technology over the time with progress of technology, but the lesson learned about the safety remains the same therefore it is always needed to learn the things from past.

In order to prepare reading materials to the probationary officers and in-service officers, I have read most of the reports and strongly feel that all railway officers who are working with the safety and also the officers who are holding the administrative post like Additional Divisional Railway Manager (ADRM), Divisional Railway Managers (DRMs), Principal Head of the Department (PHODs), Principal Chief Safety Officers (PCSO) of the Zonal Railways, Additional General Managers (AGMs), General Managers (GMs) and officers in Railway Board, who are in policy making must read these reports.

As a mission mode, IRITM is compiling and printing all Accident Enquiry Reports in book form for easy reading and also put digital format of the same in IRITM website to encourage and facilitate about reading of these reports.

These reports would also help the researcher and policy maker to draw the policies for making Indian Railways as one of the safe Railway systems in the world.

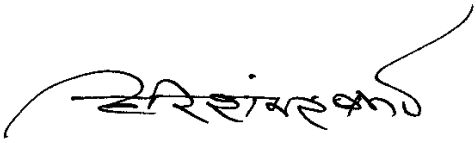
So far Indian Railways had constituted six safety review committees since independence. The purpose of constitution of these safety review committee was to study in deep about the causes leading to railway accident and how to strengthen rail safety. The list of committees which had been formed by Ministry of Railway is as under:

1. The Railway Accidents Enquiry Committee, 1954 **(Shahnawaz Committee 1954)**
2. The Railway Accidents Committee, 1962 **(Kunzru Committee1962)**
3. The Railway Accidents Inquiry Committee, 1968 **(Wanchoo Committee 1968)**
4. The Railway Accidents Enquiry Committee, 1978 **(The Sikri Committee 1978)**
5. The Railway Safety Review Committee **(The Khanna Committee 1998)**
6. High-Level Safety Review Committee 2012 **(Kakodkar Committee)**

High-Level Safety Review Committee, 2012 is the latest committee chaired by Dr. Anil Kakodkar. This committee is most important as it was constituted with scientists and technocrats, who were the pioneers in their respective fields while previous committees were headed by retired supreme court judges except Shahnawaz and Kunzru Committee who were headed by parliamentarians and law makers.

While, readings of these reports, one can visit some part of history of Indian Railways and appreciate the circumstances just after our country got independence. These reports are full of events and anecdotes which remind us of things that have not changed even after passage of time. I personally feel that readers will find in them a good read.

I would like to put on record the hard work done by Mr. Rohit Yadav for formatting, proofreading, and converting it into printable format. I am also grateful to Shri Rajesh Kumar, IRTS, Sr. Professor Administration and Miss Krishna Tiwari, IRTS, Professor Administration and OSD to Undersigned for getting it published.



Hari Shankar Verma, IRTS
Director General
Indian Railways Institute of Transport Management (IRITM),
Lucknow, UP, India.
Sunday, 05.09.2024, Teacher's Day.

भारतीय रेल परिवहन प्रबन्धन संस्थान
हरदोई बाई-पास रोड, पोस्ट ऑफिस-मानक नगर, लखनऊ 226011
दूरभाष: 0522-2451942, फैक्स: 0522-2451964, मोबाईल 9794862000, ई-मेल: directorgeneral.iritm@gmail.com
Indian Railways Institute of Transport Management
Hardoi by-pass Road, P.O. Manak Nagar, Lucknow-226011
Telephone: 0522-2451942, Fax: 0522-2451964, Mobile: 9794862000, E-mail: directorgeneral.iritm@gmail.com

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REPORT OF THE RAILWAY SAFETY REVIEW COMMITTEE, 1998 PART II

(SHRI H. R. KHANNA, 1998)



REPORT
OF
THE RAILWAY SAFETY REVIEW COMMITTEE, 1998

PART-II

February 2001

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PREFACE

With the submission of this Report, our committee completes its critical review of safety on Indian Railways (IR). We wish to stress the importance of reading this Report in conjunction with Part I, which was submitted to the Government in August 1999. Only then will the Committee's investigations into the gamut of safety issues on IR be seen in the correct perspective. We emphasize the importance of seeing Part I and this Report as a continuum because, judging by media reports and our interaction with railwaymen at various levels, Part I seems to have sent some unintended signals to the Railway policy makers. Using our Report as justification, a section of the top Railway management seems to have adopted the stance that massive doses of Investment on rehabilitation and technology induction are the only palliatives for improving safety on IR This is, at best, only a part of the safety concerns and priorities of our Committee. A large number of very important recommendations can be implemented with little expenditure.

Some railwaymen have faulted our committee for totally ignoring the strong points of IR and highlighting only the weaknesses in the system. This criticism is misplaced, if only because the job given to Committees such as ours is to see the areas requiring reform. The task entrusted to us is to study Safety, which is a subject of great concern. While there can be no doubt that IR is still one of the most efficiently run organizations in the country today with a workforce that has been the embodiment of relentless hard work and dedication, there are still certain aspects impinging on safety which are areas of concern. These we have highlighted It is our fervent hope that our conclusions on key safety issues on IR will be taken in the right spirit and provoke a positive response from the Railway fraternity.

In Part 1 of our Report, we had stated that if we were to make only one recommendation, it would be for IR to rigorously implement accepted recommendations of Committees on safety issues We are aware of our position of vantage, that it is simple to make recommendations, but it is implementation, which is the real difficult part.

Safety items, in our view, need to be implemented systematically with a sense of urgency. This should include an approximate time frame, benchmarks, and the necessary provision of funds to implementation. In the past safety items have been disposed off with remarks like "for availability of funds", "subject to trial", "accepted in principle etc. We find similar remarks once again in the views of the Ministry of Railways on Part I of our Report. We feel that a firm safety plan as recommended in Part I with definite achievements in a certain time frame is the requirement of the day. The Committee's effort has been to make practical recommendations with this background.

As stated emphatically in Part I, we make no pretence of raising issues that are not already known to railwaymen. Our Report is, in many ways, an amalgam of ideas and knowledge gleaned from railwaymen, past and present, at different levels in the hierarchy. We have also benefited immensely from the reports of Committees that have studied various aspects of Railway functioning. Railway Unions, technical institutions, manufacturers and even members of the public have helped us with their perceptions of rail safety. The managements of some of the advanced Railway systems have provided invaluable insights into their safety concerns. We have tried our best to make a thorough study of safety on IR on the basis of these inputs, views and perceptions. While our committee has been a sounding board for a wide range of views and

perceptions on safety, we are solely responsible for the conclusions drawn in the Report.

We gratefully acknowledge the unstinted co-operation and assistance we have received from railwaymen at various levels in the Railway hierarchy for their positive support and co-operation, we wish to express our indebtedness to Ms. Mamata Banerjee, Minister for Railways, Shri Digvijay Singh, Minister of State for Railways, Shri O. Rajagopal, Minister of State for Railways and former Ministers, Shri Nitish Kumar, Shri Ram Naik, and Shri Bangaru Laxman.

We would like to place on record our sincere gratitude to the Chairman and the Members of the Board, the General Managers, officers and staff of the Zonal Railways, Production Units, RDSO and training institutions, Staff Unions and Officers' Federations for sharing with us their perceptions on safety related issues and for the wonderful hospitality extended to us during our tours. The Secretary's Branch of the Railway Board needs to be specifically thanked for providing flawless back-up support for the smooth functioning of the Committee. We also thank the Chief Commissioner and Commissioners of Railway Safety for having shared with us their views on safety. We are grateful to the retired Chairmen, ex-Members of the Railway Board, other retired Railway officers and staff, members of the public, for giving us their valuable ideas on safety. Our visits to Advanced Railway Systems were made fruitful due to the special efforts of the Embassies/High Commissions of Germany, UK, France, Canada, and USA. Special efforts made by the Railway Adviser, Berlin and his organization in Paris and London deserve our thanks. Lastly, we thank the officers and staff of our own Secretariat who played the role of facilitators to the hilt.

INTRODUCTION

(CHAPTER: I / THE RAILWAY SAFETY REVIEW COMMITTEE, 1998 PART - II: H. R. KHANNA COMMITTEE REPORT 1998 PART - II)

1

1.1 A succinct yet comprehensive definition of "Safety" seems intrinsically elusive because of its all-pervasive implications. Railwaymen have variously described safety, for some it is "an environment", for others "the envelope surrounding and fundamentally affecting all else". There are those who see safety simply as "the absence of untoward incidents and accidents and as a way of life" whereas our committee defined it as "the end product of the cohesive fusion of its myriad parts. Webster's offers the following meanings: "the state of being safe from the risk of injury, danger, or loss"; also "a device to prevent injury or avert danger" In most of these descriptions the dominant refrain is the all-inclusive nature of safety.

1.1.2 Given its wide-ranging connotations, the search for the right prescriptions to improve safety on Indian Railways (IR) has been a formidable task, a foray into a labyrinthine passage During the course of investigations, our committee encountered any number of diverse, often contending perspectives of what would lead to total safety.

Although the ultimate goal is clear and uncomplicated, namely, the eradication of unsafe practices and systems that have potential to cause accidents, choosing the most appropriate methods for achieving that goal is difficult because of safety's wide canvas.

1.1.3 As safety suffuses almost every aspect of the Railways' being, our Committee has faced enormous difficulties in mapping out the boundaries within which our study of safety on IR should be confined While we have faithfully attempted a comprehensive coverage of the subject, there has always remained a lurking apprehension that our analysis has not embraced all aspects of the reality of safety on IR, despite the fact that our Committee has been given wider and more comprehensive terms of reference (placed at Annexure 'A') than any of the earlier Committees set up to study safety on IR. The varying perceptions of what constitutes the key areas of safety on IR was brought home to us most forcefully when a women's group represented to the Committee the importance of covering the issue of security and safety of women on trains and at stations It was difficult to convince these passionate votaries for the cause that our terms of reference did not include in their ambit this aspect of safety. They left unconvinced and disappointed with our interpretation of the Committee's legitimate areas of concern.

1.2 Scope & Structure of Part II

1.2.1 The terms of reference entrusted to our committee cover a wide gamut of safety concerns on IR. Part I of our Report covered fundamental and basic safety issues and

focused on the first two terms of reference. This second part of our Report covers the remaining terms of reference, viz., (c) and (d) relating to "implication of financial investment planning of railway projects on safety" and "examining safety measures/ equipment/ technology as adopted by Railways of some of the advanced countries which would have relevance for Indian Railways and could also be adopted for use on Indian Railways" However, the vast reach and sheer all-pervasiveness of safety have obliged us to also address certain elements in terms of reference (a) and (b) that were either not covered in Part 1 or which needed modification in the light of subsequent study.

1.2.2 Our Committee is convinced that the future profile of safety on IRIS inextricably linked to its investment policies. In **Chapter II** of this Report, we have reviewed financial investment planning and policies an IR over the last decade and their impact on safety. Our diagnosis is that unless the distortions in the investment landscape are corrected, by and large safety on IR cannot improve.

1.2.3 We submitted Part I almost a year and a half ago. Since then our Committee has gleaned new knowledge and ideas on the subjects covered in the earlier Report In **Chapter III**, we have revisited themes, amended some of our earlier views, apart from adding more insights to certain other subjects

1.2.4 Term of reference (b) relating to the existing organization, equipment, and practices for ensuring safe running of trains on IR is an unending subject because it encompasses almost every aspect of railway working. In **Chapter IV** under the heading "Some More Safety

Issues", we have dealt with practices and equipment impacting on safety which were not covered in Part 1.

1.2.5 The Committee has had the opportunity of seeing some important Railways of the developed world. This exposure to the practices and technologies of the advanced railway systems has provided us with valuable and insights regarding the role of the railways in the transport matrix of the 21st century, apart from helping us to study at first hand the practices and systems that could be adopted by IR for improving its safety regime. Our views on safety practices, systems, and technology of advanced Railways, which can be gainfully adopted by IR, are given in **Chapter V.**

1.2.6 In **Chapter VI** we have looked at certain organizational issues relating to the RDSO, the CRS and the Safety Organization.

1.2.7 In conclusion, we have studied the railwayman and his environment because in the ultimate analysis, it is the human element, which will determine the levels of safety achieved by IR. We have devoted **Chapter VII** to psychoanalyzing, as it were, the railwayman and his working environment. We have taken up ticklish issues such as departmentalism, trade unions and discipline, accountability, managerial attitudes because these are issues that have deeply affected the psyche of railwaymen and, in the bargain, compromised safety of the system. We are all too conscious of the treacherous ground we tread in a study that essentially deals with attitudes, values, prejudices and beliefs rather than about externalities, events and technologies which are much easier to describe and write about. Nevertheless, we are convinced that there

is a crying need for a change in the attitudes and values of both Railway management and labour, without which improvements in safety on IR can only be halting and sporadic. We do admit that we have no ready solutions for many of these thorny issues, which are shown in the tentativeness of some of our recommendations, but we have nevertheless raised them in the belief that awareness of the problem is a small but critical step in finding the panacea.

FINANCIAL POLICIES AND SAFETY

(CHAPTER: II / THE RAILWAY SAFETY REVIEW COMMITTEE, 1998 PART II: H. R. KHANNA COMMITTEE REPORT 1998 PART II)

2

"More than one third of our population still lives below the poverty line. Even after 52 years of Independence, the provision of basic services in rural areas remains very unsatisfactory. Forty percent of our villages are without proper roads; 1.8 lakh villages have drinking water problems, some estimates indicate a shortage of 140 lakh rural dwelling units, rural health infrastructure suffers from large deficiencies. These large gaps in basic services in the rural areas are not acceptable and Government is committed to removing them rapidly."

Finance Minister's Budget Speech,
February 27, 2000.

Point to pander over Investment decisions should not lose sight of these stark realities.

2.1 Financial investment policies are central to an organization's well-being and by their very nature, can make or mar not just the present but the future of an organization. As primary propellants of change and progress, they are not only a crucial barometer of a management's present concerns but are also the ultimate catalysts as they map out the future trajectory and profile of an organization Considering their enormous impact on all aspects of Railway functioning, particularly safety, it is but proper that our Committee should study financial policies on Indian Railways (IR) In conducting this exercise, we have concentrated primarily on the distortions in the investment landscape. In Part I of our Report, we had made fleeting mention of the huge gaps in the safety infrastructure and systems due to inadequate financial allocations. Since then, we have studied the corporate approach to financial investment planning of Railway projects during the last decade.

2.1.2 It is unfortunate that investment planning and policies on IR have for too long been imbued with ambivalence and groping uncertainty about the role of the Railways in our society. The dilemma has been aggravated on account of disregard of the fundamental tenets of investment planning, especially in the last decade, a period which has been the most turbulent in the economic story of the Railways. Issues seminal to the Railways' survival have not received adequate attention by the Railway policy makers. Key issues impinging only have been pushed to the margins of the Railways corporate consciousness.

2.1.3 Our investigation of investment policies on IR and their impact on safety takes place against the sombre backdrop of a major financial crisis, which has overtaken the Railways. The hallways capacity for mobilizing internal resources for financing its Plan

expenditure is diminishing rapidly The position has been further exacerbated by the philosophy of liberalization which has entailed a reduction in the budgetary support to Railways from Government without Railways being given the freedom to chart its own course on crucial issues such as investment policies, pricing, etc. A common and recurring refrain heard is that IR has been suffering from misplaced investment for decades which, in turn, has affected the safety and health of its assets. At the same time the revenue expenditure has been rising on account of inflation and implementation of recommendations of successive Pay commissions. At present, staff costs and pension constitute 48% of IR's revenue expenditure. In the last three years, IR has eaten up its reserves from the Capital Fund that had been painstakingly built up since 1994-95 out of its savings. For want of funds. Railways is having problems meeting the basic requirements of safety. In Part I of our Report we had assessed that the total requirement of funds for pulling up arrears in renewal of overaged track, rolling stock and signalling assets alone was more than Rs. 15,000 crores. Market borrowings have savaged IR's bottom fine and have become the Railways' nemesis - IR is now reduced to borrowing from the market primarily in order to service the interest on past borrowings. In the Budget for 2000-01, the market borrowings are estimated to be Rs. 3400 crores, whereas the lease charges on accumulated market borrowings will be Rs. 3014 crores. If one adds the dividend liability, which is interest in perpetuity on Central Government investment, the total outgo exceeds Rs. 5000 crores Predictably, the operating ratio, the ratio of expenditure to earnings, which was a

healthy 82.5 percent in 1995-96 is expected to plummet to 98.8 percent in 2000-01.

2.1.4 Faced with the kind of predicament that IR currently faces - an empty exchequer, a bloated workforce, overaged assets, dwindling market share, spiralling expectations, et al, it is understandable why the two Status Papers brought out by the Ministry of Railways, the first in 1990 and a genetically similar Paper in 1998, posed all the problems and concluded with a series of searching questions on the burning issues of the day but, significantly, refrained from giving any answers or making any commitments on the direction that IR should take Predictably, the questions remain unanswered to this day. Myriad problems continue jostling each other for the attention of a financially strapped organization.

2.1.5 It is indeed a strange and unhappy paradox that IR is facing perhaps its worst ever financial crisis at a time when the organization has achieved good results in terms of incremental freight and passenger traffic Indices. In the year 1999-2000, the originating freight tonnage lifted was 456 million tonnes against 420.92 million tonnes cleared in the preceding year, which is the highest ever increase in incremental loading in any year since the inception of the Railways. Even the net tonne Kms, which is the true index of efficiency, increased substantially from 281.51 billion in 1998-99 to 305.53 billion in 1999-2000. The number of originating passengers recorded an increase from 4468.51 million passengers in 1998-99 to 4638.05 millions in 1999-2000. As did passenger Kms from 404.60 billion in 1998-99 to 428.74 billion in 1999-2000. This is no flash in the pan. The physical performance of the Railways, as reflected

in the net tonne kilometers of freight traffic carried and passenger kilometers achieved has shown a reasonable growth during the last five years, as the following figures would show:

Performance Index	1994-95	1999-2000	Increase in 5-year period	
			In figures	In %age
Revenue carrying traffic (in million tonnes)	364.96	456	91.04	24.95
Net tonne kilometers (in billions)	249.56	305.53	55.97	22.43
Passenger kilometers (in billions)	319.47	428.74	109.22	34.20

Source: Statistical Directorate, Railway Board

2.1.6 Despite this truly impressive performance, IR is a deeply troubled organization today. The harsh reality is that the persistent incautious, almost cavalier refusal to entertain financial prudence, combined with the absence of a sound investment policy, has brought IR virtually to its knees. In the cold light of retrospect, what has happened in the investment landscape during the last decade is almost unpardonable, considering the resources that were available and have been fettered away on various accounts. **Even acute economic distress has not brought about a change in thinking. On the contrary, there is plenty of evidence to show that investment**

planning and financial policies continue to be imprudent.

This feature is also evident from financial figures of IR given below-

*(Figures in crores of Rupees)

	1994-95 (As on March 31)	**1998-99 (As on March 31)**	**Change**	**Change %age**
Capital at charge	----------	*36,829	+11,905	+47.8%
Total Investment	*35,618	*53,657	+18,039	+51.4%
Net Revenue before Dividend	3,808	*2,141 (1,742)	-1,661	-43.7%
%Net Revenue to Capital at Charge	15.28	5.81	-9.47	-61.9%
Net revenue to Total Investment	7.09	3.99	-3.10	-43.7%

2.2 The Committee's Approach

2.2.1 In the context of the present ills of the system, our committee believes that necessary at the outset itself to enunciate what we perceive to be IR's role in the overall social and economic framework of the country base our

analysis of investment planning and its impact on safety on the following premises:

(a) As a transportation organization the Railways' prime social responsibility to the nation is to be a safe, reliable, and productive engine for economic growth. All else is subordinate to this key mission.

(b) Only a transport organization that is in financially sound health can evolve a satisfactory level of safety. A cash strapped organization will look for the quick fix, the patchwork solution.

(c) IR can hope to be socially useful only by being financially productive. The prime social concern of the top Railway management should be to ensure against squandering of its resources.

(d) If resource constraints are a major impediment to enhancing the safety of the system, then it is the sacred duty of Railway management to ensure against wasteful investments on all fronts. When an organization is on the brink, there is room only for the essentials for survival.

2.2.2 This perception has determined our appreciation of the key issues relating to financial policies and investment planning on IR.

2.3 IR's Dual Role

2.3.1 Since Independence there has been much debate about the dual role played by the Railways as a commercial

entity on the one hand, and as a public utility with social commitments, on the other. We do believe that most of IR'S problems have stemmed from lack of clarity on IR's role in our nation's framework. The skewed priorities and lopsided emphasis on populist projects in the Railways' investment planning exercises are, in part, due to this crisis of identity that IR suffers from and on account of which it is yet to commit itself to any decisive economic strategy Having already paid an unimaginably heavy price for this ambivalence, IR can no longer afford to remain trapped in such a paradox of conflicting claims. **Our Committee finds that this perceived conflict of interests should not exist in the first place because the Railways, by virtue of being a Government entity with profits to be used for the public weal, belongs to the society at large and as such, its foremost social responsibility is to be a productive, profitable and effective transport provider for the economy without compromising on the overall social and economic policies of the Government.** IR is not an appropriate vehicle for doling out favours to various sections of the population and quite often such investments don't benefit the sections for whom they were intended.

Unfortunately, in mis-interpretation of its role, the Railways have undertaken projects at huge expense that are a dead loss to the nation. Our Committee is concerned that the "social relevance of a Railway project is not decided on the basis of a deep scientific study and analysis of the needs of the people of the targeted project area but is determined by political and other considerations It is well known that the focus and location of such non-remunerative "socially relevant

projects keep shifting depending upon the constituency of the Minister in the saddle. It is surprising that notwithstanding the universal criticism of the proposition that the unending list of non-remunerative Railway projects are socially relevant, there has been frenetic commissioning of such projects especially in the last few years, in total disregard of basic economic principles. Sizeable plan funds of IR are used every year as a source of patronage, but what is sad is that most such projects do not address the real needs of the people. **The tussle, as our committee sees it, is really between economic rationality on the one hand and political benediction and bureaucratic submission for favouring specific constituencies on the other.** IR is the people's institution, and the management of the Railways owes it to the people to run the organization in the most productive manner possible. If nothing else, it is well to remember that rising fare and freight costs and resultant price increases are partly the result of the ever-widening base of unproductive expenditure on New Lines, Gauge Conversions, etc. Most importantly, safety of the system has been severely affected by the deflection of scarce resources to loss making projects. It may not be out of place to mention here that presence of rail lines by itself does not spur economic and social development IR must wake up to the current reality that industries and other accompaniments of development gravitate either to the areas closest to sources of raw materials or to regions that already have a strong infrastructure of which transport is but one feature.

2.3.2 It is our belief that present investment policies constitute a major roadblock to safety enhancement on the

Railways. Given the perilous state of the Railway's finances and adopting the basic common-sense proposition that the sick must first heal themselves before they can be useful to others, **our first and most emphatic recommendation is that financial justification should be the only consideration for approving and prioritizing an investment proposal. We further recommend that only projects which yield a minimum rate of return of 20 percent, slightly more than the prevailing market rate of interest, should henceforth be undertaken. It is also necessary to arbitrate that in view of IR's financial crisis, no authority should be allowed to clear projects that do not fulfil this minimum ROR, except where strategic lines are involved; the concerned codes should accordingly be amended.**

2.4 The Railway Budget 1999-2000

2.4.1 We made a study of the Railway Budget presented to Parliament in February 2000. It provides the most telling example of the marked the Railways corporate approach to investment planning in the last decide.

2.4.2 **What stands out is the Railways' refusal to veer away from the corrosive investment practices of the past that have been marked by skewed priorities and lack of focus on key areas**. In an attempt to make a bad position seem acceptable, the Railways has shown a surplus of Rs. 1176 crores by excluding the deferred payment of dividend to the General Exchequer totaling Rs. 1,500 crores, from its overall abilities. It is clear that the Railways is in dire financial straits in

perhaps the grimmest period in IR's history, ordinary prudence should have dictated that the money and resources are used only for the essentials for survival However, the Budget's focus, judged in terms of the funds allocated, continues to be centered around the comparatively less pressing concerns. Despite the highest ever Pan outlay of Rs. 11,000 crores for 2000-01, compared with Rs. 8965 crores 1999-2000, it is unfortunate that a sizeable chunk is being used to sustain the very areas at have been bleeding the Railways, instead of being directed to projects that will help restore The Railways health. The allocations for New Line projects have risen from a level of 514 crores in 1999 2000 to 875 crores in the Budget 2000: 01 Seemingly oblivious of the already over-burdened portfolio of New Line projects, the Railways has added 7 more projects, thereby increasing the number of pending New Line projects to 81, with a cumulative throw forward of over Rs. 19,000 crores. Even Gauge Conversion, which has been targeted for severe criticism by economists and transportation experts, has been given an allocation of Rs. 6098 crores. Here again, 3 fresh Gauge conversion projects have been announced taking the list of pending projects to 74, with a throw forward of Rs. 8,500 crores However, what our committee found most distressing is that Doubling projects, which have historically been prioritized entirely on economic considerations, are being cleared on considerations unrelated to the Railways" need for capacity augmentation. Viewed in the context of over saturation of the

Wastage of Resources - Example I

New BG line from Agra to Etawah via Fatehabad. Bad & Udi Mod

Length: 110.5 kms Cost Rs 108 92 crores

Rate of Return: 6.33% (Minus 6.33%)

Year of sanction: 1999

The Survey Report (1997) highlighted the following:

(a) No major industry is expected to be located in the project area, nor is there any possibility of minerals. The area is largely self-sufficient in agriculture but has little transportable surplus for Railway carnage.

(b) Agra Etawah are already connected by BG rail through Tundla, and this route is only 85 kms longer than the proposed length of the new BG ne

(c) The project area is ---------- network. A district road ---------- Line alignment.

(d) The Committee for Expansion of Railway Network (CERN) report (1986) had also strongly opposed the proposed New Line because it neither linked any important port and the hinterland nor served any strategic need. It also did not link any new growth center.

In sum, this New Line is not justified either on economic, strategic or developmental considerations.

The allocation in 1999-2000 for this project was Rs 2 crores and in 2000-2001 it was Rs 10 crores. At the current level of funding and talking inflation into account, this project will take 30 to 40 years to complete

Worse, eventually there will be hardly any traffic, passenger or freight, to be camed by rail over thus line.

This is clearly not a “socially relevant” project, but a social and financial millstone.

Point to Ponder Over With 110 crores the nation could well provide basic Infrastructure such as drinking water, a health unit, pucca road, etc., in over a hundred villages.

vital arteries of the Railway network, such projects constitute the worst form of financial profligacy. In the Budget under review, 5 new doubling projects totaling Rs. 193 crores have been sanctioned, although they have a negative rate of return and involve sections that have spare capacity even in their present status as single line sections. While there has also been increase in the allocations for safety related projects, our committee is concerned that the disproportionately large allocations on financially ruinous projects could have been more profitably spent on safety enhancement and line capacity works. **We would like to reiterate that one of the significant signs of decay in an organization is a tendency to concentrate on what is peripheral rather than on what is basic and vital.**

Wastage of Resources - Example II

Barasat-Hasnabad Doubling Project
Length of line: 52 8 km
Cost of Doubling - Rs 81.85 crores ROR-Negative

Barasat Hasnabad is identified as an uneconomic branch line The losses incurred by IR on this line in 1998 99 were estimated at Rs 283 crores The line capacity utilization of the single line section in 1999-2000 is as under:
Charted capacity with maintenance block 16
Utilization: 10
Percentage Utilization: 65%

The Survey Report (1999) assessed that there is no freight traffic on the section nor any prospects of freight traffic in the future. The survey report also indicated that the existing 10 pairs of trains are adequate for dealing with the travel needs of passengers up to 2018-19

2.5 Views of Parliament's Standing Committee on Demands for Grants (2000-2001)

2.5.1 Significantly the Railway budget for 2000-01 came in for severe criticism from none other than the Parliament's

Standing Committee on Demand for Grants (2000-01). This is what the Committee had to say:

- About the Railway Ministry's presentation of a surplus. The Committed desire that the Ministry of Railways should have reflected the correct picture in the Budget that they would be suffering a loss of Rs.323.69 crores in the year 2000-01 and it is only after deferring the dividend of Rs.1500 crores, that they have shown a surplus of Rs.1176.31 crores. The Committee owe (sic) an explanation from the Ministry of Railways in this regard.

- About non-remunerative New Line projects: "The Committee have noted with concern the gravity of the financial investment requirement to be made under the Plan head "New Lines" and discard the irrational fiscal and lesson! management on the part of the Railways. They do not find any rationale for including projects in the Budget every year especially when these are financially non-viable and adequate funds are not made available to complete the already on-going New Line projects. Moreover, the Committee do not agree with the approach of the CCEA for approving the projects not recommended by the Expanded Board and Planning Commission. The Committee think that this kind of approach only adds to huge throw-forward and resultantly leads to sparsely spreading the valuable public fund not yielding the desired returns".

- About the Railways penchant to introduce new trains without matching facilities: “The Committee

urge upon the Ministry of Railways to plan their rolling stock requirements as per the line capacity available, avoiding over- saturation and stress on the line. They disapprove the tendency of the Railways for introduction of new trains every year disproportionate to the line capacity available".

- About the need to clear projects on the basis of a minimum financial return: ensuring adequate return on capital remains a matter of serious concern. The financial viability on fresh investment at present is appraised at 14% of the return on capital. The Committee opine that keeping in view the Increasing trend in operation cost and Railways borrowings through IRFC, there is an urgent need to increase the cut off Rate of Return in the Railway Projects".

- On the specific problems of safety: "The Committee desire that first charge on the limited internal resources generated should be towards meeting the depreciation needs so that the reliability of equipment gets the priority it deserves and continues towards the enhancement of the safety needs of the IR, besides contributing towards Improvement in the quality of services".

2.5.2 We have deliberately reproduced the views of the representatives of the people in order to highlight the fact that they also strongly feel that IR's Investment policies are askew.

2.5.3 Proponents of non-remunerative New Lines, Gauge Conversion and Doubling projects advance the argument that the allocations for such projects constitute but a

pittance in a massive Annual Railway Plan of several thousand crores. According to them, the criticism that these "socially relevant" projects are bleeding the Railways is just so much hulla baloo over an inconsequential portion of the Plan outlay. Seen purely in terms of a mathematical percentage of the total Railway Plan outlay, these non-remunerative projects constitute 10 to 12 percent of the Plan which is a considerable amount especially when one considers that the Railway Plan constitutes elements that are an integral element of everyday working. At present, requirements for renewing and replacing existing assets such as track, signals, rolling stock, traffic facilities and electrical works constitute a part of the Plan outlay which has unfortunately accentuated this faulty perception. If these elements are excluded from the Plan outlay, as they rightfully should, the actual proportion of Plan funds earmarked for non-remunerative projects goes up substantially. **We recommend that with Immediate effect, the requirements for asset renewal should be excluded from the Plan outlay as these only represent the wear and tear due to carrying traffic and are not investments per se.**

2.6 Railway Plans and the Ground Realities

2.6.1 A unique feature of the Railways' investment planning is the glaring dichotomy between what is spelt out in the Corporate and Five Year Plans of the Railways and what actually takes shape on the ground. Successive plans unambiguously state the need for catering to the essentials, i.e., development of adequate maintenance

facilities, replacement of overaged/obsolete assets, augmentation of capacity for freight and passenger traffic, but these noble objectives remain confined within the folds of the Plan documents as populist and departmental" objectives take over and determine investment decisions Given below are extracts from the Railway's Corporate Plan (1985-2000), the objectives juxtaposed with what actually occurred on the ground, which reflect This depressing gap between precept and practice:

Corporate Plan 1985-2000 Strategies for achieving objectives	**The Actual Achievement**
Limiting allocations for New Lines and gauge conversions to present level	From a shelf of 35 New ice projects with a throw forward of Rs 1,080 crores in 1989-90, the portfolio in 2000-01 has grown to 81 New Line projects with a throw forward of Rs Similarly in 1989-90 Gauge Convers 19,000 crores there were 11 projects on the anvil with a throw forward of Rs. 94 crores against 74 in 2000 with a throw forward of Rs 8.500 Cros
Many of the proposals for construction of New Lines are not financially viable due to low traffic potential. This traffic can be carried more	Out of the current list of 81 unfinished New time projects 76 have negative rate of return.

economically by alternative modes of transport	
Gauge conversion will be planted selectively only on heavy freight sections and that toc, after the potential capacity: of MG has been fully exploited through upgradation	Gauge conversion in the 1990s captured the imagination and the resources of the Railways. From 1991 up to 2000, a massive 11.083kms have been converted to BG
An accelerated programme of wars renewal will be undertaken with the objective of having no arrears of track renewal by 1995.	In the year 2000, there still a backlog of over 12,000kms of track overdue renewal on BG and over 4000 kms on MG.

Corporate Plan 1985-2000 Strategies for achieving objectives	**The Actual Achievement**
Doubling should be resorted to only after full fine capacity and throughput potential of a single line section with modern signalling and improved operating practices, have been utilized.	In the Budget of 2000-01, out of the 15 doubling projects cleared, 5 have been approved despite having a negative ROR and despite there being spare capacity still on single line.
Complete track circuiting over station sections and provision of AWS and hot box detectors on 'A' route. • Track circuiting on run	Even today, complete track circuiting of the station sections on the 'A' route, is yet to be completed, let alone the lesser routes.

through and other passenger lines and provision of AWS and hot boxes on 'B' route. • AWS and automatic signalling on "C" route. • Track circuiting on run through and passenger lines on 'D' route.	AWS is limited to the suburban sections of the Central and Western Railways in Mumbai area and that too only for EMU train sets. Hot box detectors are nowhere installed

2.6.2 It is sometimes stated that as a strategic Plan, only the broad issues and concerns are addressed in the Corporate Plan. For them, the Five Year and Annual Pians of IR define the nuts and bolts, as it were, of the Railways' Investment priorities. But we found that the objectives and goals of the Five Year and Annual Plans suffered similar fate in implementation.

2.6.3 The Five-Year Plan of the Railways is a meticulously conceived roadmap to the future, which makes a detailed evaluation of the needs of the System and formulates a comprehensive strategy to meet the future traffic and other physical targets in a cost-effective and efficient manner. Upgrading of the safety infrastructure is an important element of the corporate mission, spelt out in successive Plans. We conducted an in-depth study of the VIII Plan formulations for strengthening the safety systems on the Railways and made a comparison with what actually unravelled on the ground during the currency of the Plan. It provides yet another revealing and disturbing insight into the yawning gap between plan and implementation.

2.6.4 Under the specific heading of "Safety Works", the VIII Plan document Indicated certain targets to be achieved

during the currency of the Plan. We give below the targets and the actual achievements, in tandem:

Works	Target for VIII Plan	Actual Achievement
Provision of AWS	To be provided on all suburban routes in 4 metros and on HWH-Delhi and BB-DLI routes	Only suburban section of Mumbai area covered
Interlocking of LC Gates	612 Nos	240 Nos
Provision of Gate phones	3074 Nos	2692 Nos
Provision of lifting barriers	1532 Nos	746 Nos
Track circuiting from FM to FM and FM to BSL on run through lines	All 'A', 'B' and 'C' routes to be covered with track circuiting	Even the 'A' route was not completed

2.6.5 Apart from "safety works" covered under the S&T Plan head, the VIII Plan had drawn up a detailed programme of track and bridge works to be completed in the Plan period. As a key determinant of safety, track and bridges received high priority in the VIII Plan, at least on paper. The main objectives of track planning for the VIII Plan were, inter-alia, as under: -

VIIIth Plan Targets	Achievement
• to wipe off the arrears of track renewals which were about 6587 Kms on BG at the beginning of the VIII Plan	• At the end of the VIII Plan period the arrears of track renewal, instead of being wiped out, had increased to a level of 10957 Kms on BG alone. Against the Plan target of undertaking 23500 Kms of primary and secondary renewals, the actual performance was only 14202 Kms of track renewal

• To cater for annual arising of track renewals.	• Let alone providing high speed burnouts on the Rajdhani routes, at the end of the Plan, the modern turnouts were still at the trial stage
• To provide modern turnouts progressively on Group 'A' routes covering the Rajdhani routes on priority.	• As on 01 4 1997 there were still anears of 173 distressed bridges
• To cater for the rebuilding/rehabilitation of distressed bridges.	
• To cater for the rehabilitation of fresh accruals of distressed bridges.	

2.6.6 The actual performance vis-a-vis the Plan objectives becomes even more untenable when one considers that the VIII Plan was initially conceived for the five-year period 1990-91 to 1994 - 95 but was pushed back by 2 years and eventually became the Plan for the years 1992-93 to 1996-97, without any change made in the physical targets

2.6.7 Over the last decade, the ill-conceived 'Project Uni-gauge and the mushrooming of projects with a supposedly social bias have cumulatively devastated scarce national resources, with negligible or no benefits percolating to the people these projects purport to serve.

2.6.8 It was a wise man indeed who said that the biggest problem could have been solved when it was small. Unfortunately, faulty investment policies have created problems of a magnitude that have now become almost unmanageable. There has been unbridled proliferation of loss-making New Line, Gauge Conversion and now even Doubling projects. In order to understand and appreciate

the implications of the Railways' investment policies on the overall productivity and safety of the Railway system, our committee made a critical study of New Line and Gauge Conversion projects sanctioned in the last few years.

2.7 New Lines

2.7.1 The flaws in the corporate approach to New Line projects have been repeatedly highlighted in the Railways Status Papers, the Plan Documents and the White Paper that have looked at Railways' investment policies. A basic prerequisite of sound project management is the adequate availability of funds so that a project, once taken up, is completed in an optimal period. The most unfortunate aspect of the Railways' approach to New Line projects is the scant regard for this basic tenet of investment planning. In a climate where investment funds are used for dispensing favours, the basic ground rules for objectively assessing the merit of a proposal, such as traffic potential or other socio-economic benefits are Jettisoned Despite warnings that the extensive sanctioning of New Line projects each year has resulted in unbearable time and cost overruns, the Railway Ministry, has been unreasonably Increasing the portfolio of New Line projects The Corporate Plan, conceived in 1985, had expressed concern at the large number of New Line projects on the anvil which were languishing because of the resource crunch resulting in a meagre outlay being spread thinly over a large number of projects. In 1989-90, TR had 32 New Line projects already sanctioned with a total length of 2620 kms

requiring Rs 1872 crores for completion. A decade later, in the terminal year of the Corporate Pian, the Railways now has an inventory of 81 New Line projects with a throw forward of Rs 19,000 crores which, at the current level of allocations/price, would take more than 30 years to complete.

2.7.2 There is an inherent contradiction in the corporate stance on New Lines. Each year a long list of New Line projects & added to an already overburdened portfolio it is apparent from the fact that **the bulk of the New Line projects of today are inevitably headed to becoming the uneconomic branches of tomorrow. It should come as no surprise that the lines identified as "uneconomic branch lines" in the 1960s and earlier, remain paralyzed in that mode, serving neither to uplift the economy nor to bring people of those areas into the country's mainstream.** In this context, the Railway management's recuring refrain that losses on existing uneconomic branch lines should be shared by the State Government or alternatively closed down logical but unfortunately is not heeded. **We recommend that IR be vested with the power to close a line/facility if the State Government is not willing to bear the recurring loss on its maintenance and operation.**

Wastage of Resources – Example III

Restoration of New Mal Jn Changrabandha Railway line

Chagrabandha is a border station with Bangladesh. A meter gauge line existed between New Man Jn Domohani Changrabandha, a length of ----72kms which had been declined an uneconomic branch line. A segment of this line between Domohani, i.e., a length of -------km was devastated by a flood in 1968. ----------there was almost ----------, and the ---

---- material was disposed off through auction.

Following a devastating flood in July 1993, train running on the remaining segment between New Mal Jn and Domohani was suspended and since then the line has been abandoned. At the time of suspension this section attracted ----- freight traffic and less than thousand passengers per month. As a consequence of the closure, it is estimated that N.F. Railway effected an annual saving of approximately Rs 20 lakhs.

A decision has been taken to restore the entire line between New Man and Changrabandha at a cost of approximately Rs 27 crores. The work is expected to be completed by March 2001. Importance the line is being constructed as an MG line whereas the connecting mainline between Siliguri New Mal New Bangaigoan is being converted to BG. As such, there is no likehood of any traffic whatsoever on this isolated MG link line t Bangladesh. Incidentally there are already two existing MG links to Bangladesh which have hardly any traffic.

2.7.3 Another intriguing feature of the approach to the subject of New Line is the source of financing. According to universally accepted financial norms, viable projects should be charged to Capital, which is provided by the General Exchequer and on which the Railways is required to pay dividend in perpetuity to the General Revenues However, the cost of all New Line projects, most of them financially unviable, are also charged to Capital and incur perpetual liability apart from the huge losses that Railways have to bear to keep the lines operational

2.7.4 According to IR's stated policy, construction of New Lines is justified on the following considerations:

(a) Project oriented lines to serve new industries or to other resources.

(b) Lines to serve as a missing link which can form alternative routes to relieve the congestion on existing busy rail routes.

(c) Lines built on strategic considerations.

(d) Developmental lines to establish new growth centers or give access to remote.

2.7.5 At present out of a shell of 81 New line projects sanctioned, as many as 76 are economically unviable. From this, it is apparent that only the last-mentioned category (d), which is populist, prevails. This is unfortunate because the **Railways' survival as a profit making organization depends greatly on its capacity for attracting and lifting more traffic, which can be facilitated primarily through the project oriented lines and the alternative routes that help decongest the saturated corridors.**

Wastage of Resources Example IV

New Maynagun Jogighapa New Line project

Year of Sanction 99-2000 Length of Line 245 77 km

Cost: 733 07 crores ROR Negative

According to the Traffic Survey report the catchment area of the project section already has a BG line, i.e., Jalpaiguri New Bongaigaon Jogighopa and a parallel MG line, i.e. NJP. Siliguri New Bongaigaon which is sanctioned for Gauge Conversion. With this robust rail infrastructure in place, the number of trains for the anticipated level of passenger and freight traffic on the proposed alignment works out to 1 pass train each way per day and only 010 freight trains each way per day in the first year that the line 15 commissioned. The Survey Report has estimated that even in the eleventh year alter commissioning, the available traffic can be cleared by running 133 passenger trains each way per day and 010 freight trains each way per day.

Point to Ponder over: Can an expenditure of Rs 73307 crores be justified for the level of traffic anticipated and that too, by an organization which is facing a major financial crisis.

2.7.6 Having noted the current situation, we strongly recommend that: -

(i) Item (d) of the policy for construction of New Lines (Para 2.7.4) should be deleted.

(ii) All unviable projects including New Lines should be funded from outside the Railway finances for initial costs and recurring losses till they break even.

2.7.7 We also recommend that there should be an immediate review of all New Line projects which are not project-oriented lines or lines of strategic importance. Such of these non-remunerative lines which are nowhere near completion should be dropped without further delay.

2.7.8 We strongly object to the present system of making token allocations for certain projects, a suspect practice, which conceals the real intention of not progressing them. **We recommend that projects where token allotments only have been made in two successive years should be dropped forthwith.**

2.8 Gauge Conversion

2.8.1 Among the tangled skein of issues that have influenced investment planning and policy on IR, the one that has had the most cataclysmic impact has been Gauge Conversion (GC), which has suffused the Railways' corporate thinking in the last decade. Hastily ill-

conceived in 1991, Project Uni-gauge has cast a huge shadow on the investment landscape of the 1990s Propelled by heavy political pressures, Project Uni-gauge soon became the IR's prime obsession, on account of which more pressing economic and operational issues were neglected due to diversion of funds.

2.8.2 Historically, there has been no consistency or clarity in the Railways corporate thinking on the Gauge Conversion issue. In 1971, the then Railway Minister announced as policy the Railways' decision to "do away with the uneconomic drag of multiple gauges" and to build all New Lines to BG specifications and thereby ultimately evolve a Uni-gauge system. In the mid-seventies, the pendulum swung in the direction of Upgrading the MG system, in lieu of GC. This period saw the introduction of 100 Kmph trains on the MG systems of Southern and Western Railways The National Transport Policy Committee (NTPC), 1980, which studied this issue afresh, rejected large-scale conversion to BG but recommended that only a few specific MG routes with heavy traffic density and transshipment bottlenecks, should be converted taking care that the direct link in the extensive all India MG network was not broken. The Report of the Planning Group on Technology (1986-87) set up by the Planning Commission gave fresh impetus to upgradation of the MG. It recommended induction of 14 tonne axle load MG wagons and upgrading select routes for running passenger trains at 110 Kmph and goods trains at 90 Kmph. However, in 1990, there was a rethink on the issue to the effect that it was not advisable to invest heavily on the MG system because of the relatively high

investments required for every incremental unit of traffic. Then, in 1992 came the gigantic thrust for Gauge Conversion with the announcement of project Uni-gauge, when every other concern was ruthlessly brushed aside.

2.8.3 The proponents of Project Uni-gauge envisaged that the following benefits would flow from this scheme:

(a) Conversion to BG will help in economic development of backward regions through freer and faster movement of goods and people.

(b) It would greatly enhance capacity and operational mobility not only on account of the intrinsic higher capabilities of BG over MG but also by eliminating transshipment bottlenecks.

(c) By developing alternative routes and links, it would help decongest some of the more saturated BG corridors.

(d) Considering that the MG network had a substantial chunk of over-aged track and rolling stock, cost-benefit analysis would clearly show that conversion was the preferred option to rehabilitation of the existing MG systems.

2.8.4 The reasoning, on paper, in favour of the Uni-gauge Project seemed Irrefutable. And yet there were several infirmities in the arguments. **The premise that BG conversion would spur development of a backward region is essentially flawed. That broad gauge by itself can be a propellant for economic growth stands disproved by the fact that out of the 114 lines identified as uneconomical since their construction, 47 are BG lines.**

2.8.5 It is relevant to mention that the MG and NG lines constructed in the Colonial period were conceived as cheaper and economically preferable alternatives to BG for catering to areas with low levels of traffic. Many of those lines still have spare capacity because of slow, and in a number of cases, no growth in traffic. However, such is the passion for BG Conversion, that today IR Is in the process of converting lines with negligible passenger and no freight traffic.

2.8.6 Despite having completed 11,083 kms of GC since 1991-92, the problems of line capacity are more acute than ever before. The belief of the GC missionaries that GC would not only overcome the capacity constraints on saturated MG corridors but also give relief to the high-density BG sections by providing alternate routes, turned out to be, at best, a temporary salve, at prohibitive costs to the nation. **A fundamental truth 15 that GC of an alternative route can never be even a remotely comparable replacement for doubling of a line, which provides a quantum jump in capacity.** Whereas gauge conversion results only in marginal increase in traffic carrying capacity equal to the difference in the carrying capacities of the two gauges, experts opine that doubling enhances capacity of a line by almost 150%. In terms of costs, it has been estimated that the cost of GC is about 80% of the cost of doubling. As a means to augment capacity, GC is a very Inadequate substitute for doubling or a New Line.

Westage of Resources - Example VI

Rupsa Bangriposi GC project Length 80kms

Year of sanction. 1995-96 Cost of conversion 80 Crs

Rupsa Bangnposi was an dd Narrow gauge line of 89 km length with negligible passenger traffic and no freight traffic It was one of the identified uneconomic lines of the SE Rly The Ministry of Railways humedly conducted a survey and put up a proposal for converting the section to BG at a cost of Rs 5794 crores The Planning Commission expressed strong reservations about the viability of the project and the Expanded Board at its meeting on 11.995 decided that the project be deferred because of its negative RoR. But even before proper sanction, MR laid the foundation stone for the GC project on 28 7.95. However, the Cabinet Committee on Economic Affairs (CCEA) cleared the project on 1896 Up ------ end of 1999-2000. Rs. 1588 crores have been spent on this project Meanwhile, in May 1999, the OSD/Fast Coast Railway wrote to the Ministry of Railways for retention of the NG line as it was fell that NG was the better option in terms of preservation of Railway heritage and for rail tourism. Moreover, NG locos and saloons/coaches were available for providing an attractive tourist service. The OSD's proposal was not accepted by the Ministry.

Point to Ponder Over: A dead-end non-remunerative line is being converted to BG despite there being no prospects of additional traffic on the line.

2.8.7 IR is already experiencing the short-sightedness of the Uni-gauge Project as a capacity builder. For example, the conversion of the Delhi- Ahmedabad route was completed in 1996, but already within the space of four years, this section is working beyond saturation levels. So is the case with the erstwhile southern MG system of Southern Railway since conversion to BG. What has been lost sight of is that conversion of an efficiently run MG system Into BG can bring very marginal benefits.

2.8.8 To maximize conversions at least cost, the Ministry of Railways issued guidelines that could only impinge on

the operation and safety of the newly converted sections. We give below some of the guidelines issued to the Zonal Railways:

- Cost of signalling arrangements should be kept to the barest minimum.
- Proposals of important bridges should be reviewed. A few speed restrictions may be acceptable if these give substantial savings.
- The importance of converted lines should be seen while deciding track standards. For branch lines, CST9 sleepers and even secondhand material should suffice.
- Facilities in yards, platforms, stations, etc. may be kept to the barest minimum.
- Increased length between block stations should be resorted to

2.8.9 Having seen these guidelines, our Committee was not surprised to hear that the "open line" Railway management has, in many cases, resisted taking charge of a converted section from the Construction department of the Railways, on account of the poor general standard of construction and deficiencies.

2.8.10 The Zonal Railways, without exception, were unhappy about prioritization of GC projects. It is indeed unfortunate that the inter-se priorities for GC projects, as with New Line projects, have too often been decided unilaterally by the Railway Board without consulting the Zonal Railways.

2.8.11 GC has, since its inception, absorbed a large chunk of the Railways' resources, quite disproportionate to the benefits that it has brought to the System The figures given below say it all:

Years	New Lines		Gauge Conversion		Doubling		Traffic Facilitie		Total Outlay
	A	B	A	B	A	B	A	B	
1992-93	272.25	4.42	693.92	11.26	213.84	3.47	112.28	1.82	6162.26
1993-94	239.28	4.08	999.51	17.05	233.65	3.99	121.29	2.07	5860.77
1994-95	251.64	4.57	1263.54	22.95	208.99	3.80	84.50	1.54	5506.12
1995-96	213.39	3.30	1251.26	19.35	220.88	3.42	97.73.	1.51	6467.81
1996-97	256.48	3.57	1143.09	13.77	244.34	2.35	132.31	1.43	3309.56
1997-98	399.71	4.85	1129.93	13.72	291.22	3.53	128.46	1.56	8238.61
1998-99	388.02	4.38	672.50	7.59	446.74	5.04	147.04	1.66	8857.48
1999-00	580.99	5.99	645.00	6.65	625.00	6.44	220.00	2.27	9700.00
2000-01	811.70	7.38	600.00	5.45	522.49	4.49	215.00	2.05	11.000.00
Total	**3453.46**	**4.93**	**8398.75**	**11.99**	**3037.55**	**4.33**	**1258.61**	**1.80**	**70102.63**

A: Outlay (Rupees in crores) **B: Percentage total outlay**

2.8.12 As a consequence of the non-replacement of worn-out assets and the corporate Inertia on the burning line capacity problems, safety on IR has taken a nose dive, with increasing traffic snarls and bottlenecks leading to failures and accidents. Moreover, due to lowering of standards to keep costs down and the unreasonable targets fixed for the Gauge Conversion projects, quality has been the biggest casualty. **The statistics clearly show that some newly converted sections have figured prominently in accidents during the 1990s.**

2.8.13 We recommend that Ministry of Railways announce an immediate freeze on further sanction of GC projects. Of the GC projects on the anvil, careful prioritization must be done entirely on the basis of financial returns taking into account the likely

expenditure on replacement of assets like track/ bridges/ signalling, etc., on condition basis in the foreseeable future and operational benefits that will accrue to the Railways.

2.9 Line Capacity for Safety

2.9.1 Although capacity augmentation is essentially geared to enhancing the Railways capabilities for lifting the traffic on offer, the creation of adequate line and terminal capacities is also critical from the safety standpoint. The deeper our Committee delved into the ramifications of safety, the more apparent became the intimate link between line capacity and safety. In Part I of our Report we had emphasized that one of the major safety challenges confronting IR was the near-universal recourse to short-cuts in the field in order to meet targets for loading and movement. **What we have observed during our investigations is that the relentless pursuit of increasing volumes of traffic without commensurate growth in line capacity has seriously vitiated the climate for safety on the Railways.** We posed a question to the General Managers of the Zonal Railways on whether the compulsions for moving more traffic were resulting in compromises with safety. With the exception of one, the General Managers felt that short-circuiting of rules and procedures were being extensively resorted to in the field Even during our discussions with divisional officers, a recurring problem highlighted was the difficulty in providing adequate maintenance blocks due to the pressures of traffic. The management in the field seems to share our perspective

that line capacity constraints are forcing Railwaymen into compromising with safety. In our opinion, **the inadequacy of sufficient line and terminal capacity constitutes one of the formidable roadblocks to safety enhancement on IR.**

2.9.2 IR has all along professed that capacity augmentation slightly ahead of demand is its core objective. And yet, the frightening reality today is that the arterial routes of the Railways, which are the routes attracting new traffic, are clogged. Such a situation has prompted compromises with safety.

2.9.3 Our Committee is of the view that the line capacity constraints that exist today can largely be linked to Railways' obsession with Gauge Conversion in the 1990s. This lop sided focus, resulting in neglect of the essentials, has triggered Increasing failures and accidents. A study conducted a few years ago estimated that asset failures and accidents devoured up to 10 percent of capacity on the important routes of IR. in turn, the general decay in the system has affected staff morale and commitment.

2.9.4 There are two important elements relating to line capacity which impact safety. The sheer physical inadequacy of capacity, on the one hand, leads to practices that are inimical to safety such as insufficient time for maintenance of assets, particularly track and signalling, non-observance of rules for train passing etc. On the other hand, line capacity of a section is affected adversely by track/rolling stock failures, poor brake power of trains, poor material supply, temporary speed restrictions as also extraneous factors such as chain

pulling. **What is particularly significant is that inadequacy of capacity aggravates the factors that erode the available line capacity.** For example, a large number of temporary restrictions hurt the capacity of a section, but on a section working beyond optimum utilisation the temporary restrictions will remain in force for a longer period due to non-availability of blocks, thereby further lowering the capacity of the section to below optimum levels, and in the process further compromising safety. Capacity constraints tend to snowball.

2.9.5 Generally, it is understood that optimum efficiency is achieved when Trains are limited to 80 percent of charted capacity on single line and 90 percent on double line. The position on some of the important sections of IR is as under:

Section	Length (in kms)	Percentage Utilisation							
		80 to 90		90 to 100		100 to 110		Above 110	
		In Kms	In %	In Kms	In %	In Kms	In %	In Kms	In %
Mumbai Central-New Delhi	1374.37	84.59	6.15	309.71	22.54	208.77	15.19	771.30	56.12
Howrah- New Delhi	1443.97	333.57	23.10	315.95	21.88	486.14	33.67	308.31	21.35
Chennai Central-New Delhi	2183.20	389.17	17.83	565.72	25.91	904.98	41.45	323.33	14.81
CSTM-Chennai	1258.70	294.91	23.43	373.24	29.65	409.01	32.50	181.54	14.42
CSTM-Howrah	1968.40	1137.40	57.78	440.40	22.37	209.60	10.65	181.00	9.20
Chennai Central-Howrah	1653.78	882.36	53.35	381.00	23.04	310.49	18.78	79.93	4.83
Total	**9882.42**	**3122.00**	**31.59**	**2386.02**	**24.14**	**2528.99**	**25.59**	**1845.41**	**18.68**

2.9.6 The utilisation figures given above refer to the year 1998-99. Since then the problems of capacity have, in all probability, become even more acute Moreover, if the charted capacity

is redrawn after factoring in the 4 hours slot for maintenance ordered by the Railway Board in 1999, then there would be a further Increase in the actual line capacity utilisation figures**. If IR is to survive financially, it is imperative that line capacity enhancement is given a very high priority.**

2.9.7 Due to the pressures of traffic a large number of the high-density routes suffer serious abuse due to inadequate time for maintenance. To remedy this problem daily fixed corridor block timings have been incorporated in some of the working timetables (WTT). The divisional officers, without exception, complained that the corridor blocks envisaged in the WTT were not being adhered to on the high-density routes. We made a study of the actual maintenance time provided on the Delhi-Kanpur route for three months and found that the actual blocks provided were just about 50 percent of what had been prescribed.

2.9.8 Besides affecting health of the infrastructure, capacity constraints are leading to the dangerous practice of works being taken up without line blocks. For example, rall welds are being done between trains leading to permanent defects on account of trains being passed on hot welds. Accidents are taking place with material lorries running without line blocks and even rails are being opened out for replacement without traffic blocks. **Enhancing capacity, and not legislation, is the panacea for the grave problem of providing adequate blocks for maintenance.**

Wastage of Resources Example VII
Patna Gaya Doubling Project
Length 92 5 km Cost 195 17 crores
ROR-Negative
The line capacity utilization of the Patna Gaya Single line section in 1999 was as under
Charted capacity with maintenance block 17 Utilisation Passengers 12. Goods 05 Percentage utilization: 74%

According to the survey report of 1998 "the goods traffic for this section is restricted to four inward lakes on an average in a year. There is no industry, forestry, and mines to generate outward traffic from the section. There is also no prospect of future development of any industry in this section". The survey projected only marginal Increase in the passenger Traffic, which could be catered adequately on the single line itself.

Point to Ponder Over: When the arterial routes of IR are over saturated and unable to cope up with the demands of traffic and of safety, can IR afford such wasteful doubting projects.

2.9.9 Our studied recommendation is that, purely on grounds of enhancing the safety of the system, creation of adequate infrastructure for maintenance (both for fixed and moving assets) and line/terminal capacity must get the highest priority in the investment planning process, on par with replacement and renewal of over-aged assets.

2.10 Surveys

2.10.1 One of the unhealthy aspects of the Investment planning process on IR is the generosity with which surveys are ordered. While a thorough survey for assessing feasibility, traffic potential and cost is an

essential prerequisite for New Line projects, what we have observed on the Railways in the last decade, in particular, is that too many surveys have been taken up purely for appeasing the various pressure groups A number of surveys have been ordered in the five years from 1995-96 up to 1999-2000 which have cost the Railways Rs. 15.64 crores. Despite the fact that IR already has an unmanageable portfolio of New Line and GC projects, which will take decades to complete, surveys continue to be ordered. Apart from the resources wasted on such surveys, these act as a trigger for raising public expectations, and consequent pressures on the Ministry of Railways. What starts off as a step to appease, becomes justification enough for subsequently clearing a non-remunerative project at huge cost to the nation. **We recommend that for the next five years, where no strategic considerations are involved, surveys should be done only for project-oriented lines or missing links/lines that, prima facie, are remunerative.**

2.11 Depreciation Reserve Fund (DRF) - The Essential Safety Valve

2.11.1 In the lexicon of the industrial world, depreciation is a deceptively simple concept that implies a loss in the value of an asset due to wear and tear, time, and obsolescence. Likewise, the Depreciation Reserve Fund is a financial provision for the replacement of assets, which have outlived their life and utility. However, judging from the plethora of studies that have been conducted on this subject before and after

Independence, it is apparent that DRF is far from being the straightforward formulation that its definition seems to connote. The intense debate amongst financial experts has generated a bewildering assortment of views on depreciation policy and accounting on IR and yet there is universal agreement on one point that this financial provision is critical to the health of the Railways.

2.11.2 The relevance of DRF to safety on IR is all too obvious; after all, it is essentially geared to catering for timely replacement of assets that pose a danger due to physical deterioration. In Part-I of our Report we had highlighted that the erratic contribution to DRF was adversely affecting the replacement of worn-out assets and thereby jeopardizing safety

2.11.3 Having ploughed through the reports of leading financial experts, our committee can add very little to the fund of knowledge on DRF already on display We have also been inhibited by the sheer volume of possibilities and interpretations of DRF and DRF accounting on IR. DRF is loaded with imponderables and as a result strewn with approximations. This is understandable because calculating an accurate requirement of DRF involves forecasting the near impossible the realistic life of an asset, renewal of an asset prior to prescribed codal life, the trend of inflation, and the future face of technological improvement.

2.11.4 Having said all this, the basic question of adequate provision of funds in the DRF reeds to be addressed

We have deliberated on this subject and recommend that: -

(i) replacements required in the next three years should he worked out and provided for:

(ii) a portion of the renewal arrears, at least 10 percent should be provided for in addition so that arrears can be wiped out at least in a decade.

(iii) there should be no authority to resile from this system as a minimum.

(iv) While the above exercise is being conducted, contributions to DRF should be raised to at least Rs. 4500 crores per annum for the next three years against the present average annual contribution of about Rs. 2000 crores.

(v) The funds required for replacement of rolling stack should come from DRF, which will be in addition to the above recommended amount.

2.11.5 We further recommend: -

(i) The problem of premature retirement of assets, particularly track, needs to be tackled on a war footing.

(ii) A reassessment of the codal life of major assets on IR should be done by a small disciplinary team of Railway and outside experts on the basis of past performance of the asset, extent of use and other related factors.

(iii) IR must introduce a proper prioritization for the renewal of major assets based on the

importance of the route, the extent of wear and tear, the extent of use, and most importantly, the performance of the asset from the safety angle and the cast of maintenance.

(iv) The yearly contribution to DRF should be the first charge on the revenues of TR as rehabilitation of over aged assets is of prime importance for ensuring the safety of the system. IR should ensure that under no circumstances the depreciation provision is depressed.

(v) The funds in the DRF should be kept outside the purview of Plan Finance in order to ensure that withdrawals from the fund are not subject to the vagaries of the ways and means position of the Central Exchequer.

2.12 Project Appraisal

2.12.1 According to the Indian Railway Financial Code, it is incumbent on the Railways to ensure that a proper financial return is earned from every investment subject to the following exceptions: (a) when the expenditure is incurred on a statutory obligation; (b) when the expenditure is unavoidable on considerations of safety; (c) when the expenditure is incurred on passenger amenity works, and (d) when the expenditure is incurred on labour welfare works. The only other exceptions to the principle of financial justification are New Line projects or operations where the principles of "economic evaluation" e benefits to the community will also be considered

while appraising them. According to the extant guidelines, a project must yield a minimum financial rate of return of 14% to be considered for approval. So much for the ground rules of project appraisal

2.12.2 Our committee emphasizes that the accurate projection of the financial and other benefits of a project is the most critical component of Project Appraisal as it is the key input for deciding on the merits of an investment proposal. Our survey of IR's Investment planning exertions reveals that for a large number of projects the anticipated financial returns worked out while approving a project were totally off the mark and at wide variance with the actual returns finally reaped, which were much lower. A senior retired finance officer of IR informed the Committee that it was not unusual to calculate the rate of return backwards at the Project Appraisal stage, Le, by deciding beforehand the RoR to be achieved and then making the assessment of traffic projections and other indices to arrive at the pre-determined RoR. There are other anomalies as well. Our committee also finds that even with regard to investments for modernization and improvement such as electrification and doubling, which, as per Financial Code, should be strictly approved on the basis of financial remuneration, nebulous "social benefit" factors are taken into account to clear projects. The direct consequence of such flawed appraisal is the sanctioning of monumental but socially and economically unproductive projects that the nation can ill afford. **Our Committee is convinced that such manipulation of the investment decision-making**

process is an alarming phenomenon, which, if not checked, can spell financial ruin for the organisation.

2.12.3 Faulty projections of ROR have already wreaked much damage on IR. Even the Konkan Railway project, which on the face of it appeared to be a viable entity, has turned out to be economically unviable on account of exaggerated traffic projections. We give below details of the original freight earning projections for KRC vis-à-vis the actual materialization for the Years 1998-99 and 1999-2000:

Original Projections for KRCL vis-à-vis Actual Materialism of Freight Earnings (in crores of Rupees)

Type of Traffic for KRCL	1998-99			1999-2000		
	Projections	**Actual**	**Ratio**	**Projections**	**Actual**	**Ratio**
Local	22.916	0	0.00%	23.618	2.99	12.66%
Interchange -inward	27.056	5.23	19.33%	27.731	5.69	20.52%
Interchange -outward	79.208	5.555	7.01%	79.983	7.44	9.30%
Cross Traffic	105.171	5.885	5.60%	109.369	4.32	3.95%
Total	**234.351**	**16.670**	**7.11%**	**240.701**	**20.44**	**8.47%**

2.12.4 Our committee is not making a case against the Konkan Railway project per se, because there can be no doubt about its long-term value to the Railways and society. However, the point that needs to be stressed is that a reasonably accurate economic analysis of the project's potential would have obliged the KRC to tighten its belt as it were, during the construction phase by cutting out all the frills, But having bloated out of all proportion the financial

benefits that would accrue from the scheme, it would appear that KRC embarked on a grandiose plan that demanded nothing less than state-of-the-art infrastructure, state-of-the art facilities, even state-of-the-art buildings without bothering too much about financial austerity. As a consequence, today KRCL is being run on dole received from IR, a not insignificant amount of Rs. 354 crores for the year 2000-2001.

2.12.5 Our committee made a detailed study of the Makrana-Parbatsar conversion project and the basis on which a reasonable Rate of Return of 14% was arrived at. Knowing the antecedents of this line, we were doubtful about the veracity of the financial projections (see box at page 29). The analysis of the Project Report confirmed our worst suspicions. The arithmetic that went into determining the ROR is a complete distortion of a key financial instrument. Instead of calculating the financial returns on account of converting an existing MG line to BG, the cash flows have been limited to those relating to operation of six round trips of a BG rail bus. The Project report ignores the fundamental point that an MG rail bus would yield an almost similar rate of return and should, therefore, have been factored into the ROR calculations and only "incremental cash flows", e, the difference between MG and BG rail bus services taken for arriving at the RoR. Instead, the cash outflows compute an initial outlay of Rs.129 lakhs for operation and maintenance of the rail bus only, whereas the cash inflows have been thoroughly inflated by calculating 100 percent sale of tickets for six round trips throughout the year. It is by resort to

such devious means that the project is shown to yield an RoR of 14 percent when it should actually have been negative, according to our calculations.

2.12.6 Project appraisal is an In-house exercise on IR, and so Railway management cannot take the plea that extraneous factors are responsible for the generally low standards achieved in this crucial sphere of investment planning. Some years ago, the World Bank highlighted the flaws in the financial appraisal of electrification projects that the Bank had helped finance with a loan. The post-project appraisal of two of the electrified sections revealed that the projected benefits bore no resemblance to the actual. It is clear that faulty calculations of the economic returns on a project are not restricted to GC and New-line projects but have spread to other areas of major investment on IR. We have come across the sorry spectacle of individual departments on the Railways manipulating figures in project reports with the single objective of extending their departments' sphere of influence.

Wastage of Resources Example VIII

Makrana Parbatsar Gauge Conversion Project

Length - 21 Kms GC sanctioned 1994

Opened for Traffic 25.4.96 Cost of Conversion Rs 15 crores

Makrana-Parbatsar was identified as an uneconomic MG branch line. It was estimated that the annual recurring expenditure on this line was about Rs 95 lakhs and the earnings about 11 lakhs. In 1991, the Chief Minister of Rajasthan requested the Minister for Railways dismantle this non-remunerative line as the alignment Traversed over the marble mines and was hampering mining operations and thereby hindering the economic development of the region. Accordingly, the Ministry of Railways decided on permanent closure of this branch line in February 1992. Subsequently, on

a representation from an MP of Rajasthan, the decision was reversed, and another order issued that the 21 km long line be converted to BG. The work was taken up in 1994 and completed on 25.4 96 at a cost of Rs 15 crores. No sooner was the BG conversion completed, than there were representations from MPs that the newly converted BG line should be diverted at an additional cost of Rs 358 crores as the existing alignment was interfering with mining operations. As a matter of fact, the converted BG line was declared unsafe because of mining taking place ren under the Railway alignment. As a result, not a single train has been run on this section since conversion BG. The subject of which agency will pay for the diversion is still to be decided between the Ministry of Railways and the Rajasthan Government

Our Committee is convinced that a major weakness of investment decision-making on IR is that projects are rarely assessed on their intrinsic merit, but are all too often influenced by other considerations.

2.12.7 With about 150 years of experience of being the nation's premier industry, IR has developed financial systems that are the envy of other organizations. But it would appear that lately a certain laxity has crept into the financial accounting procedures. In the sphere of investment planning, the decline in the quality of financial appraisal of projects can, to a large extent, be attributed to two factors:

(a) the growing arbitrariness in the approval of major projects, on account of which there is now a widespread feeling amongst railwaymen that there is not much point in meticulous project preparation and appraisal, because in most cases, decisions are not guided by financial prudence.

(b) the failure of the Railways to track the benefits that actually accrue from projects.

2.12.8 We have already dealt at considerable length with the first of these issues, e, the arbitrary sanction of projects on the most nebulous considerations. However, it is also most unfortunate that IR has not yet devised a sound post-project appraisal system, on account of which the huge losses that IR and the nation incur due to ill-conceived projects rarely come to light. **A questionnaire sent to the Zonal Railways to indicate the actual RoR of completed GC and New-Line projects remained unanswered as the Railways do not maintain such data for most projects.** The problem is further heightened by the fact that due to the indiscriminate sanction of new projects, there are colossal cost and time overruns on most projects pushing up their overall costs. Consequently, it is difficult to fix accountability in case a project does not generate the financial and other benefits that were promised at the project appraisal stage. Invariably, the prime reason trotted out for the actual financial returns falling short of the anticipated benefits forecast at the project sanction stage, is the huge cost overrun on the project due to erratic funding.

2.12.9 Our committee **recommends that it should be mandatory for Zonal Railways to maintain proper records of the actual returns on projects costing over Rs.50 crores to be calculated on a yearly basis for at least 10 years after completion. There should be accountability if the variance from the projected RoR is excessive.** Such data would provide invaluable lessons for planning investment strategies for the future.

2.12.10 Our investigation of Project preparation, appraisal and evaluation on IR has brought to the fore certain glaring weaknesses in the system as it exists today. There is urgent need to improve techniques of investment appraisal. This can only be accomplished by ensuring that those entrusted with the task are equipped for it. So specialized has this job become that we would strongly recommend that before any railwayman is given such an assignment, he should be made to undergo an intensive training programme on the subject of Project preparation and appraisal in the RSC, Vadodara, which should immediately design such a specialized training capsule.

2.12.11 Our committee was distressed to find that when pressure is applied to reduce the cost of projects, the axe quite often falls on the safety elements. For tare, on grounds of economy, decisions have been taken sometimes to do without proper standard signalling and track structure. Our committee strongly feels that such measures of economy, should not be adopted and **recommends that under no circumstance should the safety features of a project be jettisoned in the process of pruning down the costs. Standards codified for different levels of traffic must be observed.**

Other Financial Matters

2.13 Loss in Accidents

2.13.1 The actual loss that occurs in Railway accidents is not properly calculated. Only the book value of some of the damaged material is projected as the loss. The cost of interruption of the service, delay to trains, salaries and allowances of staff on restoration measures, etc., are never taken into account. A few sample cases indicate that IR may be incurring a loss of the order of Rs. 2000 /- to Rs. 3000 /- crores per year in accidents. **We recommend that the actual loss due to each accident must be worked out, taking into account direct and indirect losses.**

2.14 Financial Advice

2.14.1 Many executives complained that the present system of financial advice acts as a stumbling block. **We recommend that financial advice to executives should be only recommendatory in nature and the executive should have the ultimate decision-making power along with responsibility.**

2.15 Control Over Expenditure

2.15.1 The table below shows the trend of Working Expenditure on IR for the last ten years:

Break up of Working Expenditure

Year	Labour	Material	Fuel/	IRFC	DRF	Dev.	Dividend	Others	Total
90-91	5118.8	1176.2	1691.9	465.0	1950.0	176.0	938.0	834.0	
94-95				1125.4		256.0	1361.7		
95-96	9009.2	1695.8		1395.0		297.0			
96-97		1909.2	3713.1	1468.8	2200.0	314.0	1507.5	1517.3	22960.2
97-98	15186.5			1074.0	1904.0	345.0	1409.0		27909.3
98-99		2380		2292.1	1155.0	396.0	1442.1	2207.5	
00-00 (RE)	16175.5		5547.8	2611.2	1550.0			2592.4	
2000-01 (BE)			6377.1	2014.3	2141.0				37250.5
90-91	41.4	9.5	13.7	3.8		1.4	7.6		100.0
94-95	43.1	8.8	15.7	6.1	10.1			7.5	100.0
95-96		8.4	16.0	6.9	10.2		6.3		100.0
96-97	45.0	8.3	16.2	6.4	9.6	1.4	6.6	6.6	100.0
97-98		7.7	16.6	7.1	5.0	1.2	5.3	6.3	100.0
98-99	50.3	7.8	16.0	7.6					100.0

00.00 (RE)	**48.2**	**8.0**	**16.5**	**7.8**	**4.0**	**1.5**	**5.7**		**100.0**
2000-01 (BE)	**48.5**	**7.9**	**17.1**	**8.1**	**6.6**				**100.0**

2.15.2 The disturbing trends in percentage of expenditure are-

- Increase in Market Borrowing (IRFC charges).
- Decrease in materials.
- Increase in labour.
- Decrease in DRF.

2.15.3 We have already discussed DRF separately, we will take up the others

2.16 Market Borrowing

2.16.1 The disturbing trend in market borrowing, particularly from IRFC, is evident from the following table:

MARKET BORROWINGS

(figures in crores of Rupees)

YEARS	IRFC	OYW	BOLT	TOTAL	LEASE CHARGES
92-93	1025	-	-	1025	855
93-94	856	-	-	856	960
94-95	745	34	-	779	1125

95-96	985	133	-	1118	1395
96-97	1954	285	144	2383	1469
97-98	2236	236	323	2795	1974
98-99	2941	193	83	3217	2292
99-2000 (RE)	2836	135	29	3000	2611
2000-01 (BE)	3400	100	168	3668	3014

Over the last seven years we have been borrowing essentially to meet the Lease Charges and in the process have been continuously increasing our Lease Charges' liability, which has increased from 8.16% of OWE (net) in 1992-93 to 10.16% in 99-2000 (BE).

2.16.2 As will be seen, IR's financial liability in the form of lease charges has gone up from Rs.855 crores to Rs.2611 crores in seven years, an increase of 205 per cent. The main payment is to IRFC, and going by present trends, their contribution is likely to be overtaken by the lease charges.

2.16.3 IRFC was created basically for financing **viable** asset acquisition on **additional account** based on ROR calculation, with lease charges as the outgo, but in reality, it has also been financing assets on replacement account which should correctly have been charged to DRF. Clearly there is urgent need to drastically reduce market borrowings.

2.16.4 We recommend:

- **Market borrowings should be used for investment only in viable new assets required on additional account. This principle should also be extended to projects. The RoR should be higher than the lease charges as the outgo. The actual return should be assessed after five years of acquisition/ completion.**

2.17 Expenditure on Materials

2.17.1 The table at Para 2.15 1 above shows that the expenditure on material has gone up from Rs. 1176 crores in 1990-91 to Rs.2674 crores in 1999-2000 (RE), an increase of 127% in nine years, which is lower than the overall rate of inflation. As a percentage of working expenditure, it has decreased from 9.5% to 8%.

2.17.2 With successive upward revision of the wage bill and the traditional effort to stick close to previous years' revenue budgets, the funds available for material and contracts have declined steeply. As a result, several unhealthy practices have developed such as holding up/cutting down indents for materials, delaying inevitable payments, accepting cheaper goods of inferior quality, and using parts beyond their service life. All this is leading to increased failures and is directly and adversely Impacting safety. **We recommend that revenue budget must be realistic and should take into account the inflationary factors and increase in workload so that**

procurement of material and equipment does not get affected.

2.18 Expenditure on Labour

2.18.1 There has been a steep increase under this head, which has become a serious cause for concern. This is the area which needs to be tackled on a high priority for the survival of IR as a profit making and efficient organization.

2.18.2 A study done by the Railway Board has projected that staff costs, including pension, will become 62% of Gross Traffic Receipts by 2010 If the present level of staff strength is maintained. They have recommended reduction of staff strength to a level of 10-12 lakhs by 2010 from the present 16 lakhs. We agree with this.

2.18.3 We recommend that drastic steps be taken to reduce staff strength to a level of 12 lakhs by the year 2010 and the share of staff cost be confined to 45% of Gross Traffic Receipts.

*****

Three Most Important Issues

3.1 Implementation of Recommendations Concerning Safety

3.1.1 In Part I of our Report (August 1999) we had given overriding priority to this subject and made detailed recommendations regarding the constitution of groups at several levels which should conduct reviews every two months.

3.1.2 Once again, we would like to reiterate in the strongest possible terms that IR needs to improve its implementation of safety items by planning each with physical/financial benchmarks spread over several years.

3.1.3 We expect that sooner than later at least the accepted recommendations will be satisfactorily implemented. Of the recommendations that have not been accepted, we would like to stress the importance of 13. where we would like the Ministry of Railways to reconsider their views. These have been reproduced with additional remarks (in juxtaposition with IR's "views" circulated to Zones in September 2000) in Annexure B as "Reiterated Recommendations

3.2 Train Radio Communication

3.2.1 The Committee has already recommended in Part I of the Report a reliable Train Radic Communication facility for mobile communication to be implemented in a phased manner over the 'A', 'B' and 'C' routes. The Committee during its visit to USA and Canada saw the operation of Train Radio Communication on various railroads. We were impressed to observe that trains were being operated at speeds of up to 30 MPH with the help of train radio even in areas which had no signalling. Of course, these non-signalled areas had low traffic density.

3.2.2 We consider mobile train radio to be one of the most important technical aids for safety as it will cover a multitude of objectives, viz., prevention of accidents due to infringement of adjoining lines, train running in foggy weather, unusual stoppage in the mid-section necessitating protection of the trains by crew, train

running when signals are defective, necessity on the part of SM/ASM check physically complete arrival of train, train reception through calling on signal, obtaining/release of maintenance blocks, etc. Most of the unworkable rules to which reference has been made in Para 3.13 can be revised and made more practical through the provision of the mobile train radio. We feel that such a system is imperative for IR. We recommend that the implementation of our recommendation on Mobile Train Radio Communication be given a very high priority by IR and the usual reason of "non availability of funds" should not apply to this device. This train radio communication system will also be the backbone of the proposed radio based ETCS Level-II type of train protection system which is planned for installation on trial basis in the Delhi-Mathura section.

3.3 Automatic Flasher Lights on Locomotives

3.3.1 Considering the number of catastrophic collisions that were triggered by derailment and subsequent infringement of the adjacent track, in Part I of our Report, we had recommended provision of an emergency button suitably located in the driver's cab which when pressed will:

(i) cut off power of the loco.
(ii) put on the flasher lights,
(iii) set off an emergency siren.

(iv) shoot flares in the sky; and
(v) send an SOS signal on the mobile train radio, if available.

We understand that in the Railway Board's view no such universal device is available.

3.3.2 We are not in agreement with the observation made by the Railway Board and feel that such a device is not difficult to develop. The existing switches for flasher lights are presently not conveniently located for switching on in an emergency on a large number of locos. To avoid accidents like the one at Saral Banjara in December 2000, we suggest that a suitable arrangement, which will automatically switch on flasher lights of the locomotives in case of train parting should be installed. We understand several prototypes of such an arrangement have already been developed on IR.

3.3.3 We, therefore, recommend that an automatic device to switch on the locomotive flasher lights in the event of train parting should be developed on very high priority and installed on all locomotives.

Other Issues

3.4 Since submission of Part I of our Report, our Committee has held discussions with railwaymen, past and present, at various levels in the hierarchy to elicit their response to the recommendations made in our First Report. Besides, we have further researched the corpus of literature on safety related issues in the form of Reports, statistical analysis, working manuals and codes, etc. This has inevitably led us to revisit, as it were, some of

the themes covered in Part 1. The new Ideas and knowledge gleaned from our extensive interaction and study have been invaluable in helping us to ensure a more comprehensive and rounded coverage on some subjects, whereas on some other issues we have had no hesitation in modifying our earlier views.

3.5 Compilation of Accident Statistics on IR

3.5.1 When Part 1 of our Report was first submitted, the subject that received the greatest prominence not only in the media but also among railwaymen was cur reference to the manipulation of accident and asset failure statistics taking place on the Railways During our subsequent interaction with Railway officers at the middle management and field levels, there was general agreement that manipulation and suppression of accident and asset failure statistics was a serious problem on the Railways and was affecting the entire safety environment However, we were disappointed to receive an ambiguous reply from the Railway Board to our specific question on this issue.

> **Question: "It is now public knowledge that all train accidents and asset failures are not reported on IR. What measures have been taken to ensure that this unhealthy practice is stamped out?"**
>
> **Reply:** "All train accidents are reported. Depending upon the seriousness of accidents, the levels to which it (sic) is to be reported is decided.

However, to streamline the reporting, criterion is being standardized to attain uniformity."

3.5.2 Through a narrow interpretation of the term "reporting", the Board has sought to rationalize the present system of reporting and recording of accidents.

3.5.3 South Central Railway, in a presentation to the Committee after submission of Part 1, openly admitted that the bulk of train consequential train accidents are still not figuring in the final statistics of the Railways. Although there were 212 train accidents in the year 1999-2000, the official figure indicated only 54. The redeeming feature about the South-Central Railway system is that although all train accidents are not included in the official accident statistics, each and every accident is thoroughly investigated, and remedial action taken. Our committee, however, feels that unless there is a system which ensures that all train accidents are properly recorded, there is always the possibility that those accidents that are not finally accounted for would not provoke full follow-up action.

3.5.4 Instead of setting matters right on the base of accident statistics our committee discovered that the **Railway Board has now drastically amended the definition of consequential train accidents which will bring down the number of such accidents in the statistical records without any improvement in the systems.** Through a change of the definition of what qualifies as a "consequential train accident", the entire

accident-related statistics have been vitiated. By introducing the element of "threshold levels" for consequential train accidents, Railway Board's revised guidelines now arbitrate that any goods train derailment where the total interruption to traffic 3 hours is or less on the 'A', 'B', 'C' and 'D' Spl. routes, 4 hours or less on the "D" routes, and 6 hours on the 'E' route, will no longer be treated as a consequential train accident, but will figure in a new statistical slot under the heading "other train accidents". In the case of partial interruption to traffic, the threshold value has been fixed much higher. For instance, if a freight train derail obstructing only one line on a double line section, then it will qualify as a consequential accident only if the partial interruption exceeds 12 hours.

3.5.5 The existing definitions of the different types of train accidents given in the Railway's Manual of Statistical Instructions are comprehensive and require no change Our Committee **recommends that IR immediately cancel the new guidelines issued regarding compilation of train accident statistics and revert to the instructions on the subject given in the Manual of Statistical Instructions and the Accident Manual.**

3.6 Railway Recruitment Boards (RRBs) - The Selection Process

3.6.1 An important aspect of the functioning of the RRBs which had escaped the Committee's notice and was not included in Part I relates to the minimum pass

marks prescribed for the various categories of examinations, including for the most critical safety categories. For the objective type of question paper, the present rules prescribe a minimum pass percentage of 30 percent for general candidates and 20 percent for the reserved category candidates. This is an absurdly low benchmark even though there is negative marking to the extent that for every incorrect answer, one third of a mark is deducted. On most of the Railways, we heard complaints about the very poor caliber of the individuals recruited to the various safety categories in the last few years. By pitching the job eligibility standards at such a low level, there is always the danger that IR is absorbing into its rolls quite a few candidates in each selection who do not have the required aptitude for the job. Keeping in view the present employment opportunities, IR management need not fear that by pegging the minimum standards higher, the Railways will be unable to fill up the available vacancies. **The Committee recommends that for all selections conducted by the RRBs, the minimum pass marks should be 50 per cent for the general candidates and 45 per cent for the reserved category candidates.**

3.7 Dispensing with Interviews in RRB Recruitments

3.7.1 The Committee was surprised to learn that the Railway Ministry has recently issued orders that for

most of the categories to which recruitment is done through the RRBs, there will be no interviews for selecting the candidates. The apparent rationale for this decision is that in the past, the interview process had been corrupted to help favoured candidates. We find it surprising that the Railway Ministry has ignored a very basic fact that the objective written test prescribed for most of the RRB recruitments is far from being a complete tool to assess the suitability of the candidates for different types of jobs On the Railways in particular, where individuals with qualities of leadership, interpersonal and communication skills, ability to think on one's feet, etc. are required, it is vital that the interview also forms the basis for selection. The objective type tests cannot assess even the elementary attributes of logical thinking and communication skills. **The Committee, therefore, recommends that at least for the selection of the front-line safety category jobs such as Assistant Station Master, driver, and motorman, there should be both a written test and interview.** What the Railway Ministry needs to do is to improve the method of selection of individuals to the various interview boards so that the problem of corruption in interviews is eliminated.

3.8 Psychological Tests

3.8.1 In part I, we had highlighted the importance assigned to the psychological test at the time of recruitment to certain critical safety categories such as Assistant Drivers, Motormen, ASMs. In point of fact, the critical deciding factor in such selection is the psycho test. With the recent decision of the Railway Ministry to do away with the viva-voce in all selections conducted by the RRBs, the psycho tests have become even more important and the ultimate deciding factor in selections to these categories. Those who fail the psycho tests are not considered for recruitment on the grounds that such tests assess Important psychological attributes such as reaction time, depth perception, etc., which are considered critical for such jobs.

3.8.2 Apart from psychological tests at the recruitment stage, the Railway Ministry's guidelines stipulate in-service testing of staff such as switchmen, ASMS, Diesel Assistants, Goods drivers before they are considered for promotion. Moreover, the Railway Board has also advised Zonal Railways to ensure that all drivers are subjected to psychological tests at least once in their careers However, our committee discovered a number of loopholes and anomalies in the corporate approach to the psycho tests. For instance, those staff who fail the psycho tests are deprived of promotion but they can continue to work as Diesel Assistant or Goods Driver or any other post that they were holding at the time of psycho testing

The irrationality of the present system becomes even more apparent when one considers that goods drivers, who fail the psycho-test for motormen, are eligible to become passenger drivers, as there is no psycho test prescribed for this category. Quite clearly, at one level the Railway administration itself does not consider the psycho test as a good indicator of safety consciousness and yet at another level, it attaches great significance to the test. The Committee has obtained details of the psychological tests administered to drivers of the Lucknow Division of North-Eastern Railway who had not been subjected to any tests earlier. The following is the position regarding their performance in the psycho test:

Category	Actual Numbers	Subjected to Psyco Test			Yet to be tested
		Total	Passed	Failed	
Driver Mail	54	37	37	-	17
Driver Pass	86	51	51	-	35
Driver Goods	164	143	143	-	21

3.8.3 It is clear from the figures supplied to the Committee that there is general reluctance to fail drivers in the psycho tests on account of the possible administrative problems that may be caused due to taking them off the footplate and providing them with alternative jobs. In this context, it is relevant to mention that on the North American Railroads, psychological tests are not administered to any category of Railway staff either at the recruitment stage or service, because the managements there believe that psycho-testing is not a reliable tool for assessing the personality attributes that it seeks to address. **In view of the differing views**

on the reliability of psycho testing, our committee recommends that in service psycho testing of Railway staff should be dispensed with. We are of the view that drivers who are medically fit and have been working on the footplate for several years should not be decategorized on the basis of a psycho-test, the reliability of which has often been questioned.

3.8.4 It was brought to the Committee's notice that the answer sheets of psychological tests conducted at the recruitment stage on the different Zonal Railways are sent to RDSO for evaluation, because of non-availability of the Optical Mark Reader (OMR) with the Zonal Railways. **We recommend that OMR equipment should be installed without further delay in the headquarters offices of all Zonal Railways so that psychological test answer sheets are evaluated promptly, preferably on the same day that the exam is conducted.**

3.9 Compassionate Appointments

3.9.1 The IR has made too many compromises in its recruitment policies. On every Zonal Railway we were told that the quality of staff being recruited was less than satisfactory. Our investigations showed that a huge and inefficient source of recruitment on the Railways was through "compassionate appointments". The number of compassionate appointments made during the last few years are as under:

Year	No. of compassionate appointments made	Total direct recruitment to Class III and Class IV on Zonal Railways
1996-97	7181	17371
1997-98	3597	15155
1987-99	6530	11401

3.9.2 We have been told that although, on paper, those appointed under this scheme should have the requisite qualifications that are prescribed for the job, relaxations are liberally granted. We are surprised to learn that against the limit of 5 percent of the total direct recruitment vacancies to be filled by compassionate ground appointees prescribed by the Ministry of Personnel, the IR has been filling up the bulk of the direct recruitment vacancies through compassionate appointments. While it has been laid down that persons appointed on compassionate grounds should have the educational and technical qualifications prescribed for the post, our committee feels that this system is far from being an adequate substitute for recruitment through a proper process of selection. The Railway administration has not helped matters by further diluting the standards and making compromises with regard to educational qualifications. This is impacting on the overall quality of the manpower.

3.9.3 While we sympathize with the need to ensure the welfare of family members of staff whose professional careers have been cut short, we are firmly of the view that recruitment to the safety categories should be arranged only through the normal processes of

selection as these categories deal with human lives. We **recommend that henceforth there should be no appointments made on compassionate grounds to posts in the safety categories, which must be filled up only through proper selection. We also recommend that IR should immediately work out an alternative scheme in the form of an attractive cash compensation package for families of the unfortunate railwaymen whose careers have been cut short either due to medical de-categorization or death.**

3.10 Drivers

3.10.1 While every segment of the vast Railway society would like to highlight its role in "keeping the wheels moving", it is important to recognize that the drivers are the most crucial factor in the gigantic Railway machine. The drivers' category received great prominence in our First Report, yet we discovered that there are certain critical Issues relating to their work environment that had not been covered.

3.10.2 The ergonomics of the engine cab is an area where there is considerable scope for improvement as it has a great bearing on safety. In the advanced Railway systems, great attention is given to the comforts to be provided to the driver in the driving mode, from the colour schemes in the cab to his sitting position, so that he is not required to strain himself for operating the various controls, the philosophy behind such meticulous arrangements being that fatigue is the greatest propagator of mistakes. On IR, spartan stools

without backrests have been provided for the Driver and Assistant Driver, the rationale for resorting to such an inconvenient arrangement being that if a comfortable chair is provided, the driver may fall asleep and thereby cause an accident. We do not accept this line of reasoning. The new breed of locos on IR have cab designs similar to those in the advanced Railway systems, and if these locomotives can have comfortable seats, there is no reason why this should not be universally provided. As the drivers are often called upon to work long hours, and working on the principle that a comfortable sitting position helps in warding off fatigue, **we recommend that the driving seats in the locomotives should be replaced by comfortable chairs with back rests in the shortest time possible.**

3.10.3 Considering the pivotal role of the driver, the Committee made it a point to visit a few crew booking points and running rooms. One of the essential equipment in the crew booking point is the breathalyzer equipment designed to check alcohol levels among running staff reporting for duty. According to the existing instructions, every driver is required to be tested on the breathalyzer before he is allowed onto the footplate. The present system, however, does not cover the condition of drivers from the time of "signing on" until they complete their duty. **We recommend that on all divisions concerned officers and supervisors should be provided with mobile breathalyzer equipment for testing running staff on the footplate on a regular basis.** The surprise element in such testing will keep the suspect

elements among running staff always alert and careful while on duty. It is also recommended that special assistance be provided to those who drink habitually, and a close watch be kept on them.

3.10.4 For years there has been concern regarding management of running rooms. There have been recurring complaints regarding food, cleanliness, linen, noise, etc. After looking at some well-run establishments, viz., Guna and Itarsi which are contracted out, **we recommend that each Railway try giving on contract the management of a few running rooms. The system can be extended progressively.**

3.11 Training of Safety Category Staff

3.11.1 Our committee noted that there is adequate concern to ensure that railwaymen attend training courses at the prescribed intervals. The monthly letter of the General Managers to the Railway Board on Safety contains details of the number and percentage of staff due refresher training. Unfortunately, the really critical component, i.e., the quality of the training programmes, has been largely ignored. Today, IR has 169 training centers that impart training to more than 1.20 lakh railwaymen every year an awesome number. It is time that IR focused on the quality of training because we found basic infirmities in the entire training scheme. While a large number of training centers have come up on the different Zonal Railways, our Committee was far from impressed with the environment, facilities and trainers' skills in these

centers. We have found that at a number of centers the serious business of training was being imparted in cramped, li-lit rooms by poorly skilled trainers who were not equipped with the basic educational technology materials so necessary for effective adult learning. The entire training exercise was "chalk and talk", which by all accounts, is the least effective method of imparting knowledge and skills It is also disturbing to note that in the training centers of the different divisions, there is no uniformity in the duration or course content of training programmes for identical categories of staff. Nor is there a lesson plan, which would provide guidance to the trainer on the method of delivery of the training course.

3.11.2 It is universally recognized that training is a specialized subject that is to be handled only by professionals with the necessary background and flair for the job. We, however, find that under the existing dispensation, almost any Railway manager belonging to certain disciplines, can theoretically be put in charge of training concerning his own discipline regardless of whether or not he has the aptitude for the job.

3.11.3 According to railwaymen, most trainers belong to one or other of the following categories:

(i) He is unfit for holding a frontline field job,

(ii) He has his roots in the place where the training center is established,

(iii) He is keen on the trainer's job because of the cash incentive and the attraction of a stable life.

Our committee is of the view that in the present-day world of rapid technological and social change, Railway management must radically transform its approach to training so that it helps create a culture in which the knowledge and skills of the railwayman keep pace with latest technology and work practices and which also foster job commitment by bringing about the required attitudinal changes. Such a transformation is impossible without a radical change in the training set-up on the Zonal Railways

3.11.4 We recommend as follows: -

- **IR should have a central training cell maned by a multi-disciplinary team of selected individuals specialized in training. This cell should be entrusted with the responsibility of designing training courses, preparing standard lesson plans and training material. It should arrange for producing audio-visual training material with the assistance of specialist agencies. At Zonal level the performance of the trainers and availability of infrastructure and training aids in the training institutions should be monitored by Additional General Manager personally.**

- **Selection of trainers should be based on their aptitude for training as judged by their CRs, where this aspect should be specially commented upon, and interview by 3 HODs. The trainers should be trained at an appropriate training center and should have a minimum tenure of three years.**

- Some decades ago, the Zonal Railways had mobile training cars, which were equipped with training aids, models, etc. These cars reduced the gulf between theory and practice by providing training at the work spots. Training at the activity center has an altogether greater impact than the training conducted in the closed confines of the classroom. However, over a period of time this concept of training has been abandoned, along with the mobile cars. **Our committee recommends revival of mobile training units equipped with modern training aids so that employees also have the benefit of training at the places of work, which would enable them to get on the-spot clarifications regarding the problems faced in the field.**

- According to the National Training Policy, the expenses on training should be 1.5% of the wage bill. The meagre allocation of IR for training is evident from the following:

OWE- Ordinary Working Expenses

Head (as a proportion of costs)	1995-96	1996-97	1997-98	1998-99	1999-2000
Staff cost as %age of OWE	48%	47%	42%	52%	42%
Training cost as a %age of	0.33%	0.34%	0.32%	0.37%	0.42%

OWE					
Training cost as a % of staff	0.69%	0.77%	0.66%	0.74%	0.89%

Source: Budget Documents

Our committee **recommends that in tune with the National Training Policy, the Budget allocation for training should be 1.5% of the staff costs.**

3.12 Enhancing Safety Through Meditation Techniques

3.12.1 In Part I of our Report, we had emphasized the value of yoga and meditation for combating the tensions, the emotional stress and pressures that are an integral part of today's complex world. We feel this subject deserves further elaboration because we are convinced that the physical and mental skills and reflexes of railwaymen can be considerably improved through scientifically designed yoga training.

3.12.2 Although it is difficult for science to measure and document accurately the effects of meditation practices on human fitness and skills, even western scientists have come to some startling conclusions about the benefits of yoga, which are given below:

(i) The involuntary human responses such as the knee jerk reflex and the galvanic skin response which are reliable indicators of man's physical and mental health, are after all not entirely involuntary and can be significantly sharpened or upgraded through meditative techniques,

(ii) Most human health parameters such as blood pressure, pulse rate, blood sugar level, heartbeat rate and even blood cholesterol percentage, can be demonstrably and measurably "willed to improve through meditative/auto suggestive practices such as bio feedback.

(iii) Stress, advancing age, dietary practices, etc., are steady contributors to man's declining fitness and psychomotor reflexes, but the decline can be decelerated or even reversed to a certain extent through regular meditation,

(iv) Scientifically planned meditation techniques can change maladaptive behaviour patterns such as alcoholism, depression, insomnia, etc.

(v) Organizations, not just individuals, stand to profit a great deal from Group Meditative practices that help reduce the incidence of absenteeism, fatigue, irritability, alcoholism, etc., among the employees.

3.12.3 While there are several meditative techniques for the well-educated individual practitioner, the right meditation package for a large and complex Government organisation like IR must have the following features:

(a) It should be highly standardized, structured and of short duration,

(b) It should be scientifically tested and shown to yield tangible results, rather than be just a "feel good" subjective experience.

(c) Should lend itself to easy practice, both in individual and group situations, and be available in Indian languages.

(d) Should be simply packaged for the semi-literate/illiterate staff, and comprised of easy, small steps that are easy to teach and learn.

(e) Should be concise and flexible enough to fit into the PME/Refresher/Training modules that are part of the Railway work culture.

3.12.4 A number of such meditation packages are available, one of them being the 30 minutes audio cassette called "Yog Nidra" brought out by the Bihar School of Yoga, Mungher (Bihar).

3.12.5 We recommend that a suitable meditation package must be made an integral part of the Refresher Courses in all Zonal Training Schools (ZTS) of IR.

3.13 Rules, Rule Books and Manuals

3.13.1 In Part of our Report, we had not only referred to the need to review and update rule books and make them more user-friendly but had also recommended that I should bring about uniformity in the type of certificates and authority documents used in connection with train running. Since then, we were apprised by officers and staff at various levels that there were certain issues relating to the rule books that had not been addressed.

3.13.2 A frequently voiced complaint of field officials is the sheer impracticability of certain rules. It is not that management is unaware of this problem because

managers themselves have brought to our committee's notice the sharp divergence between rules and practice. The reluctance to amend the ruins perhaps stems from the belief that rules, which have served the Railways for decades, must be intrinsically sound and therefore should not be disturbed Our Committee agrees with the views expressed by field managers and union representatives that the existence of impractical rules has caused discontentment amongst front-line staff.

3.13.3 An example of an impractical rule most frequently quoted to our Committee is General Rule 3.69 which stipulates that when an approach stop signal is defective, the Station Master (SM) must satisfy himself by personal inspection of points that the conditions for taking off that signal have been fulfilled And yet, every Railwayman knows that, in practice, it is not possible for the SM to personally verify the points, as it would cause unacceptable detention to trains. The job of clamping and locking points is delegated to the cabinman/pointsman who should logically be responsible for correct setting and locking of Joints Another such rule is GR 4.44 which prescribes that when a train is held up at the first stop signal for more than 15 mts, the guard shall "irrespective of whether the cause is apparent or not proceed to protect the rear of the train as per GR 6.03". For complying with GR 6.03 the guard has to walk 1.2 kms in rear of the train to place detonators, which is not practicable in all cases The rule clearly needs to be amended especially keeping in view the

provision of mobile communications and operational requirements.

3.13.4 Another issue relating to rules highlighted before the Committee was that rules were not being updated in consonance with changes in technology For instance, although the reliability of block proving with axle counters has now been established, we were informed that even at those stations where this device has been installed, the SM can close the block section after receiving a train only after he has physically verified the last vehicle of the incoming train.

3.13.5 While on the subject of rules, our committee has some comments to make on the format and structure of the Station Working Rules (SWR). For the station staff, the SWR is the most important document as it sets out the rules, working procedures and duties assigned to various categories of staff, as also the class of station, the layout, the signalling system, etc. So vital is the knowledge of the SWR for ensuring efficient and safe working of the station, that the Railway administration has arbitrated that in case an ASM or pointsman or any other station employee is away from duty for more than 15 days, he will have to give an assurance in writing that he is conversant with the provisions of the SWR when he resumes after his period of absence from duty. Considering the importance attached to the SWR, our committee was far from impressed by the format, the contents or the presentation of the SWRs. To cite an example, the SWR of Ganaur a small roadside station of Delhi division, was analyzed. The document has 60 pages in all, including Appendices. The cyclostyled sheets were not only poorly printed

and difficult to read, but the style of presentation was not designed for easy understanding. There are numerous cross-references to rules contained in other manuals and rulebooks, which can be disconcerting to the reader. Given below is an extract from page 5 of the SWR of Ganaur station:

> *"Special attention is drawn to GR 3.36 (2), 5.09, 3 70,3.71, 3.74, 8.01, 8.03, 8.06 Chapter IV and Chapter VIII of G & SRs book and Chapter It and Chapter III of the Block Working Manual as amended from time to time."*

3.13.6 Our Committee is in no doubt that the Railway administration should, on priority, revise the structure and the format of the SWRs so that it becomes a self-contained, easy to understand document on station working procedures, instead of the existing poorly written, unattractively presented document that can only be understood with difficulty and that too, when read in conjunction with other rule books and manuals, **Considering the importance of SWRS, we would recommend that an expert group of officers from Signal and Operating departments be co-opted to make out a prototype SWR that is presented in a user friendly format.**

3.13.7 The CRS, Southern Circle, in his evidence before the Committee highlighted the contradiction between the rulebooks and manuals, which have become another source of tension for the staff. The mixed signals that the staff are subjected to, can have adverse safety repercussions. The CRS pointed out a number of

anomalies in interpretation and elaboration of rules among the standard books of reference For instance, General Rule (GR) 15 09, which deals with engineering works of short duration and the position of banner flags/Engineering indicators is substantively at variance with para 806 (2) Annexure 8/7 of the Indian Railway Permanent Way Manual (IRPWM) on the same subject In similar vein, the standard list of equipment at LCs prescribed in Subsidiary Rule (SR) 16.02 of GRs is inconsistent with the list given in para 910 of IRPWM.

3.13.8 We recommend that a multi-disciplinary task force of senior railwaymen should study and correct the discrepancies between rulebooks, manuals and codes. This exercise should be completed within the next two years.

3.14 Level Crossings

3.14.1 In Part 1 of its Report, the Committee had lauded the safety performance of IR at level crossings (LC), especially in the context of continuous Increase in vehicular traffic and collateral pressures at the gates. We had Indicated that judged in terms of LC accidents, IR, with fewer accidents, scores over advanced Railway systems such as French (SNCF) and German (DBAG) Railways However, having seen the trend of level crossing accidents in the last lwo years, we are inclined to belleve that the comparatively better performance of IR vis a vis the developed countries is more fortuitous circumstance than the result of a well planned safely strategy.

Whereas the number of level crossing accidents on IR in 1995-96 and 1996-97 were 68 and 65 respectively, there has been a substantial Increase in 1999-2000 with 93 level crossing accidents in all, including 67 at unmanned gates and 26 at manned gates. The increasing trend in level crossing accidents has continued in the current year, ie, 2000-01.

While we acknowledge that safety at level crossings is fundamentally influenced by road users, our further investigations have revealed several infirmities in the norms and criteria prescribed for the classification of gates, their upgradation, and actual implementation of policy guidelines on the ground.

3.14.2 In 1985, the Railway Board issued guidelines for upgrading and manning of unmanned level crossing gates. The criteria adopted were based on the density of traffic across the gate, both rail and road, as also the visibility for the road user, and the phenomenon of regular motor vehicles. The inter-se priority prescribed for manning level crossing gates was as under

(i) Level crossings where the Train Vehicle Units (TVU) exceed 10,000.

(ii) Level crossings where TVUs are more than 6,000 and visibility is restricted.

(iii) Level crossings where TVUs are less than 6,000 and visibility is restricted but motor vehicles ply regularly.

(iv) Level crossings where TVUs are less than 6,000 and visibility is restricted but motor vehicles do not ply.

(v) Level crossings where visibility is adequate, but traffic density is more than 6,000 TVUs.

3.14.3 In 1994 further instructions were issued by the Railway Board that unmanned gates on the Rajdhani and Shatabdi routes should be manned on priority.

3.14.4 The Committee has evidence to show that the Zonal Railways have been upgrading and manning gates which, perhaps, should not have been upgraded, whereas some really hazardous level crossings remain unmanned. Considering the huge cost of manning of level crossing gates, it is important that the selection of gates for upgradation is made after careful analysis of the traffic negotiating the gate. The Committee is of view that the manning of gates purely on the basis of TVUs is not adequate for deciding the issue. **The level of train traffic on a particular section should be the dominant factor for manning of gates or for providing additional facilities.** Unfortunately, in blind compliance with the broad guidelines prescribed by the Railway Board, Zonal Railways have been upgrading level crossings even on sections where there is barely a train or two plying per day. The Committee obtained details of level crossing gates on the MG section of Alipurduar Division of Northeast Frontier Railway. We found that on a branch line section where one pair of trains is running per day, 3 of the 11 level crossings have been manned on the basis of the road traffic on the section. On another branch line where 2 pairs of trains run, 7 level crossing gates have been manned. A third branch line section where two passenger trains are run per day, 21 level crossings have been manned on the basis of high

level of road traffic. The point we wish to make is that scarce resources have been wasted in areas where there is no significant safety hazard In the view of our Committee, the key-determining factor for manning and upgrading of level crossing gates should be the level of rail traffic on the section The Committee **recommends that a much higher weightage should be given for rail traffic than is provided in the existing system of calculating TVUs. On all branch lines and other sections where there are only one or two pairs of trains plying, the level crossings should be demanned and if necessary, a permanent speed restriction of 10 to 15 kmph imposed for trains while negotiating unmanned gates having a high level of road traffic. We also recommend that, as with track circuiting, the Railways must upgrade level crossings, route-wise, on the basis of density of rail traffic.**

3.14.5 The existing criteria for classifying gates are nebulous, as a result of which, the entre scheme of upgradation of gates and provision of infrastructure has been haphazard. The classification of level crossing gates is supposed to be decided by the Railways in consultation with the local administration taking into account the nature of the road, the visibility and the level of road and rail traffic. Accordingly, manned level crossings are classified as "Special", 'A' Class, 'B' Class and T class in descending order of importance. There are also 'C' class unmanned gates and 'D' Class crossings known as cattle crossings that are also unmanned The Committee discovered that there is no clarity on

norms for deciding classification of level crossing gates It is only proper that the highest category of LC gates, le special class, should be those gates having the maximum density of traffic (TVUs) and serving national/state highways followed by A class, B class and C class gates in that order. Logically, the provision of infrastructure and safety aids should also be prioritized on the basis of density of traffic, the exception being hazardous gates. However, we find that there are more than 150 level crossing gates with TVUs exceeding one lakh which continue to be in 'C' Class whereas there are 'Special Class gates which have TVUs less than 25,000. Even the criterion of classifying LCs on the basis of the nature of roads served, i.e., 'Special' and 'A' class catering to National/State highways, etc., is not being consistently applied. For instance, on Southern Railway, there are many gates across which National/State highways pass, and yet they are in the lower category, i.e., 'C' class. We are concerned about the present arbitrary classification of LC gates. The Permanent Way Manual spells out the minimum facilities that need to be provided at the different categories of gates. 'Special' class gates, for example, need to be fully interlocked with signals, have a road with minimum width of 9 meters, whereas the provision of Interlocking is not necessary for C class gates, except under certain conditions The Committee **recommends that the Railways should immediately revise the norms for categorization of level crossing gates based on traffic handled and nature**

of the road so that the provision of safety aids is commensurate with the level of risk.

3.15 Fire Fighting On Trains

3.15.1 On IR fire extinguishers are provided in each locomotive, brake van, pantry car and AC coach of a train The advantage of having fire extinguishers in these vehicles is that they are constantly manned by Railway staff, who can ensure their rapid deployment in an emergency and also guard the equipment against tampering The fire extinguishers are of Dry Chemical Powder (DCP) type which are suitable for both electrical and petro-chemical fires. A few years ago compact Halon type fire extinguishers were introduced but after Chlorinated Fluoro Carbon (CFC) was banned, the Halon type fire extinguishers have been discontinued due to environmental problems

3.15.2 Our committee was told that the firefighting wing of RPF, which was responsible for annual examination, and refilling of these fire extinguishers, apart from training of Railway personnel, was disbanded in the early 1990s. The various locomotive and coaching depots have since entered into local contracts for maintenance and refilling of the fire extinguishers.

3.15.3 While the delegation of the upkeep of fire extinguishers to the different depots has helped in improving maintenance standards, the training of Railway personnel, like Guards, drivers, assistants and AC attendants has been a casualty. The staff who are custodians of fire extinguishers are supposed to be

the front-line users in case of a fire breaking out in a train The Railway management has ignored the vital aspect of arranging proper training of staff in use of fire extinguishers. Spot checks conducted by the officers and staff of the Committee showed that a large number of the staff were ignorant on how the fire extinguishers should be used. We also found that in the training capsules of even drivers and Assistants, there is no coverage of firefighting. **The Committee recommends that:**

(a) The initial and periodic refresher training courses for running staff and AC attendants should have a programme on firefighting/use of fire extinguishers.

(b) At least 5 percent of the fire extinguishers on locomotives/coaches/brake vans should be tested at random by the custodian depot/shed in the presence of an officer and a proper record maintained of these tests.

3.15.4 A large number of tickets checking staff are present on a running train and in any emergency they would obviously be first railway employees available. **We recommend that ticket checking staff should be imparted training in Fire Fighting, First Aid and Cardio Pulmonary Resuscitation (CPR) during their initial training at the time of recruitment and thereafter every three years. Their duty lists should necessarily incorporate such functions.**

3.16 4-Wheeler Tank Wagons

3.16.1 We understand that after considerable debate on the pros and cons, IR management has accepted our committee's recommendation to withdraw most of the 4-wheeler CRT wagons from commercial use on account of their accident proneness and poor reliability. In Part-1 of our Report we had also mentioned 4-wheeler tanks as another category of wagons with suspect credentials.

3.16.2 In terms of proneness to accidents and on line failures, the performance of the 4 wheeler tanks is only marginally better than that of the CRTS According to a study conducted by SC Railway in 1998-99, 4-wheeler tanks which constitute roughly 6,3 per cent of the SC Railway holding, contribute to about 20 per cent of the derailments, 28.2 per cent of detachments and 23.5 percent of train partings. By comparison, CRT wagons constitute 6.3 per cent of the holding, contribute to 34 per cent of the derailments, 42.6 per cent of detachments and 10 per cent of train partings. While our committee was unable to get authentic information of derailments of 4-wheeler wagons on an all-India basis, we have studied data of enroute detachments of

4-wheeler tank wagons I other type of freight stock. The comparative figures for 98-99 are as under:

S. No.	Cause/defect	Tank 4- Wheeler	CASNUB	UIC	CRT	Others	Total
1	Spring defects	2253	32	1124	1025	112	5350
	Spring defects per 1000 wagons	76	0	10	105	7	19
2	Hot Box	1884	251	341	426	673	3575
	Hot Box per 1000 wagons	63	2	3	24	39	13
3	Trolley defects	4	10	1776	3	14	2807
	Trolly defects per 1000 wagons	0	0	16	0	1	7
4	Wheel defects	15	216	59	23	20	333
	Wheel defects per 1000 wagons	1	2	1	1	1	1
5	Coupler defects	49	120	47	91	12	319
	Coupler defects per 1000 wagons	2	1	0	5	1	1
6	Brake Gear defects	19	164	111	16	24	344
	Brake Gear defects per 1000 wagons	1	2	1	1	2	1
7	Other defects	322	356	1461	1577	249	3995
	Other defects per 1000 wagons	11	3	13	90	15	14
8	Total detachments	4546	1149	4919	3965	1114	15683
9	Wagon Holding(in Vehicle Units)	29833	103234	108390	17433	17081	275971
10	Wagon detachment per 1000 wagons	152	11	46	222	65	57

3.16.3 The figures clearly show that incidence of spring defects and hot boxes – the major propagators of derailments on rolling stock account – are by far the highest in CRT and 4-wheeler tank wagons. Our committee is concerned about the relatively high failure rate of 4-wheeler tank wagons despite the following advantages that this breed of wagons has over the CRT wagons:

(a) A large proportion of 4-wheeler tank wagons are run in closed circuits which ensures improved levels of monitoring and maintenance of the fleet.

(b) The 4-wheeler tank wagons are of more recent vintage when compared with the CRT stock. The manufacture of the CRT wagons was suspended in 1980 whereas the 4-wheeler tanks were being built up to 1988,

(c) Because of the hazardous and inflammable nature of the materials loaded in tank wagons, shunting of such wagons is done with due care, unlike the other wagons.

3.16.4 In evidence before the Committee the CRS/Western Circle has strongly recommended that tank wagons, because of their inherent structural limitations, should be restricted only to plain sections and in sections with curves not sharper than 440-meter radius. He suggested that on tracks that have a sharper radius, a speed restriction of 30 kmph should be enforced We have mentioned this observation of the CRS only to highlight the strong reservations that safety experts have about 4-wheeler tank wagons when the

Committee visited Eastern Railway, we worm given a demonstration of the derailment-proneness of the 4-wheeler tank wagon The difference in spring camber of the 4-wheeler tank wagon, which resulted in the wheels jumping off track without a point of mount especially or curves, was shown to us. In empty conditions, these wagons were even more vulnerable due to reduced axle load.

3.16.5 IR still has a substantial number of 4-wheeler tank wagons, and by all accounts, the 4-wheeler tank fleet is closely monitored Hence, we refrain from making the extreme suggestion of withdrawing them from service but would **recommend that 4-wheeler tank wagons should be worked only in closed circuits, which will ensure better maintenance and better monitoring of the fleet. We would also reiterate our earlier recommendation that 4-wheeler tank wagons should be utilized only on single line routes to avoid the possibility of major disasters.**

3.17 Single Line Working on Double Line Section

3.17.1 During our extensive Interaction with railwaymen in the field, an issue that cropped up repeatedly related to the difficulties in providing engineering blacks of adequate duration for track maintenance. On almost all arterial routes line capacity saturation has resulted in blocks being denied for even urgent engineering works. In such a situation the Committee was Surprised to earn that IR has issued instructions that:

(a) temporary single line working should not be introduced for granting of blocks of up to 22 hours duration, and

(b) for granting blocks up to 4 hours duration, if detention to a train is ess than one-hour, temporary single line working should not be Introduced.

3.17.2 There are clear rules prescribed for single line working on a double line section when one line is obstructed, and the Committee is of the view that what needs to be ensured is strict observance of these rules. It is axiomatic that if the rules are not observed then accidents can occur even when blocks of 4 hours or longer are granted. The linking of duration of block to grant of permission for single line working will only mount further unfair pressure on the field management especially when one considers that granting of 4-hour blocks on most of the important routes is well-nigh impossible because of the density of traffic. This aspect has been covered in detail by us in the section dealing with line capacity. The Railway Board is aware of the problem. In fact, in response to a recommendation made in Part 1 that adequate blocks of 4 hours duration should be giver for track maintenance, the Railway Board has stated: "on high density routes 4 hours is not feasible. Instructions have been issued to give 2 blocks of 2.30 hours each." We **recommend that the recent circular restricting recourse to temporary single line working should be withdrawn as this will have an adverse impact on the grant of maintenance blocks on high-density sections. It may, however, be specified that**

whenever temporary single line working is introduced an officer must be specially nominated to monitor compliance with the rules.

3.18 Disaster Management and ART Upgradation

3.18.1 At Para 3 19 3 of Part I Report we had recommended setting up of an institute where training can be focussed on various aspects of Disaster Management. We have given further thought to this crucial requirement and consider that the training should inter alia include:

- Administration of first aid and evacuation/extrication of injured passengers.
- Handling of traumatized passengers.
- Firefighting.
- Management of matters thrown up during major accidents.

3.18.2 This training can best be imparted if training cells are set up in the Zonal Training Centers of the Railways. A Central Institute for Disaster Management can take up:

- Training of the trainers.
- Supervising training at Zonal Training Centers, including preparation of syllabus for these centers.
- Specifying equipment and wherewithal required for the training cell at Zonal Training Centre.

3.18.3 A system of licensing should be introduced for all personnel of ARTS from skilled artisan upward, based on successful completion of the initial training at the Zonal Training Centre. Thereafter all such staff should be sent to the Zonal Training Centre for a week-long refresher course every alternate year to keep their licenses valid.

3.18.4 We further recommend that in the centralized institute, courses should specifically be held for senior officers like DRMs etc., who are officers-in-charge at major accident spots.

3.18.5 Summarizing, we recommend:

1. Setting up of Disaster Training Cells at Zonal Training Centers of each Railway.

2. Setting up of a centralized Disaster Management Institute for training of trainers of Zonal Training Centre, and to supervise the working of the Training Cells.

3. A system of licensing of all ART staff (Skilled artisan and above) based on successful completion of the initial training programme and refresher courses once in two years.

4. Training to include:

- Administration of first aid and evacuation/extrication of injured passengers.
- Handling of traumatized passengers.
- Firefighting.
- Overall management during major accidents.

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SOME MORE SAFETY ISSUES - DEPARTMENT-WISE

(CHAPTER: IV / THE RAILWAY SAFETY REVIEW COMMITTEE, 1998 PART II: H. R. KHANNA COMMITTEE REPORT 1998 PART II)

4

4.1 In structuring this study of safety on IR, the Committee's emphasis has been on clubbing together the major strands that combine to make up a safety theme, instead of fragmenting safety concerns into water-tight compartments based on the Railways departmental structure. For instance, in Part 1 we addressed maintenance issues as one activity instead of slotting the subject of maintenance into various departmental segments under "track", "rolling stock "signalling" etc. We felt that by breaking up safety issues into different department wise compartments, there was the very real danger of missing "the whole picture" Moreover, we believe that, more often than not, the safety concerns of one department abut onto another Nevertheless, there are certain issues that are totally specific to individual departments, and these we have addressed, in this chapter, department-wise.

Personnel

4.2 Retirement age of certain safety categories of staff

Gangmen

4.2.1 IR today is still on the cusp between manual and mechanized track maintenance Our Committee's investigations revealed that although certain elements of mechanized maintenance were first introduced in the late 1970s', there are hardly any sections that have switched over to complete mechanization, especially in the sphere of routine track maintenance, The crowbar, the hammer and the beater are still critical tools of the gangman's kit, despite the fact that a large proportion of the trunk and main line routes have been laid with concrete sleepers, where the use of the crowbar is prohibited. The point that we wish to make through these preliminary observations is that the gangman on IR is still saddled with "heavy duty" manual work. Even today. Notwithstanding claims of mechanization, the gangman's job is still one of the most physically demanding and arduous amongst Railwaymen. Apart from the strenuous nature of his duties, he is subjected to the vagaries of the elements. Medical opinion is emphatic that such working conditions as the gangman is subjected to, can take a heavy toll on the health of an individual, especially if not countered through a healthy diet and proper rest, aspects that are at a low premium in our society. Predictably then, there is rapid attrition in a gangman's physical capabilities with the passage of time. In the era gone by,

this major problem was glossed over as young casual labourers were recruited to augment the permanent work force whenever the need arose.

4.2.2 Today the position has changed dramatically. All Zonal Railways, without exception, in evidence to our committee complained about the sharp Increase in the age profile of gangmen and its consequent adverse impact on track maintenance Due to the ban in recruitment of casual labour and the concurrent reduction in posts due to mechanization through the annual gang review, the average age of the gangmen has gone up significantly. Most permanent way gangs now have a large number of gangmen in their 50s who are physically incapable of measuring up to the arduous demands of the job. The problem has been compounded by the directive that a quota of 10 percent lateral intake to the Mechanical, Transportation and Commercial departments would be earmarked for the gangmen's category with the proviso that the gangmen so inducted are not above 35 years of age As a result of this policy, the gangs are being denuded of their able-bodied younger lot of gangmen, most of whom are keen on jettisoning the thankless job of gangman for better prospects in other departments The problem of an ageing gang force has become even worse after the Government order of 1998, enhancing the retirement age to 60 years The managements of the Zonal Railways admitted that this problem is having an extremely deleterious effect on the maintenance of track.

4.2.3 This is a serious issue directly affecting the safety of train running, which the Railway administration should address without further delay. In this connection, having

studied the issue in some detail, our committee **recommends that the Railway management take the following immediate measures:**

- **The orders regarding lateral induction of gangmen up to 35 years of age into other departments should be withdrawn.**
- **Instead of the present ad hoc spread of mechanized maintenance of track, the Railway Ministry should draw up a comprehensive Track Mechanization Plan that will target and notify the routes that will switch to complete mechanized maintenance, year-wise, and provide the commensurate inputs.** Through such a plan, the Railways can monitor the progress and ensure against the current environment where manual and mechanized maintenance exist side by side, increasing costs, diffusing responsibility and thereby jeopardizing safety. Once track is fully mechanized, the age profile of the gangemen will no longer be such a critical factor.
- With the Government already having shown the way in some public sector undertakings, there is no reason **why the Railway Ministry should not arbitrate that for certain jobs such as that of gangmen, the retirement age would be 55 years, with a generous "golden handshake" in tow.**

Drivers

4.2.4 An issue that has a critical bearing on safety relates to the impact of the recent enhancement of the retirement age to 60 years on the performance of drivers in evidence tendered before the Committee, Railwaymen gave

differing views on the subject, though the majority did feel that allowing drivers on the footplate beyond 58 years was a possible safety hazard. In reply to our question on this subject to the General Managers of the Zonal Railways, the General Manager of Western Railway recommended that the retirement age of drivers be pegged at 55 years, whereas the other Zonal Railways felt that drivers should be taken off the foot plate at 58 years However, the recommendations were not accompanied by matching scientific data in support and have, therefore, to he viewed only as an opinion A questionnaire that the Committee circulated to drivers of different age groups belonging to Northern, Central and Western Railways, drew a very significant response. **Of the 86 drivers who responded to the questionnaire, only one indicated a preference for a retirement age of 60 years.** Significantly, out of the 21 drivers in the age group of 55 to 60 years, 15 were in favour of retirement at 55 years and 6 preferred 58 years. Our committee obtained details from the Zona: Railways of drivers who had retired voluntarily in the last two years. We find that a large number of them have opted for voluntary retirement, 638 in 1998 and 1307 in 1999, the majority of them on medical grounds or "domestic reasons".

4.2.5 The study of the retirement age for drivers in the advanced Railway systems revealed no consistent pattern with SNCF, France, prescribing a retirement age of 50 years, whereas on the DRAG, Germany, the retirement age for divers is 65 years. Even the research studies are inconclusive. A psycho- technical study of disregard of signals in relation to the age of drivers conducted by the ROSO some years ago concluded that disregard of

signals by drivers is independent of the age factor. The verdict of the study was that the slowing down of reflexes with the passage of time was compensated by positive improvement in the psyche such as a greater sense of responsibility among the older drivers. Faced with such nebulous empirical evidence and assortment of conflicting news and practices, our committee refrains from making any definitive recommendation on the specific issue of the retirement age of drivers. However, after consulting medical experts, **we recommend that the annual medical tests for drivers conducted after 55 years should not be confined only to a vision test as at present but should also check the cardiac condition. We also recommend that the psyche technical cell of RDSO should undertake a fresh study to assess the Impact of increase in retirement age on the performance of drivers.**

4.3 Punishments in Accident Cases

4.3.1 The monthly letter on safety from the General Managers to the Chairman, Railway Board, contains a total of 12 Annexures of which 7 deal with the following:

(i) Finalization of Discipline and Appeal Rules (D&AR) cases during the month,

(ii) Statement of D&AR cases pending beyond target on the Railway,

(iii) Statement of D&AR cases pending beyond target date with foreign Railways:

(iv) Punishments awarded during the month.

(v) Punchments awarded to staff for train accidents during the month.

(vi) Major irregularities for the month.

(vii) Statement showing number of staff suspended during the month. We have with deliberate intent listed out these annexures as they are emphatic evidence of the overwhelmingly punitive approach of the Railways in dealing with safety.

What emerges from the analysis of this inventory of annexures is that the corporate focus is on pinpointing blame on individuals, e, fault finding, rather than on analyzing systems and system failures. The present practice on IR is to interpret every accident as being attributable to some individual the "who went wrong" syndrome rather than the more pertinent "what went wrong" approach. Railway management's traditional single-minded focus on "exemplary deterrent punishment is based on the rather questionable premise that Railwaymen, despite knowing the rules, take risks and shortcuts because they believe that even if their actions cause an accident, they are likely to escape with a minor punishment. Our committee, however, feels that this punitive approach, far from encouraging a culture of safety on the Railways, has, on the contrary, created an ethos where:

(a) Railwaymen are reluctant to report unsafe conations and work practices,

(b) where system faults and weaknesses remain undiagnosed,

(c) where individuals and departments disown responsibility for accidents at any cost, thereby vitiating accident enquiries.

4.3.2 Our committee is of the view that there is need for a radical shift in the management orientation with regard

to punishments on safety related Issues While we do not dispute the need to discipline errant staff, we strongly decry the present system of imposing punishments by rote, as it were. In 1968. the Railway Board issued detailed instructions to the Zonal Railways Indicating the punishments to be imposed in accident and engine failure cases. Although the circular spells out only the "minimum punishment for each type of infraction, we find that extreme punishments have been prescribed in most cases. For instance, the minimum penalties for passing signals at danger, but not resulting in an accident, are either dismissal, removal from service or compulsory retirement with this scale of punishments, our Committee is not surprised, then, that hardly any case of signal passed at danger" is being reported to the administration, thereby defeating the very purpose of such deterrent punishments. We were informed that only what cannot be hidden is being reported. We are also unable to accept the philosophy that all accidents are caused due to a deliberate wrong act or due to negligence. **Our committee recommends that the 1968 circular on minimum punishments for accidents should be modified, if it cannot be dispensed with altogether. In this context, our committee strongly recommends that at the very least, the clause relating to "signals passed at danger (SPAD)", but not causing any accident, should be deleted from the circular.** Our rationale for this recommendation is that no driver deliberately passes a signal at danger, thereby putting his own life at risk. Furthermore, by removing SPADS from the list of punishments, the administration can hope to get an honest feedback from the running staff regarding

this phenomenon, which is altogether missing in the existing fear filled environment.

4.3.3 A few decades back, I used to maintain statistics and full details about indicative accidents, i.e., incidents which could lead to accidents but were averted like breach of block rules SPAD train parting, etc. Even inquiries at officers' level were conducted to determine the cause and take remedial action. We fees was a very useful practice as it definitely in higher level of safety on Railways and thus reduced the number of actual codes we recommend that IR maintain full data of indicative accidents selectively get them inquired into at officer's level and reviewed DSO.

Civil Engineering

4.4 Track Renewals

4.4.1 In Part I of cur Report we hac brought out that successive Committees have recommended the extreme importance of timely track renewals on "top most priority and noted the failure of IR to do sc. in 1993 and again in 1994 The Minister for Railways gave an assurance in Parliament that arrears of track renewal would be brought down in a few years Instead, the arrears have increased and at present around 25% of BG/MG track is overaged and overdue renewal. This has resulted in crippling track failures and even accidents. **We recommend that these arrears along with fresh accruals should be cleared in the next seven years with a one-time grant from the Central Government.**

4.4.2 We wish to highlight a number of factors which are leading to shortening the life of track thereby requiring premature renewal. Several of these factors lead to proliferation of failures and unsafe conditions.

4.4.3 According to IR's extant instructions, criteria for rail renewals is based on various factors, viz, fractures, lures, wear, maintainability and expected service life in terms of GMT carried. The Permanent Way Manual further stipulates that rail shall be planned for through renewal after it has carried the minimum total traffic as shown below:

BG Rail Section	Total GMT
90 UTS 60 Kg	800 GMT
72 UTS 60 Kg	550 GMT
90 UTS 52 Kg	525 GMT
72 UTS 52 Kg	350 GMT
72 UTS 90 R	250 GMT

4.4.4 Analysis shows that 30 to 40 percent of the total track renewal has been done with rails having carried less than the GMT specified above leaving much scope for improvement Six reasons for shortening of useful life of track had been given in Para 2.18 7 of Part I of our Report and each of these has been covered further.

(a) Poor quality of track material

Due to the high value of supply contracts a number of second-rate suppliers have sneaked in. **IR has to find ways and means to exclude these firms. For safety stores intensive monitoring is needed.**

(b) Non replacement of ballast, resilient pads, elastic clips etc. which have a considerably shorter life span than rail and sleeper.

While standards set by IR are good, it has not been able to maintain the same on the ground. For example, the standard requires 250 cm clean ballast cushion and a good resilient pad. Neither of these are today ensured. As a result, the dynamic augment factor is 2 to 3 and rail/sleeper/formation are under immense stress resulting in many failures Systematic replacement of track components with shorter life needs to be planned. Further IR should develop track fittings with longer life span as in developed countries. **IR must immediately equip its track inspection cars to measure track elasticity and take measures on a war footing to provide 250 cm cushion of clean/compact ballast. Further, a good resilient pad and fastening with adequate toe load should be developed.**

(c) Proliferation of wheel flats

Wheel skids resulting in flats are causing serious damage to rail. A recent check revealed that in a span of six weeks, 17-wheel flats affected 2070 kms of track causing 125 instant fractures and over 1250 cracks which were detected by ultrasonic check. Recommendations in this regard have been given separately in para 5.13.3.

(d) Over loading of wagons

This has been dealt with at Para 4.17

(e) Under powering of trains

Non availability of adequate tractive effort of locos vis-a-vis attached loads leads to underpowering, wheel slip and many rail scabs. This has a

particularly deleterious effect on 90 UTS rails, which are more prone to cracking due to their higher carbon content. IR needs to devise procedures to specify and ensure adequate power of locomotives vis-a-vis attached train loads.

(f) Insufficient track maintenance

Proper maintenance requires sufficient number of track machines, line blocks, clean ballast, hopper wagons, movement of departmental trains, etc., which today are not adequately provided on IR The problem has been further compounded due to untreated poor formation and 20 percent over aged track. The features mentioned above cause failures which in turn increases the requirement of maintenance. With so many gaps in the maintenance infrastructure, accountability has become a casualty, and the bad workers get away with doing little work. **IR should ensure adequate funds and wherewithal for specified preventive maintenance based on zero based budgeting.**

Not so long ago, there was an excellent system of each Permanent Way Inspector submitting a half yearly review of his section highlighting all the Important deficiencies, which were of great help to the AEN and the DEN in identifying the problems and in providing specific guidance/help. This report provided much needed information regarding safety and was specially useful to new incumbents in quickly tackling the weakest track. Despite working successfully, this system has been discontinued without any gain.

We recommend that the PWI's half-yearly report in the original format be re-introduced immediately and be maintained carefully like the record of bridges.

4.4.5 There is one more factor affecting track life in addition to the above Six namely, **corrosion of rail and fastenings due to droppings from coaches and salt action on coastal lines.**

4.4.6 Renewal of track before it has completed its estimated life in terms of GMT is a luxury that IR can afford. When one considers 10-20 percent loss of sectional throughput capacity due to track failures and speed restrictions, the losses incurred by IR are even greater. The subject therefore deserves urgent attention at a very high level. **It is recommended that a multi-disciplinary committee of Additional Members review the matter of premature track renewal in detail and put up its recommendations to the Board in three months.**

4.5 Care and Handling of Rails

4.5.1 The costliest asset of IR is track rail IR seems to have attached low significance to its care in transport, storage and handling. An analysis done by the Track Directorate of the Railway Board revealed that a number of rail failures can be attributed to dents and kinks incurred in the process of transportation and handling of rails.

4.5.2 Higher carbon 90 UTS rails are somewhat more brittle and therefore prone to bruising, if handled roughly. We were

informed that even the imported 90 UTS rails are not handled carefully at the ports. This is because the ports do not utilize the appropriate machinery that will ensure smooth unloading and stacking of rails.

4.5.3 The Bhila steel plant authorities, the major providers of rails to IR nave also been accused of damaging rails during loading. They, in turn, have complained about the quality of the rolling stock supplied for the transport of rails. A sample survey conducted by the Railways in March-April 1999 confirmed that 90 per cent of the BFR wagons supplied had a number of deficiencies such as missing stanchion rods, missing X/chain and L/chain coupling and missing crossbeams on the floors. The problems get further accentuated when the train carrying rails are dispatched for direct unloading in the field where, in the absence of cranes and gantries, stanchion rods are hacked off, and then the rails are thrown down to the ground. Even the three rail panels are pushed off the wagon with crowbars - a most primitive method.

4.5.4 On the issue of handling of rails, **we recommend as under**:

(a) Apart from inspection of the quality of rails, proper loading of rails at Bhilai steel plant should be supervised and certified by a Railway representative.

(b) IR should preferably nominate one but not more than two ports for imported rail handling and these ports should be equipped with the necessary machinery for unloading rails.

(c) Rails coming from steel plants should be unloaded only in welding plants by overhead gantries and magnets. In the field welded panels should be end unloaded using special rakes provided with rollers. Single rails should be unloaded in the field by ramps and ropes to prevent impact.

(d) Much greater attention needs to be given to providing rolling stock of the right design and in fine fettle. Unfortunately, our committee has observed that wagons assembled for departmental purposes are the most neglected in maintenance and upkeep. **Our committee is of the view that the upkeep, maintenance and movement of departmental rolling stock and trains should be given high priority; and**

(e) The RDSO guidelines on handling of rails should form an integral part of the training courses for all categories of staff of the Civil Engineering department.

4.6 Sectional P. Way Gangs

4.6.1 Not so long ago, the permanent way gangs were described as the backbone of IR and key contributors to the safety and well-being of the Railways. But our committee discovered that today there has been a change in the general perception of the quality and output of the sectional gangs. While there is no doubt that they remain a critical element for ensuring the proper maintenance of the track, there has been a sharp erosion in their image of

being the epitome of dedication and hard work. Despite the adoption of a modern track structure and introduction of machine maintenance, the track quality has not come up as it should have. During field visits, our committee was informed that large-scale absenteeism among permanent way gangs was taking a heavy toll on track maintenance. Many managers and supervisors admitted that maintenance, also suffered due to loss of man days which are transferred to safety-related functions such as monsoon patrolling, hot weather/cold weather patrolling, fog signal men, attention to rail/weld fractures, etc. The earlier system of recouping the lost man days by casual labour has been given up with abolition of casual labour. Our investigations revealed that there are many reasons for the unremitting decline in the quality of work performed by the permanent way gangs.

4.6.2 The bane of IR has been the fact that new technologies are introduced without ensuring that necessary changes in maintenance infrastructure and staff know-how are in place simultaneously. A major reason for the current poor maintenance ethos is the fact that the maintenance organisation for track has been largely untouched by advances in technology. The tool kits of the gangs today are indistinguishable from those carried by their predecessors in the 19th Century The track structure today with higher sections of rails and concrete sleepers defy maintenance with the conventional tools. Nor have age-old primitive practices changed. Even today, the gangman's day begins with him reporting at the "tool box" where he marks his attendance, after which he proceeds to the work spot. This preliminary activity itself involves trudging over the Railway embankment for up

to 6 kms, an activity that he is required to repeat at the end of his duty and which would altogether consume up to 3 hours every day When one considers that these movements are not part of actual work to be performed, the sheer waste of precious human energy and resources can well be imagined.

4.6.3 Our Committee is convinced that in the present hi-tech age with its attendant work ethics, IR cannot garner any benefits whatsoever from adhering to the maintenance practices of an era gone by. We recommend as under:

(a) IR should work quickly towards adopting the pattern of track maintenance established by KRC, where each gang has been provided with a mobile maintenance vehicle and has a jurisdiction of 40 kms. Complete switch over to machine maintenance should be made a mission area, to be given priority on par with any other activity connected with track.

(b) Duties of the sectional permanent way gangs should be redefined with upgradation in technology and bundling out of certain functions on contract. Moreover, the gang tools need to be modified in the context of changes in the track structure. Use of crowbars in PRC track is supposed to be prohibited, and yet, in the absence of the right mix of tools, punning is done with the blunt ends of crowbars. Keeping in mind the new track structure and the increasing difficulties in getting adequate blocks, it is essential that easy-to-handle mechanized tools are introduced for routine track maintenance.

(c) The attire of the gangman must be redesigned so that it is not a mere uniform but also serves to

provide a degree of protection at the work spot and leads to a sense of pride. For this purpose, bright coloured clothing should replace the drab Khaki, along with luminescent strips for night working.

(d) Maintenance of Permanent way today is hamstrung on account of lack of mobility of the field staff/equipment and inadequate communication facilities. These aspects need to be addressed by IR on priority.

4.7 Safety Tolerances

4.7.1 The issue of prescribing safety tolerances for track has been under discussion for decades. In 1978 the Sikri Committee had recommended that safety tolerances should be prescribed for various speeds and categories of track. The tolerances would indicate the threshold limits beyond which track would need attention. IR is yet to take action on this basic requirement of laying down clear-cut track safety standards: Our Committee found that enquiries into accidents are affected by disagreements in the absence of clear-cut guidelines on track standards and deviation beyond which safety is affected We have investigated why IR has not prescribed outer safety limits for track vis-a-vis speed.

4.7.2 The rationale behind not prescribing track safety tolerances is to be found in the minutes of the 19 ^ 18 meeting of the engineering section of IRCA We give below the relevant extract dealing with this subject, because it serves to highlight the reasoning behind the decision not to lay down safety standards for track.

"The drawing up of limits of track irregularities, infringement of which could result in derailments, is not possible, because of the variable limits that could be permissible under condition of alignment levels, could result in derailments. It is not at all practicable to determine any specific demarcation between safe and unsafe condition because the interaction of the track and the rolling stock is so intimately connected that derailment may be the result of cumulative effect of a series of irregularities. While tolerance of track cannot be codified or prescribed as hard and fast rules, yet some variable standards can be evolved which would correspond to the recommendation of good practices for comfort only. Such standards can neither be obligatory nor mandatory."

4.7.3 Our committee finds that the rationale given above is specious and unconvincing.

4.7.4 If practices on other Railways worldwide are any guide, it is relevant to mention that all the advanced Railway systems that our committee had the opportunity to visit have prescribed safety standards for different categories of track. On most Railways the safety norms cover track geometry as well as structural integrity of track. Our committee is in no doubt that for the efficient functioning of the field staff, the current nebulous instructions regarding track tolerance need to be replaced immediately. **We recommend that without further debate, safety**

tolerances should be drawn up for different speeds and categories of track.

4.8 Turnouts-Upkeep and Upgradation

4.8.1 The turnout, with its inherent discontinuities and moveable parts, is a weak link in the track structure. Moreover, it is a trouble-prone point of interface between the Engineering and the S&T departments in regard to gaping of tongue rails and track circuiting. In terms of accident proneness too, this area is considered to be the most vulnerable because of a large number of parts. The problem is further compounded by the fact that the existing ultrasonic rail testers are not equipped to check some parts of the turnout. The well-known causes for accidents at turnouts are:

(i) Split or gaping tongue rails.

(ii) Loosely packed sleepers under heel portion and loose heel bolts.

(iii) Tight or slack gauge at nose of X-ings.

(iv) Rusty infrequently used turnouts.

(v) Over-speeding. An aspect of accidents at turnouts, often lost sight of, is their extremely adverse repercussions when compared to mishaps occurring in other points of the station section. An accident at a turnout normally results in complete blockage of through running. Besides, it often causes extensive damage to costly track side equipment such as point machines, lock bars and structures, besides damage to the complex turnout structure itself.

4.8.2 Our committee recommends that in view of the inherent vulnerability of points and crossings, the inspection schedules should be vigorously enforced.

4.8.3 We also recommend that IR should provide thick webbed curved switches on the major trunk routes on priority. The programme for provision of these high-speed turnouts should strictly be progressed, route-section wise, so that immediate benefits can be obtained.

4.9 Maintenance Issues Relating to the MG Network

4.9.1 Since the inauguration of Project Uni-gauge in 1991, the MG network has suffered neglect on the grounds that it is, anyway, doomed to extinction. Today IR management refers to the "residual" MG network, but what seems to be forgotten is that the MG still encompasses over 15,000 kms and will remain an integral functional element of the IR system for several decades to come. During our tours of Zonal Railways having a sizeable kilometrage of track on MG, there were serious fears expressed that the continuing neglect of the MG network would soon blow up into a major safety crisis for IR.

4.9.2 We were informed that as on 01.04.2000, there are 4996 Kms of MG and NG track overdue renewal The annual rate of track renewal on MG/NG in The five-year period 1994-95 to 1998-99 has been approximately 200 Kms. At the current rate of renewals, there is little likelihood of the arrears being cleared even in the distant future. In the context of overall shortage of funds, it is Important that the renewals on the MG are planned carefully and concentrated on the sections carrying the bulk of the MG

traffic. **Our Committee recommends that in this period of transition, IR should seriously consider closing down some of the uneconomic branch lines on MG/NG on safety considerations, especially those lines where traffic is negligible and which require substantial Inputs for keeping them operational; preventive maintenance and condition based renewal must be taken up systematically on the remaining MG lines for safety.**

4.10 Use of Wooden Sleepers

4.10.1 Consequent upon litigation in the Supreme Court a few years ago, IR ceased purchasing wooden sleepers IR was initially even restrained from using wooden sleepers which were in stock; this was subsequently relaxed.

4.10.2 With regard to ordinary wooden sleepers for normal track, there was not much difficulty because, on its own, IR had reduced use of wooden sleepers due to their poor availability, quality and life. However, in the matter of bridge sleepers and points/crossings adequate substitutes have not been developed even though some progress has been made.

4.10.3 For points and crossings IR has developed concrete sleepers but due to several reasons their introduction can only be at a slow pace Also for special layouts as well as for casual renewal there is still need for wooden sleepers. Even though some special steel sleepers for points and crossings are available, on account of track circuiting requirements these cannot be used everywhere.

4.10.4 In regard to bridge Sleepers the situation is critical. A substitute steel ta sleeper has been developed but the same is not good enough and is expensive its introduction is painfully slow It also lacks elasticity and has too many parts requiring frequent maintenance As a result it today has over 100,000 badge sleepers which are more or less unserviceable and require replacement This is a very dangerous situation.

4.10.5 We recommend that the Railway Board urgently approach the Supreme Court and obtain a relaxation to buy wooden sleepers for bridges as well as points/crossings for the next five years during which time adequate substitutes should be developed.

4.11 Line Blocks for Track and Other Works

4.11.1 We are aware that in order to facilitate works requiring line occupation IR has scheduled corridor blocks on all busy lines. However, for various reasons blocks fructify only half the time, resulting in wastage of labour and machines. Considering the elaborate arrangements such as labour, tools, materials, machines and timely movement of departmental trains that are needed to execute the maintenance jobs in a professional manner, it is important that regular and adequate blocks are provided. On the other hand it is of paramount Importance that trains are not detained unduly.

4.11.2 We recommend that a detailed divisional plan for arrangements to execute scheduled work be made for a week in advance covering all departments and thereafter adhered to.

Mechanical

4.12 Brake Binding

4.12.1 Brake binding has been identified as one of the most serious problems affecting rolling stock, particularly since the induction of air brakes Into IR. Approximately 30 per cent of the current coach detachments are due to air brake defects, in which brake binding is a predominant factor. Brake binding also figures as one of the most prominent defects on freight stock. Apart from causing wheel flats, brake binding creates positive safety hazards through damage to wheel tread profile, and also causes train partings. We had detailed discussions with the RDSO, air brake manufacturers, as also the Zonal Railways on the measures that need to be taken to curb this problem and conclude as follows:

1. Malfunctioning of the distributor valve (DV) in the air brake circuit is the most important reason for brake binding. **We recommend that the following steps need to be taken by the Railways to improve the functioning of the distributor valves-**

(a) Certain critical rubber and other small components in the distributor valve have been identified as vulnerable to failure

primarily on account of their poor quality. As the cost of these components forms hardly 5% of the total cost of the distributor valve, we recommend that RDSO should identify these critical components and the manufacturers advised to import these as a kit from their principals, viz., M/s. Knorr Bremse/Sab Wabco.

(b) IR had switched over to cast iron distributor valves from aluminum some years back to counter the incessant problem of theft. While theft has been drastically reduced, we were informed that a number of manufacturers are neither cleaning the cast iron bodies nor providing them with wax coating, which is another prime cause for malfunctioning of the distributor valves. We recommend that RDSO should specify a detailed cleaning and treatment procedure for the cast iron bodies and their periodicity.

(c) We found that during POH, "must change" items in distributor valves are not renewed in a large number of workshops, primarily on account of their non-availability. Some manufacturers of air brake equipment informed our committee that they were prepared to set up POH facilities for distributor valves in the various workshops, with a

guaranteed five years warranty and an accompanying penalty clause for every failure of a distributor valve attributed to bad product/workmanship. Most of the Railways in Europe and USA do not have in-house facilities for maintenance of air brakes and they have this done by the OEMs. Since this would be a new practice for Indian Railways, a wholesale switchover may be difficult and, therefore, we recommend that one Railway may be identified for setting up such a facility for DVs fitted on coaching stock. Based on the results of this project, the scheme can be considered for implementation in other workshops.

(d) Moisture, dust and rust particles (from the steel pipes) cause malfunctioning of the distributor valves. While in our Part I report we have already recommended fitment of air driers on a war footing on the locomotives so as to ensure supply of dry air, the problem of rust particles emanates from the air piping on the rolling stock. We recommend that in coaching stock stainless steel train pipes should be provided, while for freight stock, we recommend use of seamless pipes duly treated to reduce corrosion.

2. Besides DV defects, the second major cause of brake binding is the malfunctioning of slack adjusters. Apart from spindle breakage there

have been a large number of cases of failures of springs and rubber components. We understand that poor quality of components has been identified as the primary cause for the failures of slack adjusters. **In this context we recommend that:**

- **Failures are monitored, workshop-wise as well as maker-wise, and responsibility fixed. This should be monitored at Zonal Headquarters/Railway Board level.**
- **All repairs are done only in workshops.**

3. Railways have already switched to bogie-mounted brakes for coaching stock and the design for freight stock is being developed. With bogie mounted brakes, the brake rigging problems have reduced substantially as the slack adjuster is of a much simpler design. **We recommend that retrofitment of the existing stock with bogie mounted brakes should be expedited to a specified time frame.**

4.13 Headlights of Locomotives

4.13.1 IR has traditionally underplayed the importance of the locomotive headlight as a vital safety device. We have arrived at this conclusion on observing that IR is still wedded to the reflector and bulb type headlight on locomotives. In evidence tendered before us, divers have complained that the performance of headlights in locomotives is rather unsatisfactory. It was represented that the headlights provide poor illumination and for a very short distance ahead Such

headlights are also susceptible to seepage of water and moisture, besides requiring frequent re-focusing. Considering that headlights are a crucial driving aid for viewing the terrain ahead and for providing timely warning for road users at unmanned LC gates as also for cautioning the ubiquitous trespassers, it is important that IR addresses this issue on priority.

4.13.2 Our committee was informed that six of the eight DLW built locomotives exported by Messrs RITES to Sri Lanka were provided with high- powered Twin Sealed Beam Halogen headlights. The twin-sealed beam halogen headlight scores over the conventional headlight in every respect. The halogen headlight has the following features: -

- 100% standby as twin filaments are provided in parallel.
- The complete unit is sealed, and hence periodic adjustment of focus is not required.
- The headlight beam has powerful luminosity and range there is no problem of seepage of water or moisture.

4.13.3 We would recommend that IR switch over to twin beam halogen headlights on all new locos and also retrofit these headlights on the existing locos.

4.14 Vigilance Control Device (VCD)

4.14.1 In the advanced Railway systems, a Vigilance Control Device (VCD) is provided on locomotives to monitor driver's alertness. On IR efforts were made to develop a suitable VCD but these were not successful

primarily on account of opposition by the drivers who felt that this had more of a nuisance value without serving a very useful purpose. As a result, most of the VCDs were made Inoperative by the loco crew. The Railway management also felt that since locos on IR are manned by two people, provision of VCD was not so vital as in advanced countries where there is only one person in the cab.

4.14.2 The Wanchoo Committee had first recommended that within the shortest possible time all diesel and electric locomotives on IR should be equipped with the VCD The Committee made this recommendation after detailed discussions on the subject with officials of RDSO, Railway Board and even British Railways, apart from observing actual field tests of the device.

4.14.3 The Sikri Committee reviewed this issue and adjudged the recommendation of the Wanchoo Committee as substantially unimplemented" by the Railways. This Committee, in Part I of its report, strongly urged the Railway administration to provide the VCD on all locos as an essential safety feature, even by resorting to imports of the equipment, if necessary. It did not initially accept the validity of the arguments against the VCD such as unreliability. propensity of drivers to dummy the device as it caused fatigue and diverted the attention from signal spotting. Citing a study conducted by the Psycho-technical cell of RDSO, which concluded that the VCD did not generate fatigue to the extent of impairing efficiency, the Committee was emphatic that the VCD was an Important safety device for the drivers.

4.14.4 In Part If of its report, the Sikri Committee changed its views on the issue. On the basis of the evidence given by front-line Railway managers, drivers and union representatives that the VCD placed an immense strain on the driver and distracted him from important safety functions, the Committee now questioned the validity of the RDSO study which claimed that there was no significant increase in fatigue levels due to the VCD. The Committee concluded that there was no necessity for the VCD in conditions on Indian Railways where two employees' man every diesel and electric locomotive However, the Committee desired mit 10 should continue research to develop an improved version of the VCD for future use when locos would have only one driver.

4.14.5 The ABB and the General Motors locomotives, now being manufactured in India, are being provided with an advanced version of VCD which works in conjunction with the micro-processor-based brakes. The drivers, with whom we had interaction, were very happy with this device.

4.14.6 We would urge the Railway administration to ensure that the new locomotives of all types manufactured by IR are provided with this device with necessary modification of the braking system.

4.15 Dynamic Brakes on Locos

4.15.1 Our enquiries have revealed that a large number of locos, mainly electric locos, are running on IR without dynamic brakes. In fact many electric locos were not

provided with dynamic braking equipment at the manufacturing stage itself due to problems in developing heat-dissipation-grids for the higher horse power. Now that they have been developed, **we recommend that IR should draw up a plan for providing dynamic brakes in all locomotives within the next one year.**

4.16 Audio-visual Warning Device

4.16.1 On February 19, 2000, a major fire engulfed six coaches of 2137 Dn Punjab Mail when it was on run near Bhusawal, resulting in the death of 18 passengers and injuries to several others. The very next day the print and electronic media were replete with reports of complaints by several passengers regarding nonfunctioning of the ACP, and consequent delay in stopping of the burning train, which intensified the severity of the accident. However, the CRS, Central Circe, who inquired into the accident, has pronounced that the ACP of this air-braked train was functional. He has based his findings on the evidence given by the train crew and gatemen along the route of the train after it had caught fire. While it is true that passengers in distress, more particularly in a coach on fire, are likely to measure seconds in minutes or even hours, our Committee's investigations lead us to the view that IR is yet to establish a fool- proof audio-visual warning system on air braked trains that will immediately alert the driver in case of ACP Apart from the questionable reliability of the audio- visual warning system, we understand that there are still a

number of locomotives working passenger trains which are not fitted with this device In Part-I of our Report we had recommended that through wiring in coaches should be restored, which would greatly facilitate in improving the reliability of the audio-visual warning device.

4.16.2 Section 59 of the Railway Act, 1989, enjoins upon the Railway administration the responsibility to provide and maintain in every train carrying passengers such efficient means of communication between the passengers and the Railway servant in charge of the train as may be approved by the Central Government"

4.16.3 Our Committee considers this device to be of critical importance and **recommends strict enforcement of Section 59 of the Railway Act by making the provision of a functioning audio-visual warning system on passenger trains to be a mandatory requirement on par with brake power of a train. The audio-visual alarm should be tested at the starting/crew changing station, and treated as a rejectable defect necessitating change of loco if not found functional. We also reiterate our recommendation in Part I concerning provision of through wiring on passenger rakes.**

4.17 In-motion Weigh Bridges

4.17.1 Overloading of wagons has been a problem of long standing on IR We believe that this endemic phenomenon has done incalculable harm to IR because it has resulted in:

(a) premature damage to rolling stock.

(b) premature deterioration of track; and

(c) accidents, every one of which causes incalculable monetary damage. We were informed that there is rampant tampering with weighbridges, which does not allow administration to solve this problem effectively.

4.17.2 We feel manipulating weigh bridges can be sorted out by treating weigh bridges as vulnerable/sensitive installations to be specially monitored at the highest level, i.e., by DRMs, and GMs.

4.17.3 We are of the view that the weighbridges should be utilized for conducting checks on rakes mainly on routes where bulk consignments such as coal/ore are booked to "Self", because these are the vulnerable routes. **Our Committee's recommendation to IR management is to have an adequate number of in-motion weighbridges on each Railway for monitoring overloading of wagons. The focus on sheer increase in number of weighbridges cannot solve the problem of overloading. IR should focus on:**

(a) installing weighbridges selectively on routes where traffic most susceptible to overloading moves and (b)

(b) making the available weighbridges work properly.

4.18 Inconsistent Brake Power Rules

4.18.1 During our interaction with the divisional officers of the Secunderabad and Hyderabad divisions of South Central Railway, it was brought to our notice that the minimum vacuum/air pressure levels prescribed on the Railways differed from zone to zone we were shown brake power certificates issued by one railway that indicated the vacuum at originating point to be 42 cms in the engine and 37 cms in the brake van, although the minimum safe levels of vacuum prescribed by the Mechanical directorate of the Railway Board is 45 cms in the locomotive and 36 cms in the brake van. Moreover, we observed that despite claims that the BPC has now been standardized on the entire Railway system, there are still differences, albeit minor, in the formats of the different Zonal Railways. In view of the common phenomenon of brake fade on vacuum braked trains, we consider that the starting of trains with vacuum levels below the prescribed limits is a positive safety hazard. Moreover, the brake power rules must be viewed in the context that on most sections of IR, inter-signal distances are based on emergency braking distance, and if brake power is not adequate, the over shooting of signa's becomes a probability, not a mere possibility. Our committee is of the view that too many compromises are still being made with regard to examination and certification of trains, especially in relation to brake power levels. It is now time that IR adopts the concept of total quality with regard to brake

power on trains. **We recommend that from hereon it should be stipulated that all primary train examination points ensure 100 percent brake power on air braked trains, against the present stipulation of 85 percent Brake pressure as specified by Board should be followed by all Railways.**

4.19 Integrated Maintenance of Coaching Stock

4.19.1 It is indeed surprising that when integrated maintenance of diesel locos, electric locos and EMUs is being done on IR, this is not so for coaching stock, where it is still multi-disciplinary Administratively. It involves delays and additional manpower; from the safety point of view, it is not desirable as there are items which are to be attended to by more than one department, like alternator pulley and battery boxes etc. and lack of co-ordination can result in failure.

4.19.2 We recommend that the maintenance of coaching stock should be only under one department, as is the case with locomotives and EMUs.

4.20 Workshops

4.20.1 Workshops play a pivotal role in the preventive maintenance philosophy of rolling stock, which in turn is linked to safety and reliability in operations. Rolling stock maintenance should be largely workshop oriented with minor inputs in the field depots Our Committee is convinced that the main

contributory causes for derailments of coaches and wagons, viz. hot and cold breakage of journals and axles, spring failures, bogie defects and falling parts, can only be controlled if the workshop maintenance improves.

4.20.2 Our committee visited a number of maintenance workshops. We were heartened to see that lately a number of steps have been taken to improve quality standards in workshops which include:

- High level monitoring of performance of rolling stock turned out from workshops,
- Obtaining ISO:9002 for repair workshops:
- Separation of clean' areas from 'dirty' areas.
- Pre inspection of purchased components to improve their quality.

4.20.3 We also noted continuing improvements in rolling stock performance in the past few years, which is mainly the result of improved workshop standards. The graphs at page numbers 84 to 87 illustrate this position trend.

4.20.4 Nevertheless, the workshops have still a long way to go. We indicate below some of the areas that need attention.

Workshop Audit

4.20.5 The Workshop Audit Reports prepared by RDSO impressed our committee. We feel that if the team includes an officer from the field who has first-hand knowledge of the difficulties on open line, the reports will become more meaningful.

4.20.6 However, when we visited the Railways, we were disappointed by the lack of awareness of these reports among the top management; we also found compliance lacking. **We recommend:**

- **RDSO's workshop audit team should include a JA grade open line officer from a different railway to make the reports more meaningful.**
- **The reports should be discussed once a year for follow-up in a suitable forum convened by the Railway Board.**
- **Their reports should also include recommendations for changes in manufacturing/repair practices. This should also be discussed in the Annual Review for acceptance.**

Manufacturing Facilities and Practices

4.20.7 We found that while some workshops were well equipped with good manufacturing facilities and for owed the recommended repair practices, this was lacking in others Some areas of concern are:

Springs

4.20.8 The highest single cause for en-route detachments on freight stock is spring breakage. Though there has been improvement over the years, the figures are still unacceptably high, at about 4000 every year. In coaching stock also broken springs are a major cause of worry. These are also a safety hazard.

4.20.9 When we went through the answers to our Questionnaire to the Railways, we were saddened to

see that basic facilities for spring manufacture and repair are lacking in many workshops. Repair practices were also found lacking. To name a few, for laminated springs, pyrometers were not available for controlling furnace temperatures, their periodic calibration was not organized, hardness and de-carburization depth was not being checked. For helical springs, shot peening and magnetic particle resting equipment is not available: epoxy painting is not done. As the markings on the springs are usually illegible, the defaulting workshops are difficult to identify. **We recommend:**

- **There is need to ensure that the basic infrastructure for manufacturing and repair of springs is available in all workshops where springs are attended**
- **Workshop-wise failure of springs should be monitored at Railway Board level; a prerequisite should be legible markings of the manufacturer's name and date of manufacture.**

Couplers

4.20.10 The cause for enroute detachment of freight stock that has not shown reason able improvement in the past years s coupler defect Particularly of concern are train partings, which are mainly on account of poor maintenance of couplers. Railway-wise data of reported train partings is as follows:

Year	CR	ER	NR	NER	NFR	SR	SCR	SER	WR	IR
94-95	198	312	158	15	33	84	87	562	134	**1583**
95-96	183	200	150	15	8	94	120	535	118	**1423**
96-97	202	151	150	21	7	90	98	449	145	**1313**
97-98	179	143	136	17	8	63	101	418	107	**1172**
98-99	136	175	149	12	12	56	99	401	95	**1135**
99-00	119	129	144	6	5	50	89	359	59	**960**

4.20.11 The main reason for train partings is uncoupling on the run, which mostly takes place due to worn out components like knuckles, lock lever, etc., (with or without breakage) and sometimes due to sabotage/vandalism There are also cases when the whole coupler works out. Though couplers are supposed to be attended to during ROH also, the main responsibility for maintenance is with the workshops.

4.20.12 During our interaction with the Railways and visits to the workshops, we could not find any major cause for poor maintenance, except for shortage and poor quality of spares. Though the Railways maintain that most of the couplers are being dropped, gauged, and attended to as specified in Paras 11 and 12 of RDSO's Manual G-47, we have our doubts. Had this been so, failures would not be so high.

We recommend:

- **Workshops must ensure 100% dropping of couplers, their gauging and repairs as laid down in RDSO's Manual G 47.**
- **Monitoring of coupler failures workshop-wise is a must to identify workshops that need to improve. Again, legible marking where the coupler was last attended to and date is a must;**
- **Availability of coupler spares and their quality, viz., steel castings, must improve. There is need to develop additional sources as the current sources are interested in supplying only full couplers.**

The infrastructure.

4.20.13 We firmly believe that a proper working environment is a prerequisite for good workmanship. When we visited the workshops, we found the maintenance of the infrastructure appalling Floors were broken, roofs leaking, drains and sewers choked and lighting poor. In reply to our Questionnaire, every Railway has expressed despair in this area.

4.20.14 Railways have also mentioned in reply to our Questionnaire that the maintenance works enjoy low priority and are not carried out in consultation with the workshop authorities as the officers in charge are attached to the adjoining Division and do not report to the workshop head. The funds provided are also inadequate.

4.20.15 Railway Board, vide their letter No. 96 / CE-I, CT 14 dated 14.02.96 Issued instructions on Civil Engineering Maintenance of Workshops The instructions included, inter-alia, placing of the Engineering official concerned under the administrative control of the Works Manager and separate funds and zonal contracts for workshops This, unfortunately, has not been implemented by most Railways. **We recommend:**

- **Civil Engineering and Electrical Officers/officials responsible for maintenance of workshops be placed under the administrative control of the Workshop In-charge.**
- **Separate funds for repair and maintenance of workshops be communicated, which should be spent with the specific approval of the Workshop In-charge.**
- **Whenever possible, separate zonal contracts be placed for workshops and work orders be released only with the approval of the Workshop In-charge.**

Delegation of Powers

4.20.16 All Railways have indicated that the powers delegated to Workshops- n-charge are not adequate from the point of view of maintenance of machinery and plant, procurement of Tools and Plants and purchase of emergency stores.

4.20.17 With sophistication in the machinery and plant, it is not possible for the workshop Millwright organisation to

understand the various intricacies in the modern machine tools, and it is necessary to call upon experts to attend to the machines; sometimes even annual maintenance contracts become necessary. All cases need to be referred to headquarters and on occasion to the Board, which results in delay and non-availability of the machines for production.

4.20.18 Proper tools and plants are vital for Workshops. The present power for procurement delegated to Independent Workshop In-charge (JA Grade) is Rs 2,000/, and Rs 25,000/ for SA Grade which is very low. Even a torque wrench costs about Rs. 20,000/ and Dial Bore Gauges and similar measuring Instruments cost about Rs. 40000 /= The powers, therefore, need to be enhanced.

4.20.19 There are a number of workshops where no stores officer is attached and in case of delay in procurement, either production is affected or the rolling stock is turned out without replacing the damaged component. The present powers are limited and need to be enhanced.

Our recommendations in this regard are as follows:

S. No.	Item	Existing Powers	Recommended Powers
1	Sanction of M&P items under Demand 16 by Zonal Railways (per item)	AGM /PHOD=5 lakhs HOD-3 lakhs DRM-2 lakhs	AGM /PHOD-15 lakhs CWE - 10 lakhs HOD / D * RM / S * AG 1/c of Workshop 5 lakhs (within lump sum grant)
2	Diagnosis of defects in high productivity critical machines	SAG-Rs 40,000/-	SAG - 1 lakh
3	Repair contract on single tender basis from OEM	1 lakh per machine Maximum 5 lakhs in a year	2.5 lakhs per machine/maximum 10 lakhs per year for SAG
4	Repair of machines and plants other than single tender	SAGRs. 25,000/- JAG-Rs 10,000/- CWE- Rs. 25,000/- CME-R5. 25,000/-	SAG -1 lakh 3AG -Rs 50.000/ CWE -2 Lakhs CME -3 Lakhs
5	Purchase of spares from OEM on PAC basis for high productivity/critical	Rs. 2,500/-	CWE 5 lakhs per machine/maximum

	machines (These procurement powers will be exercised by the Stores Depot Officer whenever Stores Depot is attached to the Workshop)		lakhs per year. 25 Workshop in-charge Rs. 50,000/- with maximum limit of 10lakhs per year.
6	Sanction of T&P for Workshop gauges, instruments, use like measuring power tools, and misc. plant etc.	SAG Rs. 25,000/- JAG-Rs 2,000/-	SAG - 1 lakh per item JAG Rs * 0.5 ,000/ per item
7	Purchase of non-stock/stock items	SAG/JAG-Rs. 2,500 per item and Rs. 25,000/- per month	SAG - R s 50, / per item JAG Rs 25,000/ per item. SAG - 5 lakhs per month JAG - 2 lakhs per month
8	Emergency Purchase of stocked safety items for rolling stock repairs by Depot Officers attached to Workshops	JAG-3 lakhs per item or 3 months requirement whichever is less	JAG 3 lakhs per item or 3 months requirement whichever is less. CWMs in SAG to accept tenders for items below 8 lakhs and above 3 lakhs based on

			recommendations of TC (Dy COS, Dy CME, SAO/DY CAO)
9	Purchase of non-stack Items for rolling stock, repairs/modifications tools, gauges, misc. plants machinery spares, etc., by Stores Depot Officers attached to Workshops.	JAG / S * S - Rs. 20,000/- per item	3AG - 1 lakh per item SS Rs. 50,000/- per Item
10	Purchase of items on PAC other than item 5 by Stores Depot Officers attached to Workshops	JAG /SS - RS5 ,000/ per item	JAG- Rs. 50000 /- per item SS Rs 25000 /- per - item

Note: The enhanced powers at S. Nos. 2, 3, 5 & 8 should also be delegated to DRMS/ADRMS/St DMEs/ Sr DEES/DCOSS for high capacity break down cranes and other critical ART/ARME equipment and safety items far rolling stock repairs in sheds/depots.

SIGNALLING

4.21 Standards of Inter-locking at Stations

4.21.1 Primarily on account of financial constraints, technology progression on IR has been slow due to which technologies of widely different vintages exist side by side. We learnt that there are as many as 19 stations on the 'B' route of Southern Railway which are still operating with standard I interlocking. Considering that on the entire BG mainline and trunk routes of IR the sectional speed is 100 kmph and above, stations with standard I interlocking are a definite safety hazard because of the mismatch between the block section speed and the station section speed at such stations which is restricted to 50 kmph. It is disturbing to a driver to confront a standard I interlocked station on a route that otherwise has stations provided with standard III inter-locking This imposes unfair pressures on drivers who are accustomed to running through stations at maximum permissible sectional speed on being given mainline clear signals. There can be no doubt that from the safety angle it is desirable that signalling standards for run through at a station should synchronize with the track standards of the adjoining block section. Our committee recommends that standard I interlocking at all stations on the BG main and trunk routes should be converted to standard III within the next two years excepting those where there are special reasons.

4.22 Electric Lighting of Semaphore Signals

4.22.1 Proper lighting and visibility of signals are a fundamental requirement for ensuring the safety of trains. A long-standing problem on IR has been the ******* nature of lighting provided by kerosene-lit semaphore signals Drivers who gave evidence before the Committee complained that poor visibility and non-sighting of signals are the major safety hazards in nighttime driving. In order to verify the authenticity of these complaints, spot checks on some sections of Northern Railway were conducted. If the sections inspected by our team are a representative sample of the general level of lighting in kerosene-lit signalling territories, there can be only one conclusion- that the standard of lighting and visibility of signals in semaphore territory is not up to the mark. The officers and inspectors conducted intensive night checks on Delhi-Gajraula Moradabad, Delhi-Phulera-Jaipur, and Shakurbasti-Rohtak Jakhal sections of Northern Railway during August and September 2000, and found that at a large number of stations on these sections the signal lights were either dim or extinguished. The lighting was particularly poor in the early hours.

4.22.2 Most of the drivers who operate on these sections complained that the very poor fighting of signals combined with the managerial pressures to run trains punctually had made the driving task unpleasant and

tension ridden. Something needs to be done quickly to rectify this problem immediately.

4.22.3 On the issue of signal lighting, we checked back on the recommendations made by earlier Committees regarding electric lighting of signals in semaphore territory.

4.22.4 As far back as 1968, the Wanchoo Committee had urged the Railways to explore the possibility of switching over to electric lighting of semaphore signals for improved visibility. The Sikri Committee (1978) expressed dissatisfaction that the progress and follow up action in providing electric lighting of distant signals had been extremely tardy, despite the Railway Board's decision to provide electric lighting of distant signals in the mid-1970s In response to the Sikri Committee's observation, the Railway Ministry stated in its "Action Taken Report that by 1985 nearly 55 percent of distant and warner/outer semaphore signals would have been provided with electrical lighting and that they were progressively being extended over the IR network. Our committee finds that more than 20 years later, the position, at best, has remained static. For instance, on Northeast Frontier and North-Eastern Railways, there is not a single electrically lit distant/warner signal. Even on the busy Delhi-Bhatinda section of Northern Railway, the Railways continue to make do with kerosene lit signalling for all signals. In the view of our committee, proper lighting of signals is a fundamental requirement for safety. **We would, therefore, recommend that within the next one year all**

kerosene lit distant/warner signals on the main and trunk lines should be electrically lit.

4.23 Standardisation of signals on a route

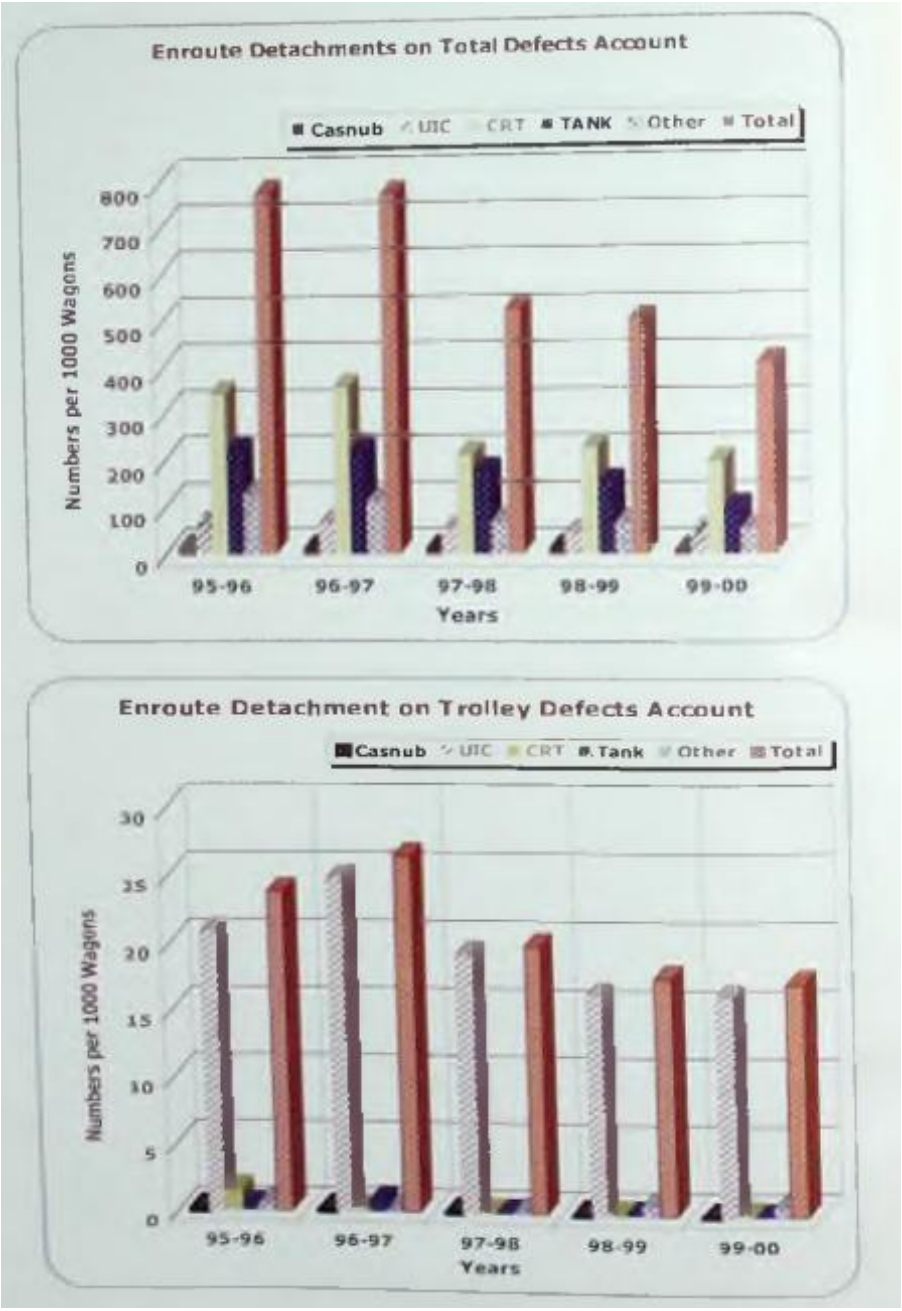
4.23.1 On the Malda-New Jalpaiguri section of the Northeast Frontier Railway which forms the arterial route connecting the North-Eastern States to the rest of India, the following types of signalling systems existed on 30th June, 1999:

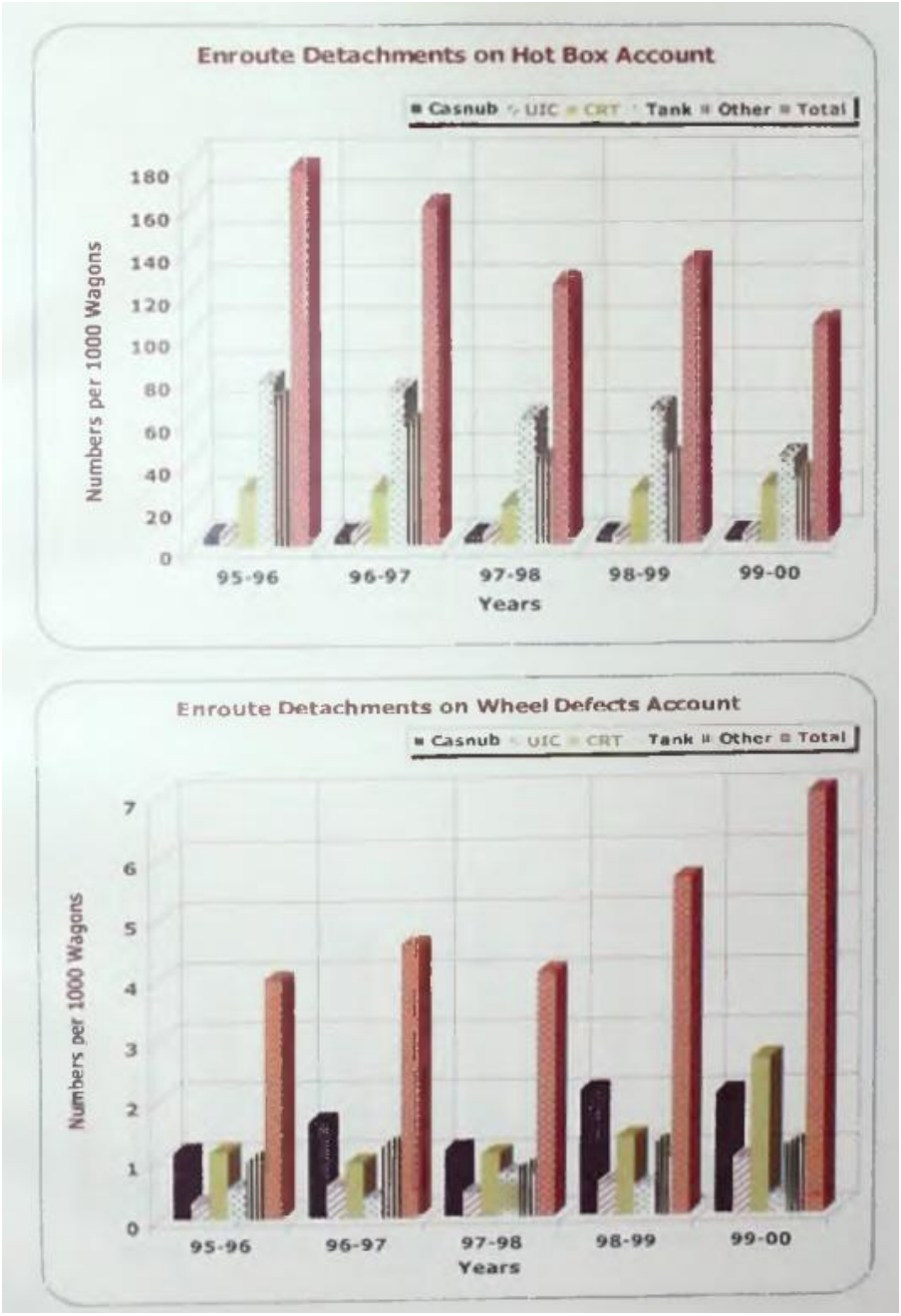
- **(i)** 2 aspect lower quadrant signalling at 33 stations.
- **(ii)** Multiple aspect upper quadrant signalling at 4 stations.
- **(iii)** Multiple aspect colour light signalling at 5 stations.
- **(iv)** 4 of the 42 stations were provided with panel interlocking.

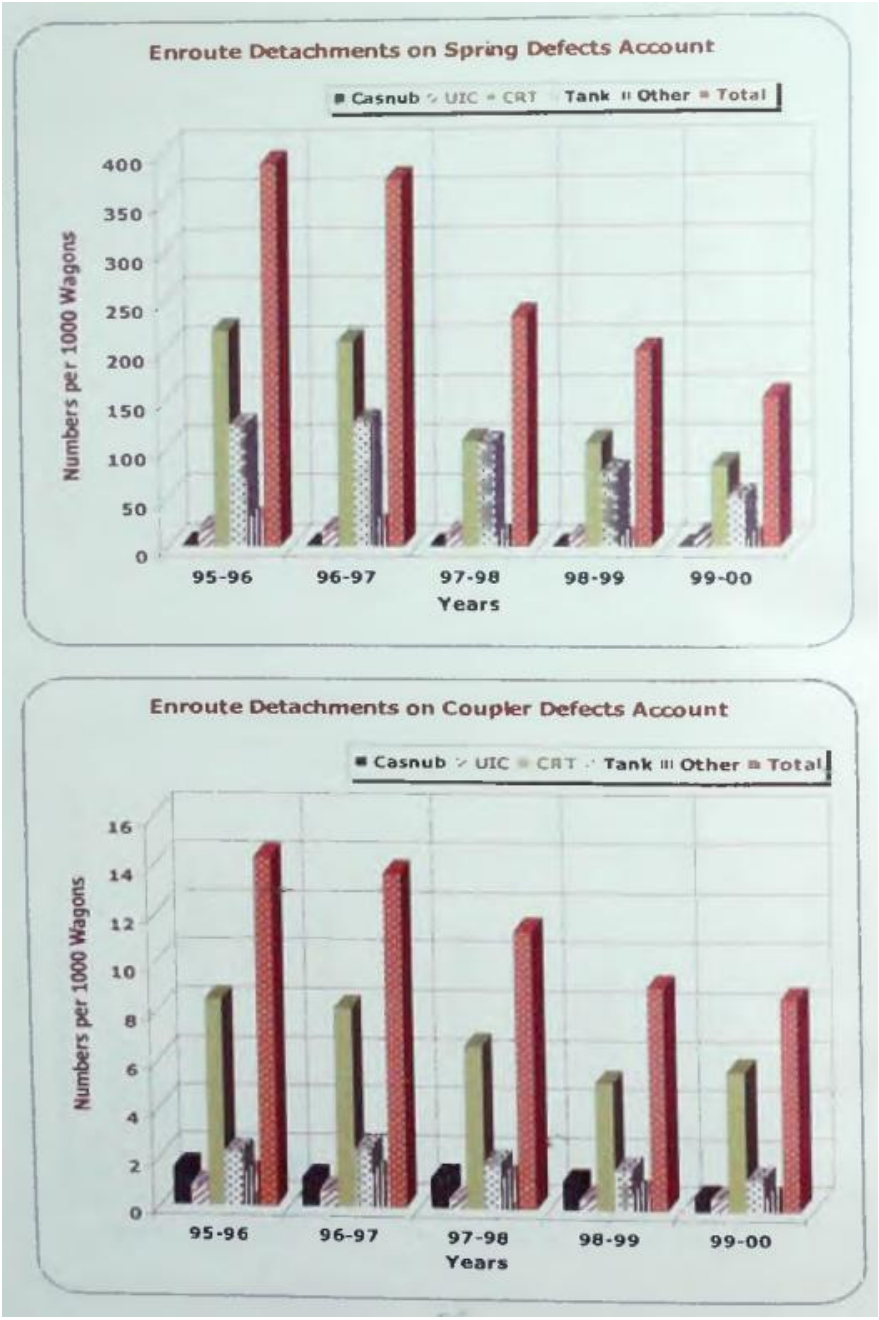
4.23.2 Past Committees had emphasized the importance of providing uniform signalling on various sections, a recommendation accepted by the Railway Ministry Our Committee finds that despite this pronouncement of intent, the Railway Ministry has not adopted a consistent policy with regard to providing the same type of signaling on the different sections to ensure that train drivers do not confront too many changes in signalling systems, and thereby succumb to errors The complete mix of signalling systems on the Malda-NJP route is unfortunate because this particular section was taken up for doubling as recently as 1993. During the switch over from single line to double line, the Railways had the opportunity to go in for a uniform signalling on the section at optimum cost

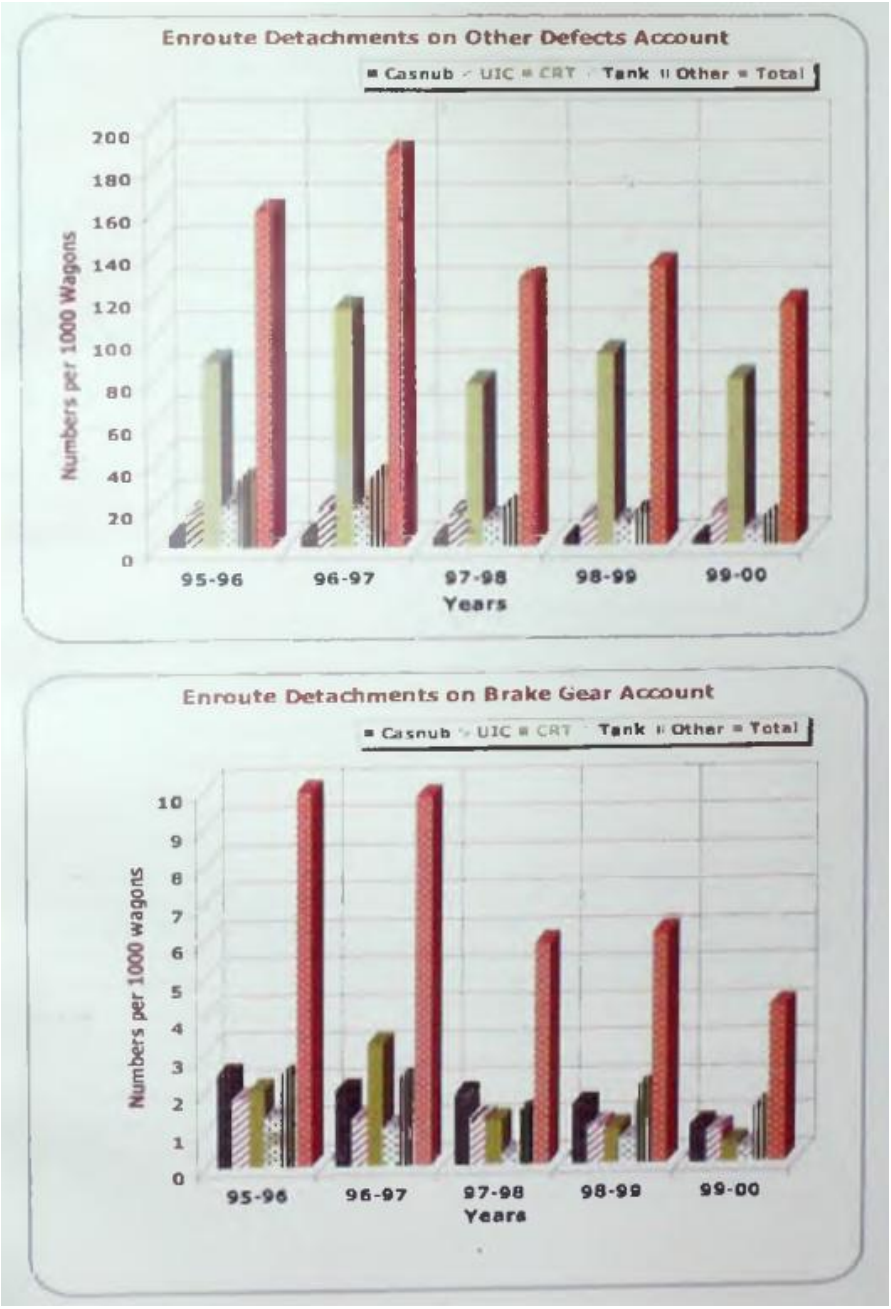
Unfortunately the Northeast Frontier Railway seemed to have decided to retain lower quadrant signalling even after commissioning of doubling. Our committee **recommends that for all major projects involving doubling and conversion of main and trunk routes, the minimum standard of signalling should be MAUQ and preferably colour light signalling. We further recommend that a comprehensive plan be drawn up by each Zonal Railway for modifying signalling arrangements to attain uniformity of signalling on all BG trunk and main line routes within the next five years.**

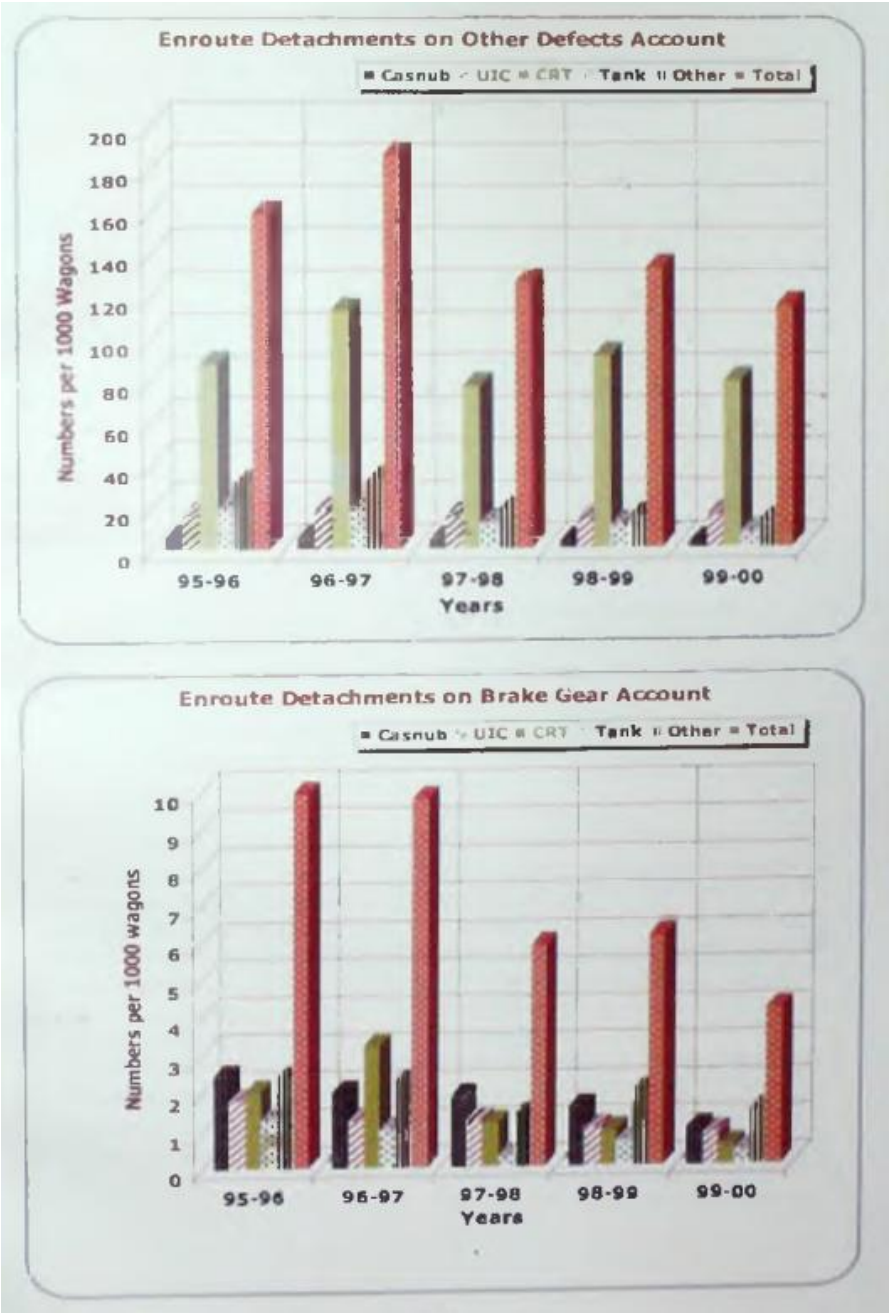
*****


Enroute Detachments on Total Defects Account
Casnub
UIC
CRT
TANK
Other
Total
Numbers per 1000 Wagons
800
700
600
500
400
300
200
100
0
95-96
96-97
97-98
98-99
99-00
Years
Enroute Detachment on Trolley Defects Account
Casnub
UIC
CRT
Tank
Other
Total
Numbers per 1000 Wagons
30
25
20
15
10
5
0
95-96
96-97
97-98
98-99
99-00
Years


Enroute Detachments on Hot Box Account
Casnub
UIC
CRT
Tank
Other
Total
Numbers per 1000 Wagons
180
160
140
120
100
80
60
40
20
0
95-96
96-97
97-98
98-99
99-00
Years
Enroute Detachments on Wheel Defects Account
Casnub
UIC
CRT
Tank
Other
Total
Numbers per 1000 Wagons
7
6
5
4
3
2
1
0
95-96
96-97
97-98
98-99
99-00
Years


Enroute Detachments on Spring Defects Account
Casnub
UIC
CRT
Tank
Other
Total
Numbers per 1000 Wagons
400
350
300
250
200
150
100
50
0
95-96
96-97
97-98
98-99
99-00
Years
Enroute Detachments on Coupler Defects Account
Casnub
UIC
CRT
Tank
Other
Total
Numbers per 1000 Wagons
16
14
12
10
8
6
4
2
0
95-96
96-97
97-98
98-99
99-00
Years


Enroute Detachments on Other Defects Account
Casnub UIC CRT Tank Other Total
Numbers per 1000 Wagons
200
180
160
140
120
100
80
60
40
20
0
95-96
96-97
97-98
98-99
99-00
Years
Enroute Detachments on Brake Gear Account
Casnub UIC CRT Tank Other Total
Numbers per 1000 wagons
10
9
8
7
6
5
4
3
2
1
0
95-96
96-97
97-98
98-99
99-00
Years


Enroute Detachments on Other Defects Account
Casnub
UIC
CRT
Tank
Other
Total
Numbers per 1000 Wagons
200
180
160
140
120
100
80
60
40
20
0
95-96
96-97
97-98
98-99
99-00
Years
Enroute Detachments on Brake Gear Account
Casnub
UIC
CRT
Tank
Other
Total
Numbers per 1000 wagons
10
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95-96
96-97
97-98
98-99
99-00
Years

ADVANCED RAILWAY SYSTEMS - SAFETY ISSUES AND TECHNOLOGY RELEVANT TO INDIAN RAILWAYS
(CHAPTER: V / THE RAILWAY SAFETY REVIEW COMMITTEE, 1998 PART II: H. R. KHANNA COMMITTEE REPORT 1998 PART II)

5

5.1 The Human Factor

5.1.1 Even in the most advanced Railway systems, statistics indicate that 75 percent of all train accidents are due to human error despite induction of technical aids to supplement the human element Accidents of the kind that occurred near Paddington in 1999 have served to remind Railway managements world-wide that technology can only be the handmaiden of the human operator in the unending search for improved safety on the Railways. In fact, a senior safety manager of German Railways (DB AG) expressed serious reservations about over-reliance on technology. There is now a perceptible change in corporate thinking and emphasis on these Railways. **While in the past the focus had been almost entirely on upgrading infrastructure and technology to reduce**

the incidence of accidents, there is now a realization that significant safety gains can be achieved through enhancing the capabilities of the human being.

5.2 Recruitment and Training

5.2.1 As is to be expected, the advanced Railways operate a rigorous recruitment and training system that is designed to ensure that all staff develop the necessary competencies before taking up independent duties. There is considerable emphasis on selection, training, and certification of staff with responsibilities that are critical to safety, such as drivers and signal men.

5.2.2 Our Committee made a study of some specific areas of concern relating to drivers which have relevance to IR such as their selection and training, their duty hours, retirement age and prescribed medical standards Recruitment on most major Railways is done through an aptitude test that is computer based which not only enables assessment of attributes that cannot conceivably be measured through the conventional pen and paper exam, but also ensures accuracy in the scoring. Among the critical attributes identified for train drivers are the capability to:

(a) be able to maintain vigilance and concentration when carrying out monotonous tasks,

(b) be able to retain and recall appropriate job-related information.

(c) understand basic technical and mechanical principles in order to diagnose minor faults.

(d) have physical coordination to operate a range of hand and foot controls smoothly, and

(e) be prepared to work variable and irregular shift patterns.

5.2.3 The initial training period for drivers varies from 6 months to over a year on the different Railways. Whereas the duration of training for drivers in Britain is 40 weeks, DBAG (Germany) has prescribed a training period of 73 weeks including 13 weeks of practical training in the final stage.

5.2.4 The Union Pacific Railway in USA has devised an ingenious and quite effective method of recruiting drivers. With few exceptions, all new drivers are recruited from train service, i.e., from on-board staff such as conductors. This implies that the conductors are recruited with the qualifications necessary for the driving function. Through such a selection process, the management has ensured that the new recruits are already acclimatized to the Railway system and have a fair knowledge of the driver's responsibilities. Moreover, management also knows the strengths and weaknesses of these individuals, including their amenability to discipline and duty-consciousness. On Union Pacific Rail the initial training for drivers is restricted to six months which is broken up into 4 segments as under:

Phase I	Phase II
Duration- 1week	Duration- 30 days
• Daily classroom discussions	• Total period spent with an assigned training engineer (driver).
• Five exams on following subjects:	• Actual time spent operating various trains and engines.
• A 100-question written exam	
Phase III	**Phase IV**
Duration- 3 week at Salt Lake City Training Centre	Duration- 4 months
• Daily classroom discussions	Entre period with assigned training engineer (driver).
• Daily training on Simulators	This training period revolves around:
• Five exams on following subjects: **(a)** Track warrant. **(b)** Air brake rules **(c)** Block signals. **(d)** Operating rules **(e)** Simulator	This training period revolves around: • Operating various types of trains and engines. • Becoming familiar with territory they will be working on; and • In the end, a final qualification exam and certification by the Manager of Operating Practices (the equivalent of IR's Loco Supervisor)

5.2.5 What is most noteworthy about the drivers training capsule designed by Union Pacific Railroads is the heavy emphasis

on hands on training which is in sharp contrast to the "chalk and talk" methods in vogue in IR's training institutions.

5.2.6 The selection and training of drivers on SNCF also places emphasis on the practical aspects of training. Out of the 180 days of Initial training, 90 days are earmarked for on-line driving with an instructor where the trainee is exposed to all types of operating conditions On SNCF prior to 1992, on completion of training, drivers were required to work as "companion drivers along with regular drivers for about 3 months. Now there is a change. After completion of training and passing all the prescribed tests, the drivers are certified fit to operate any train independently for which they are trained.

5.2.7 What our Committee found striking about the training programmed in the advanced Railway systems were

(a) The harnessing of the latest technologies such as simulators for imparting training.
(b) Extensive use of computers as a vital training tool
(c) The predominant focus on the practical, hands-on side of training.

In sharp contrast, barring the addition of the latest subjects into the training syllabi, IR is still wedded to the old traditional system of classroom lectures. We have reservations regarding the efficacy and ready transferability of such training into the field, a point of view shared by most railway men associated with training on IR. We recommend that the initial and refresher training capsules for asst. drivers and drivers be reviewed in their entirety, so that greater emphasis is placed on practical training and the use of the latest training aids such as simulators and interactive computers.

5.3 Working Schedule & Monitoring of Drivers

5.3.1 Comparisons between Railways on some key issues relating to drivers are given below:

Railway	**Check on fitness for duty at start of shift**	**Ratio of loco supervisors to drivers**	**Frequency of refresher training (years)**	**Frequency of medical examination**	**Retirement**
Britain	Yes	1.50	2 years	Every 5 years until 55 and then at 57,60,62,63& 64	65 Years
Germany (DB AG)	No	1.183	18 hour per years	Every 5 years until age 42, every 3 years up to age 51, then every 2 years	65 Years
France (SNCF)	Yes	1:35	4 days refresher training every year	Every year	50 Years
UP Rail (USA)	Yes	1:56	Every 2 Years	Every 3 Years	65 Years
IR	Yes	1:25	Every 3 years	Every 4 years until age 45, every 2 years up to 55 Years, then every year(limited to vision)	60Years

5.3.2 The hours of work to be performed by drivers are as under:

Railway	Maximum length of shift (in hours)	Average weekly hours per roster cycle	Minimum rest period between shifts (in hours)
Britain	9	93	12
Germany (DB SG)	14 (including 2 hrs break)	39	12
France (SNCF)	11	40	14
US (UP Rail)	12	40	12
IR	12 (From signing on to signing off)	104 hrs in 14 days roster cycle	Home Shed – Less than 8 hours duty, Rest 12 hours; more than 8 hours duty, Rest 16 hours Outstation- Less than 8 hours duty, Duty+1 hour rest; more than 8 hours duty, Duty, 8 hours

5.3.3 In the course of our discussions in the field there were representations that the present duty hours for the drivers need to be reduced. After our study of rules on this issue on developed railways and deliberations of the Committee, we have come to the conclusion that the existing provisions need no change, but they need to be observed more strictly.

5.4 Fatigue Mitigation

5.4.1 Fatigue has become a crucial safety issue in the advanced Railway systems. Research findings have shown that fatigue triggers increased errors, loss in productivity and compromises with safety. According to an FRA estimate, fatigue is involved in nearly one-third of all "human factor" accidents. There is now universal recognition in the developed world that Railway staff in the safety critical jobs, need constant training in alertness and fitness.

5.4.2 Concerted efforts are being made to develop a plan of action for coping with the negative impact of fatigue. FRA brought together rail labour and management teams to identify several fatigue-related criteria that each railroad must address. Under the aegis of the North American Rail Alertness Partnership (NARAP), railroads are now: (a) educating employees about the causes and effects of fatigue; (b) developing work schedules that minimize unpredictability for employees; (c) ensuring that travel lodging is clean and conducive to getting rest, (d) investigating controlled "napping strategies" to address acute fatigue on the job. Our committee was informed that these initiatives have helped considerably in improving the health and alertness of employees.

5.4.3 Our Committee was impressed with the Alertness Management Programme of UP Rail. The strategies developed to ensure maximum alertness revolve around:

(a) general education.

(b) comprehensive health issues such as diet and exercise,

(c) good sleep hygiene.
(d) diagnosis of sleeping disorders.
(e) reducing monotonous tasks or situations.
(f) effective use of lighting.

The core emphasis of all these programmes is on the FAST spectrum - Fitness, Alertness, Sleep, and Time-off. There is broad consensus that these are the key factors that will ensure effective and safe employee behaviour, Railwaymen are now being educated nutritional strategies and fitness regimes. Some of the current mantras designed to enhance alertness and ward off fatigue are given below:

- There is an undeniable correlation between general fitness and the ability to stay awake.
- Physical fitness is critical for peak performance on the job.
- Reduction in fat intake increases alertness and reduces sleepiness.
- Quality of the work environment influences productivity and safety.
- Properly planned and executed solar and other lighting can favourably affect employee satisfaction and efficiency.

5.4.4 Clearly Railway managements in the advanced Railway systems are actively involved in encouraging employees to remain emotionally and physically healthy by exercising regularly, limiting alcohol consumption, getting adequate seep, and adopting a well-balanced diet.

5.4.5 On IR a welfare organization already exists and there are institutions which provide cultural, recreational, sports

and welfare facilities. **We recommend that such organizations, among other things, should also focus on the benefits of regular exercise, adequate rest, and balanced diet.** Our interaction with railwaymen at various levels in the hierarchy has led us to conclude that railwaymen, in general, are unaware of the basic health commandments relating to physical fitness and mental health.

5.5 SPAD Management

5.5.1 In Part I of our Report we had referred to the world-wide concern at the phenomenon of Signals Passed at Danger (SPAD) as each such incident has the potential to cause the worst kind of rail accident, i.e., the collision, The enormity of this problem on some of the Railways can be gauged from the following statistic regarding the number of SPADS in Britain:

Year	No. of SPADS
1995-96	729
1996-97	688
1997-98	640
1998-99	668
1999-2000	598

5.5.2 The incidence of SPADS is also very high on DB AG and SNCF. By comparison on IR, the number of reported SPAD cases each year is in single digits. The fact is that unlike the advanced Railway systems where SPADS are electronically recorded with the help of data loggers and other similar equipment, the near absence of such a system on IR as also the heavy punishments associated

with SPADS, has resulted in most such Incidents going unreported. In point of fact, a retired loco supervisor of the Northern Railway went so far as to state that JR would run short of drivers if all SPADS were reported faithfully - a gross exaggeration but nevertheless a clear indication that SPAD cases that do not result in a consequential accident are rarely brought to the management's notice. This is a grave problem that IR management must address and correct without delay, especially when one considers that every SPAD carries with it the seeds of a possible collision. In this context, **our committee recommends that IR should proceed with urgency to install digital data loggers that would not only record signal infractions but will also help in detecting SPADS, preventive maintenance and for ascertaining the status of signals in the event of a dispute.**

5.5.3 We find that the advanced Railway systems have adopted a relatively non-punitive approach in dealing with SPADS. The investigations basically focus on possible systems failures that could have triggered the mishap. Whereas on IR, a driver guilty of committing a single SPAD is liable to summary dismissal or removal from service, the Federal Law in USA stipulates that a driver who passes signals at danger twice within the space of 24 months should be removed from the driving function In Britain, the future terms of duty of drivers involved in SPADS is decided not only on the known facts of the SPAD, but also the past record of the individual, including previous incidents in which the driver was involved. Our committee is of the view that notwithstanding the grave implications of SPADS, IR

management has adopted too inflexible and rigid a stance on the issue of punishments to errant drivers. In the section dealing with punishments for accidents, we have recommended that SPADS should be deleted from the circular of 1968 that prescribes the scale of punishments for different types of accidents.

5.5.4 Our committee called for some inquiry reports into SPADS conducted by the Zonal Railways. We were struck by the very cursory and superficial nature of the Investigations. In almost every case, the inquiry focused almost entirely on the driver's role in the SPAD but failed to look beyond to assess whether there were problems in the systems which need rectification. This is in sharp contrast to the meticulous investigations conducted into SPAD incidents in the advanced Railway systems. Soon after a SPAD is reported, processes are in place for arranging tests, technical examination, or other investigative work on the rolling stack, signalling and other equipment to check if they contributed to the SPAD Rail track in Britain has a system of ensuring that the conclusions of each SPAD investigation are communicated to all train operating companies. In fact, certain SPAD cases are even investigated by HMRI, which is the equivalent of the CRS organization in India. There is also rigorous documentation of all SPADS. The HMRI releases a monthly report on SPADS which not only provides SPAD statistics but also details of investigations into the various SPAD cases. These reports are also available on the web. SPADs are categorized according to their severity, the worst being the level 3 SPAD cases where the train has gone more than 200 yards past the signal which is the standard length of

overlap provided for misjudgement of train braking, or which causes track damage, derailment, collision, or injuries to either staff or passengers. We urge IR management to take measures to improve the system of monitoring and investigation of SPAD cases on IR almost on the same lines as on British Railways.

5.6 Structures for Monitoring Safety

5.6.1 In September 1987, the Government of India established the National Transportation Safety Board (NTSB) with the stated objective of improving safety in the different transportation modes in the country. The mandate given to this new organization was to oversee the functioning of the sectoral transport modes, to co-ordinate the formulation and of information on safety issues throughout the transportation industry. At that time, it was widely advertised that this outfit had been conceived on the lines of the NTSB, USA. However, while the NTSB in USA, set up in 1967, remains an important element of that country's transportation scenario, its namesake in India survived just over two years and was wound up in April 1990. In its short tenure the NTSB in India was an essentially bureaucratic office-bound monitor of safety, whereas the NTSB in USA is a vibrant independent agency that has become a key player in the transport safety matrix of USA. The lesson to be learnt from this example is that if our country is to adopt healthy practices or systems from elsewhere in the world, this desire must be accompanied by a firm commitment to provide the necessary wherewithal in

terms of infrastructure, powers and resources on parallel identical lines.

5.7 National Transportation Safety Board (NTSB), USA

5.7.1 The ATSB was set up on April 1, 1967. In the initial period it depended on the US Department of Transport (DOT) for funding and administrative support. However, in 1975, under the Independent Safety Board Act, all organizational ties to DOT were severed. It now functions as an Independent Federal agency charged by Congress with Investigating every civil aviation accident in the US and significant accidents in other modes of transportation railroad, highway, marines, and pipelines. Its mandate is to investigate and determine.

(a) probable cause of accidents.
(b) report the facts, conditions and circumstances relating to each accident and
(c) issue safety recommendations aimed at preventing future accidents.

5.7.2 Upon notification of a major accident, an NTSB Go-Team is launched. On 24 hours alert, a Go-Team is a group of NTSB personnel who possess a wide range of accident investigation skills. The Go Team includes an Investigator-in- Charge (IIC) and several specialists and experts who are trained in witness interviews, transport systems and structures, maintenance, and operations. NTSB also conducts special studies of transportation safety issues of national significance.

5.7.3 The NTSB is composed of 5 members appointed by the President, by and with the advice and consent of the

Senate. Not more than 3 members may be appointed by the same political party. At least 3 members need to be appointed on the basis of technical qualification, professional standing, and demonstrative knowledge in accident reconstruction, safety engineering, human factor, safety or transport regulations.

5.7.4 The NTSB is required to make each accident investigation report available to the public at reasonable cast. However, no part of a report of the Board relating to an accident or an investigation of an accident can be admitted as evidence or used in a civil action for damages resulting from a matter mentioned in the report. The governing rationale for adopting this positions that the NTSB investigations are aimed at improving safety and not to determine the rights or liabilities of any person, organization, or association. As a protection to the investigators, courts can't call them for evidence on issues pertaining to their investigations.

5.7.5 An investigation by the NTSB has over-riding priority over any other investigation by another department or agency However, what our committee found truly impressive was that for facilitating its investigations, the NTSB elicits and receives the assistance of other Government agencies, associations, operators, and manufacturers who offer specific technical expertise that individual NTSB personnel may lack. But the overall control of the investigations is with the NTSB nominee, the IIC, who can remove from the investigation any individual whose interests are found to be beyond the basic safety objectives of the investigation. **An important aspect of the investigation of the NTSB is that the inquiry starts within hours of the mishap.**

This ensures that the Go-Team has access to red-hot evidence and clues that otherwise often get clouded with the passage of time.

5.7.6 The recommendations arising out of the investigations and studies constitute the most important part of the NTSB's mandate The recommendations focus on remedying system deficiencies, operational and policy failures and are issued to the Department of Transport and its nodal administrative offices, manufacturers, transportation operators, labour unions State and local Governments Our Committee was informed that there is meticulous follow-up by the NTSB of its own recommendations, and there is constant liaison with the addressees of safety recommendations computerized record of all safety recommendations and progress in implementation is maintained and presented to Government periodically.

5.7.7 Although it has no regulatory or enforcement powers, its reputation for impartiality and thoroughness has led to acceptance and implementation of more than 80 percent of its recommendations.

5.7.8 NTSB's National Communication Centre (NCC), which is its control office, has a fascinating and most effective method of getting immediate Information regarding disasters. There are numerous TV monitors provided in the NCC and all news from different parts of the country are closely monitored. The underlying rationale for this arrangement is that the media, with its vast reach into almost every nook and corner of the country, is the first to latch on to news regarding disasters. More often than not, the NCC obtains first information regarding

accidents through tracking the media reports, and this enables the Go- Team to swing into action without delay.

5.7.9 The Canadian Government has set up a similar organization with an almost identical mandate. The Transportation Safety Board (TSB) of Canada was created as an independent agency by an Act of Parliament in March 1990 and handles all accident investigations and subsequent recommendations. Britain is also debating the need for such an umbrella organization for transportation Safety.

5.8 Indian Scenario

5.8.1 To exercise effective control over the construction and operation of railway lines being constructed by private companies in the 19th century, consulting engineers were appointed by the Government of India. They were later designated as Government Inspectors (GIRs) and their position was statutorily recognized in 1883. When Railway Board was established in 1905, GIRS were placed under & To avoid direct subordination of the Railway Inspectorate to the Railway Board, the Pacific Locomotive Committee in 1939 suggested that the Inspectorate be separated from the control of the Railway Board to eradicate the anomaly of the Board being the inspecting as well as the executive authority Accordingly, the Railway Inspectorate was placed under the administrative control of the Department "of Port and A / (r deg) in 1941 and continuously thereafter under the Ministry which held the portfolio of Civil Aviation The Railway Inspectorate was re-designated as the Commission of Railway Safety on 01.11.1961.

5.8.2 The final responsibility for safety in the working of railways rest with the Railway Board and the Zonal Railway authorities. The duties of Commissioner of Railway Safety (CRS) are given in Chapter III of the Railway Act, 1989. Based on these and the rules made thereunder, the present functions are:

- Inspection of New Lines, Gauge Conversions, Doublings, Railway Electrification works and authorizing their opening for passenger traffic on behalf of Government of India (Ministry of Railways).
- Approval of all minor works affecting the safety of running trains.
- Periodic inspection of railway and rolling stock used there on.
- Examination of proposals for introduction of all new rolling stock and submission of recommendations to the Government for their use on running Tines.
- Conducting inquiries into all serious accidents' grievous injury of any passenger on the train those involving death or

5.8.3 There are presently 9 Commissioners of Railway Safety in Grace Rs 22400 24500, one for each Zonal Railway working under the administrative control of the Chief Commissioner of Railway Safety (CCRS) In Grade Rs. 24050-26000 based at Lucknow. Keeping in view their functions, they are recruited on a permanent transfer basis from volunteers of the Civil Engineering cadre of the Railways working in same grade or in Senior Administrative grade with minimum of 5 years' experience. The entire Commission is assisted by one

Dy. CRS (G) from Civil Engineering in selection grade, one each from Mechanical, Operating and Electrical Departments in JA grade at Lucknow and 3 from Signal & Telecommunication Department, le, one each at Lucknow, Mumbai, and Kolkata. These Officers are on transfer from Railway on temporary or permanent basis. Besides these, there are few ministerial staff in each office, total strength of employees being 172 and total annual budget of just Rs. 2 Crores.

5.8.4 There have been suggestions to set up a high-level Board covering safety of all the transport sectors on the line of National Transportation Safety Board of USA. Our committee, however, believes that there is very little in common in the safety investigation of various modes of transport, viz, Civil Aviation, Railways, Shipping and Road. In many countries, viz., U.K., Germany. India, etc., independent safety organizations for the Railways have been working satisfactorily for the past many decades and there appears to be no need to bring them under the umbrella of another Safety Board.

5.8.5 We have obtained recommendations made/issues raised in the Railway sector by the erstwhile National Transportation Safety Board of India Their recommendations are similar in nature and content to the recommendations made by the Commission of Railway Safety through the reports of inquiry into major accidents and the annual report of the CCRS. The Railway Board's reaction, le, acceptance and implementation was also similar as for the recommendations made by the Commission. No justification therefore exists for setting up National Transportation Safety Board of India similar to the one in USA as it will simply be a duplication. As

was decided by the Government of India in 1990, the Sectoral Safety Board, viz., CRS, needs to be strengthened further. The pace of such strengthening has, however, been practically nil.

5.8.6 We have studied the working of CCRS/CRS organization in detail and have suggested some changes in this institution (Chapter VI).

5.9 Technology- A Catch 22 Situation

5.9.1 In the earliest days all existing train protection systems were intermittent. **The French crocodile, the British AWS magnets and many others are all very primitive systems transmitting just one or two bits of information.** Not more than sufficient to trip the brake system in case the driver violates a halt signal or approaches it at too high speed. These systems do not differentiate between trains having different brake characteristics and different braking systems. All are treated alike.

Chairman, UIC, at Symposium in March 1989.

5.9.2 "The modernization programme which has continued since the 1950s with the **almost universal application of AWS has not eliminated the problems of trains passing signals at danger; in fact, such incidents are increasing in frequency** and only recently were the cause of two fatal accidents.

British delegate at the same Symposium in March 1989

5.9.3 We have reproduced the two observations above to illustrate that even in 1989 the AWS system had been dismissed as "very primitive Yet an almost identical system was installed as a pilot project in the suburban section of Mumbai in 1993 which even today covers only one category of trains that ply on the section. This system remains IR's most hi-tech" train protection strategy for improving safety. Clearly, what IR sees as a major technological breakthrough is passe in the advanced Railway systems.

5.9.4 **The other issue highlighted is that technical aids per-se are not fool-proof protection against accidents.** There is also a view that AWS breeds in staff a false sense of complacency.

5.9.5 A vital aspect pertaining to technology induction that is currently agitating the managements of the advanced Railway systems, relates to the costs associated with technology progression vis a vis the benefits Our Committee found that even in the otherwise sacred realm of safety, economics is a critical factor in deciding policies on technological upgradation of safety Infrastructure. **Despite the availability today of cutting-edge technology that addresses almost every safety related problem associated with rail, even the most advanced Railway systems are moving with utmost caution in introducing new safety technologies because of cost considerations. There is much debate on delivering technologies at a cost which does not exceed its benefit to society.** For instance, although the most sophisticated Automatic Train Protection systems have been available for almost a decade, their installation has been very selectively limited to high- speed routes

even in the most advanced systems, mainly because costs are too high to justify widespread extension of the system.

5.9.6 During our Committee's visits to the advanced Railway systems, we were exposed to a bewildering array of cutting edge technologies for enhancing rail safety. While we are aware that adoption of certain technologies would greatly improve safety, we are conscious of the limitations and compulsions of IR. In fact, a retired railwayman posed the most inconvenient but significant question: "**should IR invest on hi-tech safety gadgets or first attend to the more fundamental safety issues such as replacement of overaged assets, upgradation of maintenance infrastructure?"** In recommending technology for induction into the IR system, our committee is acutely aware that we need to keep in mind the following factors,

(a) As funds are a major constraint there has to be careful selection and prioritization of technical safety aids. The focus has to be on providing technical back-up to the weakest links in the safety regime that result in the most catastrophic accidents.

(b) Technology must suit the Indian genius Maintainability of equipment in our social ambience has to be a key consideration.

(c) Technology should sustain the system for a reasonable period of time.

(d) Even though the advanced systems talk dismissively of "backward compatibility", IR needs to introduce

technologies that sit easily on the existing equipment.

5.9.7 Our committee also believes that it is important for IR to be in touch with the emerging technologies and their impact on safety of the Railways. Only then will IR be able to innovate and adopt progressive technology that will assist the safety process. In this review, we propose to give an overview of some of the cutting-edge technologies that can be gainfully adopted by IR, hopefully in the not-too-distant future.

5.10 Automatic Train Control Systems

5.10.1 By any reckoning, collisions are the worst form of transportation accidents not only because of their proven capacity to il in great numbers but also in the context of exposing major system deficiencies. As such, the preponderant focus of all rail-related safety research has been on devising and upgrading technologies to prevent collisions. Beginning with block operations, track circulating, interlocking and then rudimentary automatic warning to the driver, the Railways have now harassed the enormous capabilities of electronics and evolved the most sophisticated train control systems. Apart from providing complete protection against train-to-train collisions, these state-of-the-art systems have other safety features such as detection of the train's route, protection against over speeding including at temporary speed restrictions, safeguard of engineering gangs working on track, detection and protection against unauthorized movements.

5.10.2 In the advanced Railways the introduction of these systems is determined by the following objectives,

(a) for ensuring safety of passengers which is the paramount consideration.

(b) for enhancing capacity of sections.

(c) for facilitating introduction of high-speed trains when such devices become a mandatory requirement.

(d) for meeting the commercial objectives of reducing manpower and improving quality of service.

5.10.3 In Europe and North America, our committee was exposed to an array of train control technologies with great capabilities for enhancing safety. However, there are certain issues relating to these systems that IR's top management must take note of, especially at this juncture when IR is in the process of inducting this technology. We have been informed that a UIC funded project for installing the ETCS system on the Deh Mathura section has already been approved.

5.10.4 What our committee found most intriguing was the fact that despite the much-advertised benefits of these systems, and despite having invested considerable intellectual and financial capital in developing the technology, **the physical installation of these systems has been generally restricted to a few select routes even in the advanced Railways mainly for reasons of economics rather than technical shortcomings.** In fact, on some Railways, management has taken the attitude that the existing safety infrastructure in place was adequate and that these cutting-edge train control systems were too expensive and safer than needed. As in India, we found that even in the advanced Railway

systems, the general adoption of these costly safety technologies has often been dictated by public and legislative reaction to a major disaster, rather than on the basis of any careful assessment of the costs and benefits of these technical aids. The most recent example is the public outcry in Britain following the collision near Paddington station in 1999 that resulted in 35 casualties, following which the British Government announced country-wide installation of ATP. But implementation does not necessarily follow from such diktats. For example, following a tragic train collision in Huston, Canada in 1985 the Commission of Inquiry recommended that automatic train control systems be installed on main lines by 1989 and on branch lines soon afterwards. Neither recommendation has so far been implemented by the two premier railroads, CP, and CN, on the grounds that they cannot afford to install this expensive technology.

5.10.5 To an extent, the well-orchestrated and advertised benefits of these train protection systems in the Third World has been dictated by the manufacturers' commercial motive of extending the market in order to get a decent return on investment.

5.10.6 The stark reality is that notwithstanding the stunning magical capabilities of some of the advanced train control systems, equipping of a Railway network with these devices is a costly proposition The issue gets further complicated when one considers that these systems are complex and take many years to develop, during which period transmission and computer technology has made further rapid strides and reached another dimension, thereby making the earlier

technology dated and also more costly. **Perhaps there is some merit in the proposition that these sophisticated systems should be adopted and extended on a wide scale on IR only after the technology advances and market forces have made them cost effective, a la the computers.**

5.10.7 IR management needs to look at these systems from another angle. The transmission and computer technology hardware is extremely sophisticated and sensitive. Involving equipment at the central control, on the locomotives and at wayside. For instance, equipment in the locos will include a mobile data communication system, a location system, sensors to measure loco performance, on board computer and add-on components necessary to fulfil other operating requirements. Given IR's poor record of maintaining more robust equipment in the normal outdoor environment, it is important that these systems undergo a rigorous examination in the pilot project stage before any commitments are made regarding further extension across the Railway network. **We recommend that the Delhi Mathura project should be the touchstone for deciding on the future of train control systems on IR because, given the country's problems and the competing priorities, there is no room for costly technologies which are hard to sustain.**

5.11 Computerised Train Despatch System

5.11.1 During our visits to railways in USA, Canada and Europe, we saw operation of Computerized Train Despatch Systems. The systems shown to us at the

despatch centers were of varying types, some which control train movements over large territories and some which were meant for regional control only. In some railways the despatch centers are connected to Train Control Systems and operate the signals and points directly. We were informed that there are many advantages of Train Despatch using computers even if the operation of signals and points in done at the local level. It was demonstrated to us that in USA and Canada, train despatch is being done with the information via radio communication Charting and decision making is achieved with the help provided by computers. At a presentation at the John A Volpe Transportation Center, it was pointed out that apart from increasing section capacity, the possibility of wrong movement was greatly reduced. **We recommend that IR should install Computerized Train Despatch Systems on busy sections.**

5.12 Way-side Inspection Systems (WIS)

5.12.1 Of the Railways' infrastructure, the most basic as also the most vital are track and rolling stock Even in their capacity to affect safety, these two elements are the most predominant, along with the human factor. For instance, derailments, which constitute, by far, the highest proportion of total consequential train accidents, about 82 percent are essentially caused by staff, permanent way, and carriage and wagon failures, whereas staff failures account for about 50 to 55 percent of derailments, the remaining number are due to permanent way and carriage and wagon defects. The cause-wise

analysis of accidents in other major Railways of the world also shows that carriages, and wagon and track are the most critical elements of the infrastructure from the safety perspective.

5.12.2 For dealing with the widespread phenomenon of on-train rolling stock defects, advanced Railway systems have developed and installed a variety of technologies that will identify and arrest defective rolling stock before they can cause an accident. On some world Railways, such as the Canadian Railways, the different technical devices for detecting unsafe conditions on running trains, have been meshed together into a comprehensive integrated system. The computer based Wayside Inspection System (WIS) includes the following components,

(a) Hot Box detector (HBD).
(b) the Hot Wheel Detector (HWD).
(c) Dragging Equipment Detector (DED) and
(d) the Talker system.

The HBD is a technology that is over four decades old and was once proposed for installation on IR in the 1970s but did not prove successful. The electronic HBD has been developed to ensure timely detection of overheated journals on moving trains prior to bearing failure and consequent derailment. Whereas the HBD is used for detecting an unsafe bearing, the HWD measures the temperature of the web of the wheel. The DED adds yet another dimension to the Wayside Inspection System by detecting any object hanging under the body of the rolling stock. To round off this complex web of components, there is the Talker system that provides an

immediate means to warn train crews about unsafe conditions on their train.

5.12.3 Our Committee is of the view that the WIS while performing invaluable detection functions, is too complex a system and involves a large number of sensitive track side equipment, apart from being costly, and is therefore, not suitable for induction on IR at the present juncture.

5.13 Wheel Impact Load Detector (WILD)

5.13.1 One serious maintenance issue confronting IR and railways abroad today is the debilitating problem of premature track renewal, which is resulting in unnecessary expenditure Among the important reasons identified for the propagation of this unhealthy phenomenon is the proliferation of wheel flats and the overloading of wagons. Wheels with flat spots/shells and those which are out of round continue to be a major contributor to track damage, and this is further compounded due to overloading of wagons. Predictably, technology has come up with the panacea. The Wheel Impact Load Detector (WILD) is a wayside system designed to detect these problems on rolling stock and alert the train examining staff well before they cause any damage.

5.13.2 The WILD system is a computer-based device that records the force of each wheel as it passes a measurement system mounted on the rail. As each wheel of a train passes the site, measurement of its load is taken, sent to the WILD computer for analysis, and if a

preset limit is exceeded, a report is generated and immediately sent to the concerned department for taking remedial action "Strain Gauges are fixed to the web of the rail that measure the load on the rail directly above them. There are 10 strain gauges on each rail, spaced so that the entire circumference of the wheel can be measured. Data that represents the instantaneous load on the rail is amplified and transmitted to the WILD system, which is computer based. The function of the computer is to sample the readings from the strain gauges, digitize the readings and pass them on to the Site Master". The Site Master collects the data and identifies any wheel that has exerted a force over a preset limit. A report is generated which will automatically be sent via a dial-up modem to the concerned department for initiating action. Canadian Railways (CN) has been applying this technology to identify wheel irregularities, some of which are not detectable through visual inspection. A number of WILD sites have been set up throughout CN which are linked to Mechanical Department repair shops to alert maintenance staff to check wheel's producing an impact above a preset level, and replace them, if required. CN management has found that by removing the high impact wheels, the problem of burnt off journals and broken wheels/rail has reduced.

5.13.3 Today IR has no strategy in place to identify wheels that inflict unacceptable forces on the track due to tread damage or out of roundness. Although this device is costly, **our committee strongly recommends that at least two such systems should immediately be procured and installed at key locations. We do believe that this device will pay for itself in a short period by**

reducing maintenance costs and damage to track structure by curbing the menace of wheel flats.

5.14 Event Recorders

5.14.1 In Part I of our Report, we had recommended development of microprocessor-based speed recorders which record not only speed, distance and time but also activities like brake application, throttle position, use of whistle etc. We had observed that such recorders would help in accident inquiries.

5.14.2 During our visit to USA and Canada, we were told that fitment of event recorders on locomotives is a regulatory requirement from FRA. The records not only help in accident Inquiries but are regularly used for monitoring the driving performance of the drivers It was leit that when an inspector travels on foot plate, the drivers are naturally cautious and give of their best. But random selection of event recording gives a true insight into the capabilities of the drivers. A voice recorder is not yet mandatory, but it is likely to become so in the near future.

5.14.3 We obtained a list of events recorded on the Go-Transit in Toronto, which are,

(a) Speed/distance/time.
(b) standstill detection.
(c) brake pipe pressure,
(d) brake cylinder pressure.
(e) application of Independent loco brake.
(f) head light setting (off, dim, full).
(g) throttle.
(h) direction of movement.

(i) generator field.
(j) equalization pressure.
(k) train monitoring system (alarm off, alarm, penalty);
(l) TMS reset (SW open, not reset, foot reset, both),
(m) emergency brake application.
(n) over speed MAG,
(o) sanding
(p) dynamic brakes.
(q) bell relay,
(r) horn.
(s) radio hand up,
(t) head light SW.
(u) door open.
(v) door over-ride

5.14.4 This is a very useful equipment and will result in considerable benefit to the Railway administration. **We, therefore, recommend that to begin with event recorders roughly on the above lines are fitted on all new locos and used not just for inquiry investigations but also for monitoring driving skills. Subsequently the question of retrofitting should also be considered.**

5.15 Crashworthiness of Coaches

5.15.1 No one who has seen the visuals of the head-on train collision at Gaisal on 2nd August 1999, can ever forget the multi-storeyed, mangled and burning wreckage that the two trains were reduced to Contrast this with the head on collision between two crowded passenger trains near Paddington in October 1999 where the coaches after collision fanned out horizontally. Despite the high velocity impact, the death toll in this accident was 35

against 286 at Gaisal. The vastly contrasting repercussions in the two accidents can be explained to differences in the design and structure of the rolling stock. The Paddington collision demonstrated the effectiveness of the anti-climbing and crash absorbing features of the coaches plying in Britain, which is lacking in the ICF built coaches on IR. Whereas the IR coach has fair anti-telescopic properties in the longitudinal direction, in the absence of well-designed anti-climbing features, the coaches jack-knife and climb over each other resulting inside and top impacts with heavy casualties. One of the main reasons for this is the screw coupling which does not provide a rigid and strong enough linkage.

5.15.2 The intensive and continuing research being carried out in the developed world to improve the crashworthiness and anti-climbing features of coaches is a reflection of their pragmatic realization that notwithstanding the most sophisticated and hi-tech gadgets, it is impossible to eliminate errors and accidents altogether. A great deal of work is being done in the advanced Railways to improve passenger rail Safety in the event of train collisions. With the introduction of new coach designs, these railroads are taking the opportunity to build in better crashworthiness standards.

5.15.3 The Federal Railroad Administration (FRA) of USA has laid down elaborate and stringent standards for all types of rolling stock indicating the anti- climbing and longitudinal static compressive strength requirements. For example, there is a stipulation that a power car must have a forward anti- climbing mechanism capable of

resisting an upward or downward static vertical force of 2,00,000 pounds, without exceeding the ultimate strength of the material. Another rule stipulates that interior train coupling points between cars should have an anti-climbing device capable of resisting an upward and downward vertical force of 1,00,000 pounds without yielding. Significantly, these rules appear under a section titled "Passenger Equipment Safety Standards".

5.15.4 Currently the British Rail Laboratory at Derby and the European Rail Research Institute in Germany are conducting detailed research in this field. However, by far, the most complete research and testing of crashworthiness and allied issues is being done, by the Transportation Technology Centre (TTCI), a subsidiary of the Association of American Railroads. The Committee had the opportunity of visiting the TTCI facility at Peublo, Colorado. For years, this center has been the focal point of full-scale crash testing of rail vehicles. Train to train collisions and locomotive to automobile collisions were part of early investigations in the 1970s and 1980s. However, an altogether new dimension has been added to the testing process with the construction of a concrete crash wall capable of taking an impact load of up to 1500 tonnes. This has enabled new tests to be done as part of an effort to validate sophisticated models that predict vehicle collision dynamics for a wide array of crash scenarios.

5.15.5 Our committee shares the worldwide concern for improving crash worthiness and anti-climbing features of coaches to save human lives. IR management needs to address these issues on the highest priority as we feel that these features of coaches need considerable

improvement, not merely by adoption of the type of center buffer couplers with are soon to become the standard on IR coaches. IR should, therefore, seek the assistance of various institutions for Improving crashworthiness and anti-climbing features not only of the future built coaches but also more importantly for the existing fleet This must become a mission area for IR. We recommend:

(i) Close interaction with research agencies in Europe and USA to improve anti climbing and crash worthiness of the coach bodies, both for the existing fleet and for future builds.

(ii) Adoption of hydraulic buffing arrangements at least for SLRs, power cars and locomotives to reduce impact forces.

5.16 Level Crossings

5.16.1 As in India, Safety at level crossings is a major concern in the advanced Railway systems. The point is often made that when compared with road traffic accidents, the number of mishaps occurring at level crossings is very low, and yet they attract a great deal of attention in the media and among the public This can only be explained by the fact that people expect a much higher level of Safety in all rail related operations Most Railway managements today see level crossings as posing a formidable Safety challenge, mainly because Safety at level crossings is fundamentally influenced by the road users.

5.16.2 Apart from trespasser fatalities, the leading cause of death due to Railway operations in the advanced Railway

systems is collisions at level following figures given below indicate:

Railway	Year	Total casualties in all rail related accidents			Trespasser Casualties			Level Crossing Casualties		
		Killed	Injured	Total	Killed	Injured	Total	Killed	Injured	Total
USA	1997	NA	NA		NA	NA		**	**	2001
	1998	1010	NA	NA	536	NA	NA	437	NA	NA
France	**	**	NA		NA	NA		**	NA	
	**	**	**	483	132	108	240	14	31	15
Canadian Railway	1997	105	96	201	68	28	96	30	61	91

5.16.3 In Germany, 55 percent of the 27,000 level crossings are "passive", La unmanned without any protective devices, In USA, out of the 2,65,271 level crossings, as many as 1,98,985 are passive level crossings According to FRA, there were 4054 LC accidents in 1996, of which 2208 occurred at passive crossings As such, "passive crossings are a major focus in the drive to enhance safety & LCS Grade separation and technical devices are the ultimate solution but the costs associated with such protection measures are prohibitive Hence, other measures need to be considered.

5.16.4 A straightforward and logical step taken by these Railways to improve safety at such cross connections is to close as many level crossings as feasible. In USA, the concerted effort to close and remove redundant crossing was initiated in 1990 and by 1999 early 33.000 passive" level crossings had been eliminated more than 11 percent of the crossings, which then existed. An ingenious method has been used to achieve this objective The US Federal Government gives an incentive grant to the local communities for helping in closing public crossings Where closure is not possible, the Federal Government

subsidizes the case of automatic warning devices installed at LC gates Under the "crossing safety improvement programme, funds to the tune of 154 million dollars derived from gasoline taxes are distributed every year to the Stater for safety improvements at highway rail crossings Significantly, according to US law, for any project pad for by Federal funds earmarked for level crossing improvements, the railroads cannot be asked to pay more than 10 percent of the project costs. **Our committee found that the Federal Government, the State, the highway authorities, the local communities, and the railroads are all actively involved in improving safety at LCs, which is in total contrast to the situation in our country where safety issues at LCs are treated as IR's problem alone.**

5.16.5 Education of the road user is a vital element in the strategy to eliminate IC accidents. The US Federal Government participates in and partially funds the Operation Lifesaver Programme (OL) (XL is a public education and awareness programme, which works to eliminate collisions and casualties at level crossings. The OL programme promotes public awareness of the highway rail-crossing environment and encourages compliance with and enforcement of traffic laws. A particularly noteworthy feature is that, nationwide, more than 2,500 "presenters have been trained and certified to make OL presentations to schools and other groups. Perhaps because the numbers are manageable unlike on IR where every event attracts numerous people opportunities are also offered to media representatives, local dignitaries, police, and other public opinion makers

to ride in locomotives and observe at first-hand what occurs at highway rail crossings. As a result of this drive, highway level crossing accidents have come down from a level of 1350 in 1978 to a level of 400 in 1998.

5.16.6 The approach to level crossing safety issues seems to vary in the different countries The most emphatic example of the differing perceptions relates to the STOP signs short of level crossings Whereas most countries in Europe and North America provide a STOP sign at level crossings, particularly at unmanned crossings, in Germany such a sign is not provided on the grounds that it would impede the flow of traffic. The traffic rules in Germany specify that road users should approach on LC at a moderate speed of around 50 kmph, and if there is no train approaching or there is no stop warning being signalled, they are to cross it at good pace. At unmanned level crossings without any protection, a clear view of the railway line is provided, so that road-users can see approaching trains in good time. Where such visibility is inadequate, trains are to run at restricted speed. While our committee would certainly not support a similar pattern of working on IR, **we would recommend that IR review the existing provisions relating to use of speed breakers and rumble strips, which are designed to slow down road traffic short of LCs.** We believe, especially in the context of unmanned LCs that the quicker the road user crosses the intersection, the better for his safety, and facilities should be provided accordingly.

5.16.7 In 1998, NTSB, USA, conducted a study to identify some common causes for accidents at "passive crossings", i.e., at unmanned level crossings. A sample of

fill accidents at such crossings was investigated. 18 road users who survived these accidents were interviewed Some of the important observations 1 conclusions drawn from the study are:

- More than half the crossings in the NTSB sample had conditions that limited the road users ability to see the train. It was not fixed structures but vegetation that obstructed the view. A parallel study regarding visibility conducted by the University of Florida showed that in a particular county of Mississippi, half the LCS were safe only if the train travelled no faster than 25 mph.
- TIM Voice Research Centre which conducted a study on locomotive conspicuity had recommended that accidents at grade crossings could be reduced through unit of auxiliary alerting light systems. FRA accordingly issued a directive that such lights should be provided on all locomotives operating at speeds greater than 20 mph The NTSB sample of the 60 accidents showed that auxiliary alerting lights were installed in the locos in 47 of the accident affected trains, a fact, which demonstrated the relatively innocuous role of such lights in accident prevention.
- In 55 of the 60 cases the NTSB was able to determine that the train horn sounded prior to impact. Of the 18 road users Interviewed, only 4 heard the horn and 2 of them were not inside the vehicle at the time of impact The NTSB study indicates that for drivers of most road vehicles, the sound of a train horn even 100 feet away is not sufficient to penetrate the vehicle shell and to alert

them to the presence of a train. An audiologist informed the NTS8 that more emphasis than is presently being given should be given to the fact not the idea but the fact that train horns are not and cannot be audible under many circumstances.

- Because the locomotive is a large object it may appear to be moving more slowly than & is, causing the motorist to overestimate the amount of time available to safely dear the crossing.
- NTSB has stressed the need for initiatives to increase enforcement of traffic laws at level crossings. It is considering the need for treating grade crossing violations as a serious offence, which should result in a suspended licence as opposed to only a traffic fine For STOP signs at passive crossings to be effective, NTSB recommended a vigorous programme of enforcement.
- The NTSB study has finally concluded that "to eliminate the continuing problem at passive crossings, a systematic and hierarchic approach is needed, an approach that does not depend primarily on the ability of the highway driver approaching the crossing to see an oncoming train The hierarchic approach includes grade separation and closure, installation of active warning devices. improved signage and intelligent transportation system technology

5.16.8 Our committee believes that lessons can be learnt from the practices and perceptions of the advanced Railway systems regarding the factors that influence safety at

unmanned level-crossings. On the basis of our study, **we recommend as under:**

(i) Poor visibility for the road user at unmanned level crossings is a major hazard. It is vital that each division of IR ab initio checks every unmanned LC gate with special emphasis on vegetation to ensure that visibility for the road user is adequate.

(ii) It is about time that IR modified the signage at LC gates which has been existing since long. Much more prominent and instructive road signs need to be installed at unmanned LCs.

(iii) Enforcement of traffic laws at level crossings must be stepped up and sustained through close liaison with the police authorities.

(iv) Local bodies such as the Panchayats need to be actively associated with issues relating to LC gates, in terms of education of road users as also closure of gates. In India also drives on the pattern of Operation of Live Savers (OL) involving IR, State Governments, local authorities including Panchayats should be launched to educate the public and enforce laws at level crossings. The nodal authority for enforcing these drives should be the Union Ministry of Home so that adequate support is received from local police and other authorities.

5.17 Keeping Abreast with Modern Technology

5.17.1 In the past IR had posted Railway Advisers in the Indian Embassies of advanced countries at Tokyo, Washington, London, Paris, Bonn/Berlin, Geneva. These officers served as an excellent link to make available latest developments in various fields of railway technology. Their diplomatic status helped them a lot to gain access to railway administration and industry. We got firsthand insight of this during our visit to Europe. In contrast, we found that many facets of technological advancements of US Railroads were not well known in India, as no RA organization exists there.

5.17.2 We are pained to learn that by and by even these few posts are being surrendered and IR is now left with only one post in London. **We consider this a very retrograde step and recommend revival of all these posts forthwith.**

5.18 Track Maintenance in Germany

5.18.1 On account of their excellent geometry German Railway tracks are known in Europe as "silky rails". The running is so smooth that points and crossings are hardly felt.

5.18.2 The main reason for the good track is the excellence of formation treatment and maintenance attention. Both are performed with large special purpose machines in Jumbo track blocks particularly on weekends when train services are reduced.

5.18.3 The Germans Invest a list of funds in a solid foundation for their track but recover the costs by longer intervals of

2 to 8 years between tamping's. Also, there is hardly any spot attention needed. They invariably use a ballast stabilizer behind each tamper so as to compact the ballast bed while retaining the design geometry Further, most track work of maintenance and renewal is done half by contract and half departmentally both at comparative costs. This enables them to maintain a steady workload on their departmental work force off-loading the variable part on contract The contractor brings the latest technology/systems which are adopted by the departmental work force also Due to constant comparison the departmental productivity is maintained at a very good level.

5.18.4 We recommend that track maintenance practices on German Railways be studied in detail for adoption on IR so as to improve track quality and reduce costs.

5.19 Stone Blowing

5.19.1 This is a technique developed by British Rail (BR) to correct track geometry in the vertical plane to replace tamping. In this process the track is lifted to correct line/level and stone chips are blown by compressed air to fill the gap under the sleeper. As the compact bed of ballast is not disturbed the stability of track geometry produced by this process is claimed to be three times compared to freshly tamped track

5.19.2 In the beginning this process was being pursued with handheld off track equipment including tiny hydraulic jacks and a small compressor. Recently BR has ordered large co track machines, which will hold the track in

correct Ine/level and blow stone chips into the gaps under the sleeper.

5.19.3 We recommend that the process of stone blowing on BR be studied by a team of engineers and adopted on trial basis on an important line using both off track and on track systems. The process seems to offer much efficiency and economy.

5.20 Measurement of Stress in LWR

5.20.1 Pueblo Research Centre in USA (TTCI) has developed a device to measure stress in LWR In-situ. It is, therefore, possible to monitor and take timely action to avoid rail fractures due to too much tension or buckling due to compression. By and large de stressing is rarely required as one does not need to meddle much with LWRs after initial laying.

5.20.2 In contrast, on IR due to many cases of rail defects/fractures, portions of rail need to be cut out and replaced. Thereafter, local de stressing is to be done. Many other factors, specifically rail creep due to low toe load of fastening, result in much vanations of rail stress. De stressing penodically has been specified but due to lack of proper equipment and insufficient line blocks, it is not done properly.

5.20.3 We recommend that expertise to measure rail stress in-situ be obtained urgently in the interest of safety and economy.

5.21 Device to Check Dynamic Performance of Rolling Stock

5.21.1 Any unusual dynamic performance of rolling stock on the run will manifest itself in the variation of vertical and horizontal forces exerted on track. PUEBLO Research Centre in USA has instrumented a section of track to measure these forces and is able to identify the particular unit of rolling stock, which has developed a defect requiring rectification It is also able to pinpoint overloaded wagons and the extent of overload. Acoustic equipment is added to detect jammed brakes, flats and hanging parts. One such device has been installed by around 10 railroads on busy sections and these are functioning successfully in locating defective units.

5.21.2 We recommend that PUEBLO Research Centre be contacted, and such devices be installed on our busy lines to locate rolling stock units for special maintenance thereby avoiding their involvement in accidents.

5.21.3 Some noteworthy Operating and Maintenance practices in advanced Railway Systems

- On all the Railways, without exception, the primary examination depots for freight trains are required to send out trains with 100 percent brake power. Similarly, locomotives are to be turned out with all components in working order, most importantly the braking systems. Federal law in the USA has, in fact, mandated this standard Freight trains on US Railroads are examined every 1000 miles.
- In certain railways, rail life is even above one billion GMT. This can be attributed to better quality of rail,

better bogie designs and healthy maintenance practices.

- Introduction of new trains without creation of matching facilities for maintenance and upkeep is unheard of. In point of fact, Railroads guilty of such infractions are liable under the law.
- Safety tolerances vis-à-vis speeds have been meticulously prepared and clearly spelt out for all assets, including track.
- On SNCF (France) and DB AG (Germany), the life of alumino-thermit welds is almost equivalent to the life of the rail.
- Ergonomics of the locomotive cabs and the outstation resting facilities for Railway staff are an important concern of the management of the Railroads.

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RESEARCH AND SAFETY ORGANISATIONS

(CHAPTER: VI / THE RAILWAY SAFETY REVIEW COMMITTEE, 1998 PART II: H. R. KHANNA COMMITTEE REPORT 1998 PART II)

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6.1 Research, Designs & Standards Organization (RDSO)

6.2 RDSO has been concentrating its energies on activities such as preparation of specifications, technical evaluation of offers, providing inspection services in respect of rolling stack acquired for use on IR, drawing up lists of approved suppliers of goods and services. All these activities have tended to dilute emphasis on R&D activities.

6.3 Our Committee's investigations show that the role of RDSO in promoting safety and preventing accidents on IR through technological and other inputs, has so far been peripheral. We would like RDSO to play a much more proactive role in bolstering IR's safety efforts. In order to be able to perform this role effectively, IR will have to redefine RDSO's role and revamp its structure, facilities and staffing policies. We are acutely

aware that major restructuring of any Government organization is easier said than done, nor is this subject within the purview of our committee. However, even assuming that there is no radical change in the present organizational set up, we still believe that RDSO can act as a catalyst for improving safety on IR, provided certain areas are strengthened.

6.4 Given its present limitations, we are of the view that RDSO is not equipped to design and develop new technologies. **We recommend that RDSO should play the role of facilitator by seeking the active collaboration of industry, Institutes of technology and other specialist agencies for developing technologies.** In this context it is vital that RDSO give up the practice of insisting on "design ownership" of locomotives, rolling stock, S&T equipment, etc., as this monopoly over design, sometimes using unethical methods, has discouraged industry from developing new and improved design of products. Our committee **recommends that henceforth RDSO should concentrate on identifying the new technologies that can most suitably be adopted by IR and thereafter associate manufacturers and technical institutions in developing and upgrading these technologies in a time bound programme.** This would be in line with practices in many of the advanced railway systems where design and development of components and sub-systems are primarily done by Industry.

6.5 Our Committee finds that there is hardly any sustained interaction between IR and R&D institutions of the advanced railway systems. We strongly **recommend that the links with such institutions are quickly established and strengthened through exchange of ideas on technical, operating issues, new technologies, etc.**

6.6 We find that in RDSO there is hardly any planned and concerted attention paid to accident prevention and other important safety ques concerning IR. The safety-related research conducted by RDSO has been random and ad hoc. **RDSO should act as the sounding board as also the guide on various safety issues agitating the Zonal Railways. It should be entrusted with the task of conducting detailed investigations into systems failures in accidents, analysis of long-term trends of accidents, human factor issues, and complex technical problems, such as rail wheel interaction, safety tolerances, etc.**

6.7 Commission of Railway Safety (CRS)

6.7.1 Historical facts about the institution of Commission of Rahway Safety and its functions have already been given in Chapter V.

6.7.2 Since Independence, 5 judicial enquiries under the Commission of Inquiry Act, 1935, have been ordered by the Government into major train accidents, comparatively few for a period of 50 years. However, it is significant that two of these judicial inquiries have been notified in the last two years, one to investigate the Khanna disaster in which 212 people lost their lives and the second to probe the Gaisal tragedy that resulted in 286 deaths. Both these inquiries have been set up in response to strident public and legislative demands This new emphasis on judicial inquiries raises disturbing questions regarding public confidence in the institution of the CRS, whose legitimate function it is to conduct such accident inquiries. The announcement of two judicial inquiries in quick succession could probably be

due to any one or a combination of the following reasons:

(a) The public has lost faith in the objectivity of CRS inquiries.

(b) The sheer scale of the tragedies has compelled the Government to institute what the public perceives to be a higher level of inquiry.

(c) The Governments of the day are more amenable to judicial probes per-se than earlier Governments.

6.7.3 Irrespective of the reasons for this recent development, our committee is concerned that the CRS has lost ground as the public watchdog on the safety of the Railways. This is a serious crisis for an organization that has, since the inception of the Railways, been an integral and critical element in the accident investigation process. In order to recapture public faith, the Commission needs to refurbish its image. Investigation process. In order to recapture public faith, the Commission needs to refurbish its image.

6.7.4 Our committee firmly believes that the first step to be Initiated to restore public confidence is to make all CRS inquiries public and transparent. This will go a long way towards allaying oft expressed apprehensions that the Commission works in cahoots with the railway administration to suppress systems and managerial failures associated with accidents. It is relevant to mention at this point that the inquiries into accidents by the NTSB in USA are conducted under full public glare and their reports are published documents. **Likewise, the inquiry reports of the CRS should be made available to the public immediately after finalization.** In this

context, the IR Act needs to be suitably amended to ensure that such transparency does not result in unnecessary litigation or harassment of railwaymen. **We recommend a clause be included in the relevant laws that no railway servant can be prosecuted without the sanction of the authority competent to appoint him or a higher authority. Further, it should be stipulated that the Commissioner of Railway Safety or any other investigating authority who has powers of a civil court for conduct of enquiries cannot be called as witness or for examination by any court in cases which arise from investigation done by them. Finally, the report and the findings of the CRS should not be allowed to be used as evidence.**

6.7.5 Our committee believes that the status of the officials heading the Commission is a critical factor in ensuring the objectivity and independence of inquiries conducted by them. There is no doubt that the existing arrangements whereby (a) the Commission functions under the administrative control of the Ministry of Civil Aviation and (b) a railway officer who opts to work as a Commissioner of Safety (CS) cannot revert to the Railways, has helped the Commission to establish a tradition of objectivity and even-handedness in accident inquiries. It was, however, pointed out to our committee that under the rigid, hierarchical structure of Government working, the status of an office and its officials determines its authority, its powers and access to higher authorities. As such, it is important that the Chief Commissioner and the Commissioners should be granted the appropriate status. **We recommend that the Chief Commissioner should be of the rank of Secretary to**

the Government of India and the Commissioners of the rank of Special Secretaries. In fact, the 19th Report of the Standing Committee on Railways of Lok Sabha has already made such a recommendation which the Committee felt would reinforce the CRS's independence in decision making. We are convinced that such upgradation in rank will not only Improve the overall effectiveness of the Commission but also result in attracting the best talent to the Commission.

6.7.6 Designation of Commissioner of Railway Safety invariably leads public and media to consider him a part of Railway Organization in Spite of press notices and advertisements stating clearly that they are working with Ministry of Civil Aviation. To change this public perception, **we recommend that the designation be changed to the Commissioner of Safety.**

6.7.7 At present, recruitment to these posts is confined to civil engineers of IR. **Our committee has reasons for recommending that railwaymen from other disciplines directly associated with train operations such as Mechanical, Traffic, Signal and Electrical, should also be eligible for these assignments.** The duties and responsibilities of the Commission have been widened and it now functions as the public watchdog on safety. In the present context where accident inquiries and monitoring of safety on the Railways are important functions entrusted to the CRS, it is no longer essential to have only cover engineers to man these posts. By widening the field of recruitment to the Commission, not only will there be a greater range of talent to choose from, but such a move will also bring in the expertise of

other departments that play a critical role in railway operations.

6.7.8 Having studied the duties of the Commission, our committee believes that they should be immediately relieved of certain functions that were valid at the time when there were a large number of privately owned railway companies operating in the country, but have now become only a source of unnecessary bureaucratic delays. we refer to the extant rules which stipulates that before Introducing any new design of rolling stock it is necessary to get the approval of the CRS. The HMRI in Britain, on which the CRS organization is modelled, does not follow this procedure for the introduction of new types of rolling stock. Even the Federal Railroad Administration, which is the regulatory body for railroads in USA, only lays down the technical and safety specifications for rolling stock and thereafter it is left to the individual railroads to operate rolling stock that conforms to the prescribed standards. **We recommend that the CRS be relieved of the function of approving new designs of rolling stock before they are pressed into service. This will require deletion of Section 27 of the Railway Act, 1989**.

6.7.9 For reasons given in Chapter V, we have not recommended a totally independent multi modal Transport Safety Board on the lines of USA and Canada. However, we recommend that the finalization of conclusions and recommendations of serious accident inquiry reports should be adopted after discussions in a Board consisting of at least two Commissioners, preferably with different professional backgrounds. A single Commissioner, as a human being, is liable to have

sub- conscious bias and also be susceptible to pressures. However, the enquiry itself, i.e., site visit, recording of evidence, obtaining joint observations, data and interacting with Railway Agencies as also writing of the report will be done by the concerned Circle Commissioner only.

6.7.10 The Commission also needs to be strengthened at the field level. To achieve this, **we recommend that each Commissioner should be assisted by at least one Deputy Commissioner in JA Grade and two senior inspectors, care being taken to see that, to the extent possible, they have different professional backgrounds.** Presently, one Dy CRS 'G' is in selection grade and all other Dy CRS are in JA grade. On Railways there is flexibility to post an officer in JA grade or selection grade in the same post allowing longer tenure and permitting wider scope for selection. A similar procedure is necessary for Dy. CRSS. **We recommend that the sanctions for the posts of Dy. CRSS should be in combined J.A. and Selection Grade to permit Officers in either grade to be posted and continued in the post even after promotion from J.A. to Selection Grade.**

6.8 Restructuring The Safety Organization

6.8.1 In Part I of our Report, we had briefly reviewed the working of the Safety organization of IR. Since then we have made a detailed study of its role as a facilitator for promoting safety on IR. We have obtained the views of railwaymen, past and present, regarding the functioning of the Safety organization and their perceptions of what

ought to be. Our questionnaires on the subject addressed to the General Managers and the Railway Board elicited a wide range of responses that have been invaluable in understanding the strengths and weaknesses of the existing Safety organization. The abiding impression that we gained from our extensive interaction was that railwaymen, in general, were unhappy with the present set up.

6.8.2 As mentioned in Part 1 of our Report, the department of Safety should mostly act as a catalyst and each executive department responsible for running trains must own the task of monitoring safety. The prime objective should be to prevent accidents and for this purpose meticulous technical work is needed to arrive at the precise causes/remedies. Thereafter, pro-active preventive action will need to be instituted and relentlessly pursued One SAG officer of each department involved in running trains is charged with the responsibility to review a safety matter for his department in addition to his other duties. A sense of involvement in the subject will need to be developed in each department Formation of an inter-disciplinary task force of officers responsible to follow up safety matters in different executive departments along with CSO as catalyst will be a very strong group to implement preventive measures for safety. In order to develop a group spirit, it is necessary that all departments must feel equally part.

6.8.3 It may be recalled that the Sikri Committee had recommended that the Safety organization be manned by officers from any of the major five departments, namely, Operating, Civil Engineering, Mechanical Engineering. Signal & Telecommunication and Electrical Traction,

who are mainly concerned with safety in train operations, but this recommendation was not accepted by the Ministry of Railways.

6.8.4 The rationale propounded by those in favour of keeping safety under the Traffic Department is that the department which has the responsibility for running trains, i.e., the Operating Department, should also be entrusted with the charge of framing the rules for the purpose. The analogy of the driver of a car is often quoted to substantiate the argument that the person who controls the accelerator, viz. the Operating Department, has also to have the responsibility of applying the brakes, i.e., the Safety Department, when necessary. Another argument advanced by those who favour the status-quo is that the officers now Inducted into the Safety Organization, by virtue of belonging to the Traffic Department, are less biased in fixing responsibility for unsafe practices and accidents than their colleagues in the service departments of Mechanical and Civil - the two departments primarily responsible for derailments, the enquiries Into which have been hamstrung due to disputes on departmental considerations. It is argued that officers of these departments are less likely to be objective in apportioning responsibility when their departments are involved in an unsafe practice or accident.

6.8.5 However, those in favour of throwing open the Safety organization to other departments believe that safety on IR will improve by taking this step as technical officers are in a better position to plan and implement safety programmes and audits. They disagree with the 'bias' theory with the argument that the operating wing of the

Traffic department is as closely associated with the dynamics of train running as any other department and, therefore, as susceptible to bias as any other The proponents for change also contend that the mere presence of a traffic officer has hitherto done little to foster objectivity in the conduct of accident enquiries.

6.8.6 Our committee has debated this issue at great length and **we recommend that Safety Department on IR should be made broad based and suitable officers from Traffic, Civil, Mechanical, Signal and Electrical Engineering Departments should be posted as Safety officers at all levels.**

6.8.7 We recommend the following:

(i) The Chief Safety Officer should be given the status of PHOD, and the incumbent should have worked successfully as DRM.

(ii) There should be four officers of Dy HOD rank (from departments other than that of CSO) reporting to him.

(iii) A similar pattern should be adopted on the Divisions where the DSO should invariably be in JA grade. He should have Assistant/Senior Scale officers reporting to him.

(iv) (iv)All safety officers should have a minimum tenure of three years.

(v) Each safety group should have a transport available for surprise checks.

(vi) Experience as DSO/CSO should be necessary for promotion to PHOD/GM.

6.9 Safety Audit

6.9.1 Group on Railway Safety in their Report of January 1996 had laid great stress on a system of Safety Audit quoting similar systems prevailing in some advanced railways. They had mentioned that in those systems a team carries cut the Safety Audit of a unit like C&W department on all issues concerning safety, which inter-alia includes safety stores, training of staff, standard of repairs, failures attributed to the depot. These checks are conducted on 100% basis We agree with this view and recommend that concept of safety audits should be introduced on IR. Details can be worked out by IR.

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UNDERSTANDING THE RAILWAYMAN, HIS VALUE SYSTEM AND HIS WORK ENVIRONMENT

(CHAPTER: VII / THE RAILWAY SAFETY REVIEW COMMITTEE, 1998 PART II: H. R. KHANNA COMMITTEE REPORT 1998 PART II)

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7.0 From the facts so far available to us, the accident at Gaisal in August, 1999, is an apt example of the extent to which human failure is possible.

7.1 **Our Committee is convinced that the heart of the safety system is the human being and unless Railway management focuses on creating a climate of safety based on knowledge, competence, discipline and ethical conduct, there can be little sustained improvement in safety.** The focus on safety enhancement purely through investment is bound to fail if it ignores the most crucial element in the safety paradigm-the employees.

7.2 The Gaisal tragedy has reinforced our view that we need to look beyond the proximate causes of accidents and analyze the more deep-rooted factors that impact on individual and organizational behaviour and efficiency, of which a critical

element is safety. As one Railway manager put it, "to understand what is wrong with safety on IR, we should see what is wrong with railwaymen and the Railway organization, because safety is not an activity but an environment." This explains why we have made a study of the railwayman, his work environment and his psyche, his morale and motivation levels. This has led us to investigate the role of Unions, managerial attitudes, departmentalism, as these are issues that mould the railwayman and determine his attitude to the job and the organization.

7.3 It is unfortunate that the human factor issues highlighted in the First Report have been subsumed by the din regarding under investment and shortage of funds. **Our committee believes that the worst mistake that management can make is to see safety purely as an exercise in grand Investment on high-tech safety gadgets.** We strongly disapprove of this approach. In the search for the appropriate technology, we must not lose sight of the fundamental element - the human being who can be creator or destroyer and is always the ultimate operator The Committee would like to stress the utter futility of believing that technology and administrative fiat alone can ensure a satisfactory level of safety. If the ethos is wrong, then even the best technology and the most carefully thought-out policies can only make a marginal Impact on safety Today, the human factor Issues highlighted by railwaymen themselves are adversely eroding many aspects of Railway working, including safety.

7.4 The Railwayman's perception of himself and his work environment

7.4.1 Our committee is convinced that an organization's success in promoting safety depends critically on the morale, attitudes, and value system of its employees. In

order to understand the mind-set of today's Railway employee, his morale and involvement with the job, his perception of his working conditions, his inter departmental and inter-personal relations, a questionnaire probing these issues was sent to the Officers and Supervisors of six Divisions of Indian Railways, the individuals acknowledged to be the real cutting edge of the Railways. The survey covered 232 officers from Junior Scale to SAG and 195 Supervisors. Our analysis of the responses received makes disturbing reading as it reflects a deep sense of cynicism and alienation among the frontline railwaymen. The first question that we posed to them was as follows: "When travelling by train do you with pride inform your fellow passengers that you work for the Railways, or do you keep your identity a secret and reveal it only if absolutely necessary? More than 60 percent of those questioned admitted that they are not proud that they work for the Railways and prefer keeping their identity a secret. This lack of pride and identification with one's job and organization are clear Indication of an attitude of detachment and non-involvement with the work which could only translate into low levels of participation, responsibility, and ownership. There is clearly no sense of belonging and the unhappy conclusion that we have drawn from this sample is that employee morale is low.

7.4.2 The response to value related questions shows that there is a decline over the years in basic human values such as Integrity, commitment to the job, discipline, truthfulness, and trust in superiors Considering that these values drive an individual's thoughts and actions, the openly expressed value degeneration is cause for grave concern.

Regarding the integrity of railwaymen, the majority of the respondents expressed the view that the situation was getting progressively worse. An overwhelming number felt that commitment to work was diminishing steadily on the Railways In similar vein, the majority view was that the level of truthfulness in admission of mistakes among railwaymen was very low, mainly due to fear of punishment.

7.4.3 There was general dissatisfaction with the working environment and the standard of welfare of the employees. The sense of alienation that comes across strongly is further exacerbated by a feeling that merit and hard work are not adequately recognized. The perception that 'departmentalism' is a serious problem conveys a feeling of segregation and relative isolation, which is probably the results of low levels of Inter departmental communication, co-operation and feeling of oneness' with the organization.

7.4.4 In November 1996, a professional management consultancy group was commissioned to do a study on the "Human element in safety on Indian Railways". In the course of its investigations the group interacted with about 4000 employees from various safety related categories in four divisions of IR The perceptions and attitudes of these employees provide valuable insights into the psyche of the Railway staff. Our committee was intrigued by the responses of the staff on issues relating to safety. Reproduced below are their perceptions, as gleaned from the report:

- A significant percentage felt that assignment of responsibility for accidents is not done fairly, that the

approach to safety is fault-finding not fact finding, and that lower-level employees bear the brunt of all punishments.

- Nearly 45% felt that shortcuts are taken by everyone, which affects safety. Nearly 46% believed that officers will not certify them as unfit even if they are, due to operational pressures.
- Unions are perceived to be disinterested in safety and actually hampering it by interfering in promotion decisions and in taking disciplinary action.
- There was general agreement that promotions should be based on merit if safety has to improve.
- Employees felt that strong departmental orientation and lack of co-ordination result in safety problems.
- Employees are dissatisfied with the physical conditions surrounding their jobs.
- Dissatisfaction is high with regard to quality and availability of tools.
- Accidents are attributed to poor quality equipment and materials, poor maintenance and over-riding of procedures under operational pressures.
- A large percentage attributed accidents to lack of discipline and negligent attitude among employees.

7.4.5 The view that there has been a perceptible erosion in the work ethics and standards of discipline on the Railways is not confined to the frontline Managers and staff in their reply to our questionnaire, the General Managers of the Zonal Railways were unanimous that there had been a clear decline in the discipline and work ethics among railwaymen. Among the prime factors cited for this decline are:

(a) Departmentalism.

(b) Trade unionism without responsibility
(c) Increase in the level of corruption.
(d) Lack of pride in the organization
(e) Soft policies followed by the Railway administration on issues relating to recruitment and promotions.
(f) Cumbersome disciplinary and appeal procedures
(g) Erosion in the authority of supervisors and lower officers in view of their decisions getting reversed at the higher level in matters of discipline under pressure from the unions.
(h) Increased political interference in day-to-day working, particularly with reference to transfers, postings and enforcement of discipline.
(i) Lack of transparency in transfers, postings, deputation/training abroad.
(j) Laxity in fixing of work norms.

7.4.6 Our committee is aware that the human factor questions raised above that impinge on individual and organizational behaviour, especially those relating to value systems and work ethics, are areas that defy easy answers. But we do believe that awareness of the problem is a small but critical step in finding solutions. Some of the problems highlighted by railwaymen themselves are influenced by factors such as values, attitudes and environmental influences which are almost intractable and are best left alone. However, there are certain aspects of organizational behaviour which impact on individual morale and performance, which our committee believes should be addressed by the top Railway management for improving the safety environment on the Railways. We refer to some of these

issues such as departmentalism, the role of unions and accountability.

7.5 Departmentalism

7.5.1 Safety on the Railways can never be achieved disjointedly but has to be ensured through a harmonizing blend of human, organizational, managerial and technological Inputs. However, on IR the pursuit of safety has often been reduced to a search for the appropriate technology. While there is no doubt that the focus on technological means to enhance safety will bring about improvement in safety, the benefits would be tenuous and short-lived unless the organization also addresses and corrects distortions in the other factors impinging on safety. In Part I of our Report, we had referred to departmentalism as a serious organizational problem that has adversely affected the safety environment on IR. Since then, our investigations have reinforced our belief that departmentalism is doing incalculable damage on IR today. Our committee is all too aware that this malady is so deep-rooted that it would require a complete managerial transformation to resolve this issue.

7.5.2 Any large organization has necessarily to be split into functional departments for ensuring smooth working. In a healthy set-up with good general management, the different segments, despite their inter-departmental rivalries and jealousies, never permit loyalty to the department to subsume the corporate objectives. This is sadly not the organizational culture on IR where

corporate goals often become subordinate to the narrow interests of individual departments.

7.5.3 Departmentalism has spawned many ills on IR. In evidence before the Committee, railwaymen listed out the following unhappy repercussions of departmentalism:

(a) Cost sensitivity, which should be a prime consideration in any successful organization, has been cast aside as departments go about building their empires.

(b) Each department is busy suppressing its own failures even as it is on the lookout for exposing failures of other departments.

(c) In accident enquiries no department willingly accepts responsibility

(d) Even where integrated working is the cost-effective and most operationally efficient option, departments continue to function in exclusive watertight compartments.

(e) So deeply ingrained is departmentalism that sometimes senior managers such as DRMs and GMs carry their departmental baggage to these crucial posts. As leaders and role models, their bias towards their own departments influences officers under their charge to absorb a similar negative mind-set.

(f) Even at the highest policy making level, departmental considerations are paramount when deciding major issues. Including investment proposals.

7.5.4 Departmentalism has emerged as a major phenomenon on IR in the last two decades Earlier the number of

departments was few Signals was attached to Civil Engineering department, Electrical to Mechanical department, Stores to both Civil and Mechanical Engineering departments. Personnel officers functioned within the executive departments. With the increase in workload and need felt for specialization, separate departments were set up to bring improvement in efficiency. Unfortunately, the actual result was just the opposite as these departments started being called as minor departments, which was resented Some departments in the very nature of things were functionally more important than others and this had negative consequences on IR. Such stratification resulted in hostility, suspicion, and distrust among the different segments of the organization. To rectify matters IR did try to assuage feelings by throwing open important General Management posts such as DRMS/SDGMs/GMs etc. to these departments also. However, the result of this experiment does not seem to have been positive. Inter departmental tensions increased further with the investment thrust on electrification and S&T in the 1980's and 1990's as a consequence of which these departments also demanded elite status. The following quote from that devastating satire on Government functioning, "Yes Minister" sums up the sad consequences of the departmental conflicts that ensued "the Civil Service (read Indian Railways) does not make profits or losses Ergo, we measure success by the size of our staff and our budget. By definition a big department is more successful than a small one. This simple proposition is the basis of our whole system."

7.5.5 The departmental vision soon permeated all levels of the Railway hierarchy. As pointed out in the earlier analysis, the inadequacies in the system bred in all departments a siege mentality, when every branch thought only of its own survival, "the rest be damned". This is the position today, as the following example will illustrate:

> *The Committee circulated a note on the pros and cons of electrification and asked for the reactions of Mechanical and Electrical departments at the Railway Board level. Both departments highlighted the virtues of their respective disciplines and roundly condemned what the other was doing in such an environment, allegiance to the department has become more critical for career advancement than loyalty to organizational goals. Today it is not accountability to the organization that matters on IR but accountability to the department. The individual who makes bold to expose the limitations and mistakes of his own department is pressing the self-destruct button and on IR today, there are very few martyrs for the organizational cause and so departmentalism flourishes unchecked!*

7.5.6 Our committee is convinced that IR's top management must address this problem Immediately. **Several Committees have suggested a major revamp of the organizational structure on the Railways as the only remedy for departmentalism. We entirely agree and recommend that the first step regarding restructuring of IR should focus an consolidation/merger of departments function-wise.** The catchword today is

"synergies", and the merger of departments will create the right environment for promoting forceful interconnections such as multi-skilling and rationalized infrastructure which are need of the day.

7.5.7 Another issue that has consistently figured in our deliberations on departmentalism relates to the selection and tenure of officers picked for the pivotal general management positions of DRMs and GMs. These are the officers who can curb departmental bias ruthlessly. Almost without exception, railwaymen voiced their opposition to the existing system under which DRMs are selected from eight of the ten cadres for a fixed tenure of two years. The general opinion was that a 2-year tenure was too short to help an individual make a meaningful contribution to improving systems. Moreover, it was also felt that the present selection criteria did not throw up individuals with the required aptitude for the jobs. A retired GM gave us the clinching argument on this issue: "Only officers who have been exposed to the rigors of field working and have gone through the fire of staff agitations, disaster management, irate passenger and mob violence should be considered for postings as DRMS, GMS, Board Members. Management skills for ensuring safety in operation and delivering quality service have to be learnt in the field and not in the classroom. We are aware that in the existing set up of the Railways, it would be difficult to make radical changes in the system of selection. **We, however, strongly recommend that only officers who have had a minimum exposure of 8 years to field working should be considered for posting as DRMs. We further recommend that the minimum tenure for DRMs should be raised to 3 years**

Successful DRMs may be given a second spell on another division.

7.6 Trade Unions and Discipline

7.6.1 Any mention of discipline and work ethics on the Railways inevitably leads to a discussion on the role of trade unions and their contribution in determining the nature of industrial relations on IR Historically, the labour management relationship on IR has been a saga shot through with antagonism and conflict stemming from a fundamental divergence of interests over Issues such as wages, workloads, working conditions and other related matters However, judged purely in terms of externalities, our study takes place in a period of relative industrial peace on the Railways. The unrelenting turbulence that characterized the industrial relations on IR in the 1970s and early 1980s has been followed by a quiet and peaceful era.

7.6.2 The subsidence in large-scale militant labour action is, to a great extent, the result of the sheer force of evolution in the industrial relations on the Railways Many of the Inequities in the system have been eliminated over the years, with improvements in the working and living conditions of the workers. Over a period of time, IR has established rules for labour-management negotiations, spelling out the rights of workers and establishing dispute resolution mechanisms. Forums such as the JCM, PNM and PREM have ensured an uninterrupted ice of communication between labour and management. IR has set a new trend in industrial relations by inviting trade union representatives to participate in the Railway

Board's meetings with the GMs, as also the GM's meeting with PHODS at the Zonal level, thereby tacitly accepting unions as a part of Railway management.

7.6.3 In this period of outward calm, cur Committee finds that the relationship between Railway management and the unions is still somewhat antagonistic, at least at the field level. While the top management of the Railway Board stated, in response to a question posed by our committee, that the unions were paying a good and supportive role", this perception was not shared by GMS and officers in the field. To our poser regarding the role of unions in instilling discipline and commitment to work among staff, the GMs of the Zonal Railways expressed the view that unions were not really concerned with discipline. In fact, some GMS went to the extent of accusing the unions of fomenting indiscipline or the Railways. Significantly, at the divisional level - the critical point of interface between management and labour - the officers felt that discipline had been eroded due to aggressive trade unionism. On the other side, the trade union representatives complained that officers, in general, were insensitive to the needs of the workers.

7.6.4 Our Committee's investigations reveal that at the ministerial level, and even at the Zonal level, there is a relatively harmonious relationship between labour and management. Insulated from the hurly burly of the day-to-day tasks associated with running trains, the negotiations between the representatives of labour and management at these levels are conducted in a cordial atmosphere, though nobody would deny the subliminal hostility provoked by their inherently differing world views and concerns. There are few areas of major

discord on policy issues left to be resolved. **Most railwaymen who discussed industrial relations issues with the Committee believe that the real primordial tensions between labour and management exist at the divisional and depot levels. It is here that the real impact of unions on discipline and work ethics is felt.**

7.6.5 The managers and supervisors in the divisions, who gave evidence before the Committee, complained that they were being constantly badgered by union officials on some pretext or the other and often with the most untenable demands, thereby leaving them with little time for their main function of running trains. We were told that a new breed of union office bearers have emerged on the divisions. They do not attend to their professional duties but spend all their time dealing with "organizational matters". The railwaymen described them as Ideologically neutral professional leaders who did everything for a fee. They 'fixed' everything-jobs, transfers, cancellation of punishments even of the most errant employees. Officers who did not do their bidding were humiliated in various ways.

7.6.6 We were told that there has been a proliferation of union branches and union officer bearers. On the Lucknow Division of Northern Railway, for instance, there are 35 branches of the two recognized unions (excluding workshops) with 320 office bearers. In addition, there are scores of active union workers who are engaged in union work at even the small work centers as "eyes and ears" of the unions. Lucknow Division staff strength is roughly 28,000. When one considers that apart from the two recognized unions, there are at least another 30 category

wise unions operating on the Division, it is apparent that union activity is,

(a) taking up an inordinate amount of time of the divisional executives and supervisors.

(b) resulting in every important decision being questioned by some group or the other.

(c) keeping a large body of Railway staff preoccupied with wholly union related matters at the expense of their professional duties.

(d) becoming a source of demoralization for the conscientious staff who see that union leaders wield considerable clout, get away without doing their legitimate work and are also able to force management into acceding even to their most intemperate demands. **The conclusion that they drew is that union activity is far more rewarding than honest hard work. Our committee believes that there should be an upper limit on the number of branches that a union can set up. Our recommendation in this regard would he that each recognized union be allowed a maximum of one branch for 5000 men on a division.**

7.6.7 A major problem on the industrial relations front on IR is the threat to normal working posed by the category-wise unions. While the upper echelons of management and the recognized federations derive satisfaction from having shut the doors on the numerous category-wise unions by denying them recognition, our committee was informed that in reality the category-wise unions remain a huge intimidatory presence at the divisional and depot levels. The field officials felt that although there was an administrative fiat against any truck with the sectional

unions, in practice it was impossible to ignore them as they not only have considerable support but are also in a position to disrupt normal working and even paralyze train services, a capability that they have used time and again. In order to test the validity of the complaints of the field officials, we obtained the daily Intelligence reports of 1999 issued by the Security Directorate of the Railway Board which records details of untoward incidents, agitations, etc., on the Railways. We found that out of the 132 agitations and dharnas recorded, as many as 80 were spearheaded by the unrecognized, category-wise unions Administrative fiat has quite obviously not curbed their activities on the Railways

7.6.8 Our Committee has tried to understand the reasons for the mushrooming of category wise unions on IR despite the presence of two well- established and recognized labour unions Many railwaymen feel that a predominant factor is the disenchantment with the recognized unions and their capability of looking after the interests of all the disparate groups that make up the labour front. It has also been argued that the increasing complexity of a modern industry like the Railways has made the creation of sectional entities crucial for safeguarding individual groups' interests.

7.6.9 Whatever be the genesis for the growth of the category-wise unions, our Committee is concerned that the multiplicity of unions, even if most of them are unrecognized, is seriously affecting the work ethos on IR and leading to frequent disruptions and growing indiscipline among staff. In this context, we find that the existing provision in the Trade Union Act, which enables a group of seven or more workers in an undertaking to

form a union/association, has resulted in proliferation of unions. The Trade Union Act needs to take into account the current realities and prescribe rules of association on the basis of the size of the organisation We understand that a task force in the Ministry of Labour is currently engaged in amending the Trade Union Act. **We strongly recommend that the Trade Union Act be suitably amended to include a clause stipulating that a union or association can be registered only if a minimum of 20 per cent of the workforce supports such a formation.**

7.6.10 With regard to the rules for the recognition of associations, IR's Establishment Manual clearly stipulates that recognition will not be granted to any urion/association unless it complies with the following conditions:

> *"It must consist of a distinct class of Railway servants and must not be formed on the basis of any caste, tribe or religious denomination…."*

7.6.11 And yet, Railway management has ignored this secular egalitarian requirement by granting recognition to the SC/ST and OBC associations. In fact, the Railway Board has issued instructions to the Zonal Railways to grant these associations facilities/privileges almost on par with that of the two recognized Federations. The creation and encouragement of such associations has resulted in exacerbating mutual tensions among workers with all the consequent negative spin-offs apart from increasing the time that officers and supervisors have to devote to unions. **Our Committee is convinced that in an**

industrial undertaking, there is no place for such outfits. We recommend that these associations should immediately be disbanded as they breed disharmony even among workers belonging to the same professional category.

7.6.12 We do believe that the real hub of activity on the Railways is the division, and it is here that certain rules need to be laid down regarding Interaction between labour and management. While we do not recommend any curbs on the number of formal and informal meetings between representatives of labour and management at the Zonal and Railway Board levels, **we recommend that at the Divisional level, union representatives should be restrained from contacting officers, barring those belonging to the personnel department, except under the auspices of the PNM forum. As policy issues are not decided by the divisions, the PNM at the divisional level should be devoted to dealing with all forms of staff grievances.**

7.7 Accidents and Accountability

7.7.1 Ensuring safety on IR is a formidable challenge because of the intricate and involved interdependencies that operate in a Railway system. To recall what we said in Part 1 of our Report: "A single flaw in the 62,495 route kms of track that crisscross the country, a defect in the 7500 locomotives, 40,000 coaches and 2.5 lakh wagons that haul more than 11 million passengers and over 1.2 million tonnes of freight every day, an incorrect indication on one of the thousands of signals that dot the rail landscape, a mistake or an act of negligence by one

of its 6,00,000 frontline staff directly associated with train running, even a rash act by one of the million road users who daily negotiate the 40,000 odd level crossings spread across the system, an irresponsible act of carrying inflammable goods any one of these million possibilities has the potential to cause a major tragedy Having studied the ramifications of safety on IR, we are also acutely conscious of the gaps in the safety infrastructure and systems such as over aged assets, over saturated routes, sub-optimal working conditions, certain hostile extraneous factors et al lacunae that have not occurred overnight but have accumulated over the decades. It is against this background that critics must view the Railways' performance and its failures, especially when fixing responsibility for major disasters.

7.7.2 In recent years the term "accountability" has assumed the most menacing connotations for the railway fraternity. This is due to the fact that in the guise of fixing responsibility, random ad-hoc punishments are being inflicted on railwaymen in the aftermath of major accidents. In the perception of most railwaymen today, accountability" has uncomfortable associations with the search for a scapegoat. "Accountability" is being viewed as the panacea for all the ills of the Railways. It is a well-publicized fact that after every recent major accident, there is an almost knee-jerk reaction to hold senior managers accountable. It is unfortunate that there is hardly any attempt to go into the causes of the accident, the systems failures and remedial measures necessary to avoid recurrence before pinpointing blame. The political executive and the media seem satisfied when they see a few heads roll, the more senior the better.

7.7.3 We note with concern that senior functionaries of the Railways such as GMS, PHODS and DRMs are being summarily transferred or sent on forced leave in order to appease sections of the media and public. There are cases where penal action has been initiated against Railway officers as a pre-emptive measure against possible adverse public/media reaction, ignoring the basic principles of justice and fair play. We have checked on the antecedents of senior managers who have been punished for their role in recent accidents. Most of the officers who were targeted for punishment have an outstanding professional record. They have successfully handled assignments that involved managing thousands of kilometers of the system and have overseen the work of thousands of employees through various supervisory levels. It is then palpably unfair to hold them responsible for the apse of one of the scores of workers in their charge. It is just that they happened to be at the wrong place at the wrong time. This only further underlines the randomness of the punishments being inflicted.

7.7.4 Supporters of such exemplary punishment believe that it was necessary to take such action in order to send a message down the line to all Railway workers to be more careful and duty conscious. However, we have observed that such patently unjust punishments have had very unhealthy repercussions on the Railways. It has played havoc with the morale of officers and staff. Perhaps the most disturbing off-shoot of the misguided witch-hunt is that railwaymen are now reluctant to take on front-line jobs in the Divisional and Zonal headquarters This inhibition does not stem from lack of confidence to handle the job, but because of fear that they may fall

victim to random punishments In case of a major accident within their jurisdiction.

7.7.5 Our Committee is deeply concerned at the ad-hoc random punishments and humiliation being directed at railwaymen following recent major accidents. Today, IR Is in the throes of a financial and organizational crisis and it is crucial that the morale of railwaymen is high and their commitment steadfast so that the grave problems facing the Railways are tackled with a sense of purpose and resolve. We are convinced that a demoralized, frightened Railway management will not be able to deliver the goods.

7.7.6 While our Committee disapproves of the manner in which accountability and responsibility have been fixed in the aftermath of recent accidents, we are aware of the need to ensure accountability even at the senior levels. For deficiencies in supervision or systems failures for which the frontline worker is not responsible, the levels above him in the hierarchy need to be held accountable. For example, in case of signals passed at danger (SPAD), the driver is normally held responsible. But in case there have been repeated SPADS at the same spot due to poor visibility or poor layout, higher levels will have to be held accountable for the system failure Similarly, if the administration has dedded to track circuit a station in a fixed time frame but has not done so and there has been an accident at that station that could have been averted if the station was track circuited, senior managers will have to be answerable. We would, however, stress that only the appropriate senior level clearly responsible for the systems' failures should be taken up.

7.7.7 Our committee found that safety on IR is measured almost exclusively in terms of train accidents. The Corporate Plan of the Railways does not mention anything about creating the right safety climate on the Railways but has reduced the pursuit of safety to a single, cryptic objective: "Reduce incidence of train accidents." What our committee observed was that on IR today, the management at all levels is accident-focussed. Safety performance is measured entirely in terms of accident rates, and follow-up action normally ends with punishing the staff held responsible. There is little, if any, study of systems failures that may be the root cause of the accident. Awards and punishments are linked only to accidents. As a result of this lop-sided focus on accidents, the accident statistics at all levels are being manipulated, because future professional advancement depends on such subterfuge Moreover, the current system of punitive action against those directly responsible for accidents and unsafe practices without simultaneous rectification of systems failures has created an ethos in which staff are reluctant to report unsafe conditions and work practices.

7.7.8 There is much amiss the existing safety environment at every tier in the hierarchy.

7.7.9 In the context of such deep-rooted problems, it seems almost inevitable that accountability and fixing of responsibility will remain the random, ad-hoc exercise that it is today. A proper system of accountability presupposes a clear chain of command, adequate power and control over the area of responsibility, proper infrastructure and work environment, complete

transparency in reporting failures and systems weaknesses.

7.7.10 Our committee is of the view that for putting in place an effective system of accountability, the first prerequisite is intellectual honesty to ensure that all distortions in the reporting of accidents, asset failures and other related statistics are corrected. We recommend that at least for the next two years there should be no targets prescribed for accidents and asset failures. Instead, the corporate emphasis should be on ensuring that all failures are faithfully reported and actions to prevent recurrence crystallized and followed up. While this will not altogether clear the air, it will at least encourage managers at the divisional and Zonal levels to refrain from playing the current game of numbers Our Committee is convinced that a constructive non- punitive approach will yield better results than the existing punitive regime.

7.7.11 In the opinion of our committee the key to improvement in safety is maintenance of assets because safety and maintenance are blood brothers, inextricably linked. Introducing a new gadget is a relatively simple preposition because it is essentially a matter of finances. The real "crunch" time comes after installation of the device, when the maintenance becomes the key to safety. efficiency and productivity. **"Improved maintenance of assets" has to become the motto and watchword of every railwayman. The main thrust of the Railways should be on improving maintenance of assets on a war footing. Once there is a clear focus on developing a maintenance culture, then accountability will follow.**

7.7.12 Rather than the current obsession with fixing responsibility only for accidents, which are really the end result of a series of failures, IR management must introduce a system of accountability on critical Issues relating to discipline, training, quality of workmanship, systems failures, availability of spares and their quality, reliability of assets and uplifting of staff morale.

7.8 Rules and Systems Governing Railways

7.8.1 In conclusion, we wish to reiterate what we had stated at the very beginning of Part I of our Report, which is reproduced below:

> *"Given the awesome challenge faced by the Railways, it is not only unrealistic but also dangerous to treat the Railways and its problems on par with other Government departments, which has unfortunately been the case during the last five decades. Our Investigations, and the views of various Railwaymen, past and present, point to a steady and general erosion in the work ethics and standards of discipline at all levels on the Railways. We are convinced that if the Railways is to effectively perform its ordained role as the prime transport mode and propellant of economic growth, it will need to be insulated from some of the conventional norms that typify governmental functioning."*

7.8.2 We emphasize this particular issue because we consider it most important for improving safety on IR. The Railways are not similar to other Departments or Ministries of the Government Railwaymen are running a system 365 days a year and 24 hours a day. While performing this job, total commitment, complete sense of belonging and a very high sense of pride for the department are an absolute must. A special status for this organization will have to be recognized to cultivate amongst railwaymen the qualities referred to above.

7.8.3 The only other organization, which can be compared with the Railways, is the Armed Forces. The Government has, therefore, to nurture the Railways to inculcate in railwaymen the qualities that are essential to run the system efficiently. For this reason, the working rules for railwaymen will need significant change, Including their rights and responsibilities. In the past, it was not for nothing that even private Railway companies looked after the education, supply of essentials, health of staff and their families - particularly of those who served in remote places. It was recognition of the fact that the Railways was distinct from other normal professions; it was a way of life. These measures created amongst railwaymen a sense of belonging and pride resulting in unstinted commitment to the organization. Apart from improving the working conditions and welfare of railwaymen, in the matter of discipline the usual discipline and appeal rules of the Government are not adequate to maintain high standards of discipline. A faster system, somewhat along the lines of the Armed Forces but specific to the Railways will need to be

evolved so that quick action can be taken against defaulters.

7.8.4 Another matter of vital concern is the effect of unions and sectoral associations, the influence of which has to be constructive and conducive to ensure better discipline and productivity.

7.8.5 Our committee recommends that a separate task force examines all these matters concerning change of rules and systems to inculcate in railwaymen a sense of belonging and pride.

SUMMARY OF RECOMMENDATION

S. No.	Para No.	Recommendation
		INVESTING PLANNING AND POLICIES
1	2.3.2	Financial justification should be the only consideration for approving and prioritizing an investment proposal. Further, only projects which yield a minimum rate of return of 20 percent, slightly more than the prevailing market rate of interest, should henceforth be undertaken. It is also necessary to arbitrate that in view of IR's financial crisis, no authority should be allowed to clear projects that do not fulfil this minimum RoR*, except where strategic lines are involved; the concerned codes should accordingly be amended. *RoR - Rate of Return
2	2.5.3	With immediate effect, the requirements for asset renewal should be excluded from the Plan outlay as these only represent the wear and tear due to carrying traffic and are not investments per se.
3	2.7.2	IR should be vested with the power to close a Line/facility if the State Government is not willing to bear the recurring loss on its maintenance and operation.
4	2.7.6(i)	Item (d) of the policy for construction of New Lines (Para 2.7.4) should be deleted.
5	2.7.6(ii)	All unviable projects including New Lines should be funded from outside the Railway

		finances for initial costs and recurring losses till they break even.
6	2.7.7	There should be an immediate review of all New Line projects which are not project-oriented lines or lines of strategic importance. Such of these non-remunerative lines which are nowhere near completion should be dropped without further delay
7	2.7.8	Projects where only token allotments have been made in two successive years should be dropped forthwith.
8	2.8.13	Ministry of Railways should announce an immediate freeze on further sanction of GC projects. Of the GC projects on the anvil, careful prioritization must be done entirely on the basis of financial returns taking into account the likely expenditure on replacement of assets like track/bridges/signalling etc. on condition basis in the foreseeable future and operational benefits that will accrue to the Railways.
9	2.9.9	Purely on grounds of enhancing the safety of the system, creation of adequate infrastructure for maintenance (both for fixed and moving assets) and line/terminal capacity must get the highest priority in the investment planning process, on par with replacement and renewal of over-aged assets.
10	2.10.1	For the next five years, where no strategic considerations are involved, surveys should be done only for project-oriented lines or missing links/lines that, prima facie, are remunerative.

11	2.11.4	For making adequate provision of funds in the DRF **(i)** replacements required in the next three years should be worked out and provided for. **(ii)** a portion of the renewal arrears, at least 10 percent should be provided for in addition so that arrears can be wiped out at least in a decade. **(iii)** there should be no authority to resile from this system as a minimum. **(iv)** while the above exercise is being conducted, contributions to DRF should be raised to at least s. 4500 crores per annum for the next three years against the present average contribution of about Rs. 2300 crores **(v)** (v) The funds required for replacement of rolling stock should come from DRF, which will be in addition to the above recommended amount.
12	2.11.5	Further Recommendations on DRF and allied matters: **(i)** The problem of premature retirement of assets, particularly track, needs to be tackled on a war footing. **(ii)** A reassessment of the codal life of major assets on 18. should be done by a small disciplinary team of Railway and outside experts on the basis of past performance of the asset, extent of use and other related factors.

		(iii) IR must introduce a proper prioritization for the renewal of major assets based on the importance of the route, the extent of wear and tear, the extent of use, and most importantly, the performance of the art from the safety angle and the cost of maintenance. **(iv)** The yearly contribution to DRF should be the first charge on the revenues of IR as rehabilitation of over aged assets is of prime importance for ensuring the safety of the system. IR should ensure that under no circumstances the depreciation provision is depressed. **(v)** The funds in the DRF should be kept outside the purview of Plan Finance in order to ensure that withdrawals from the fund are not subject to the vagaries of the ways and means position of the Central Exchequer.
13	2.12.9	It should be made mandatory for Zonal Railways to maintain proper records of the actual returns on projects costing over Rs 50 crores to be calculated on a yearly basis for at want 10 years after completion. There should be accountability of the variance from the projected RoR is excessive
14	2.12.10	So specialized has the job of Project Appraisal become that before any railwayman is given such an assignment, he should be made to undergo an intensive training programme on the subject of Project preparation and appraisal

		in the RSC Vadodara, which should immediately design such a specialized training capsule.
15	2.12.11	Under no circumstances should the safety features of a project be jettisoned in the process of pruning down the costs Standards codified for different levels of traffic must be observed.
16	2.13.1	The actual loss due to each accident must be worked out, taking into account direct and indirect losses.
17	2.14.3	The financial advice to executives should be only recommendatory in nature and the executive should have the ultimate decision-making power along with responsibility.
18	2.16.4	Market horrowings should be used for investment only in viable new assets required on additional account. This principle should also be extended to projects The RoR should be higher than the lease charges as the outgo. The actual return should be assessed after five years of acquisition/completion.
19	2.17.2	The Revenue Budget must be realistic and should take into account the inflationary factors and increase in workload so that procurement of material and equipment does not get affected.
20	2.18.3	Drastic steps be taken to reduce staff strength to a level of 12 lakhs by the year 2010 and the share of staff cost be confined to 45% of Gross Traffic Receipts
GENERAL		
21	3.1.2	The Committee reiterates in the strongest

		possible terms that IR needs to improve its implementation of safety Items by planning each with physical/financial benchmarks spread over several years.
22	3.5.5	IR should immediately cancel the new guidelines issued regarding compilation of train accident statistics and revert to the instructions on the subject given in the Manual of Statistical Instructions and Il e Accident Manual.
23	3.13.6	Considering the importance of SWRS, an expert group of officers from Signal and Operating departments be co- opted to make out a prototype SWR that is presented in a user friendly format.
24	3.13.8	A multi-disciplinary task force of senior railwaymen should study and correct the discrepancies between rulebooks, manuals and codes This exercise should be completed within the next two years
25	4.3.2	The 1968 circular on minimum punishments for accidents should be modified, if it cannot be dispensed with altogether In this context, our Committee strongly recommends that at the very least, the clause relating to "signals passed at danger (SPAD)", but not causing any accident, should be deleted from the circular.
26	4.3.3	IR should maintain full data of indicative accidents and selectively get them inquired into at officer's level and reviewed by DSO.
27	5.4.5	On IR a welfare organization already exists and there are institutions which provide cultural, recreational, sports and welfare facilities. Such

		organizations, among other things, should also focus on the benefits of regular exercise, adequate rest and balanced diet.
28	5.17.2	The surrender of the posts of Railway Advisers in Indian Embassies of advanced countries is a very retrograde step, we recommend revival of all these posts forthwith.
29	7.7.10	Our committee is of the view that for putting in place an effective system of accountability, the first prerequisite is intellectual honesty to ensure that all distortions in the reporting of accidents, asset failures and other related statistics are corrected. We recommend that at east for the next two years there should be no targets prescribed for accidents and asset failures. Instead, the corporate emphasis should be on ensuring that all failures are faithfully reported and actions to prevent recurrence crystallized and followed up
30	7.7.11	"Improved maintenance of assets" has to become the motto and watchword of every railwayman The main thrust of the Railways should be on improving maintenance of assets on a war footing. Once there is a clear focus on developing a maintenance culture, then accountability will follow.
31	7.7.12	Rather than the current obsession with fixing responsibility only for accidents, which are really the end result of a series of failures, IR management must introduce a system of accountability on critical issues relating to discipline, training, quality of workmanship,

		systems failures, availability of spares and their quality, reliability of assets and uplifting of staff morale.
32	7.8.5	A separate task force should examine, all matters concerning change of rules and systems to inculcate in the railwaymen a sense of belonging and pride.
PERSONAL		
Recruitment and Training		
33	3.6.1	For all selections conducted by the RRBs, the minimum pass marks should be 50 per cent for the general candidates and 45 per cent for the reserved category candidates.
34	3.7.1	At least for the selection of the front-line safety category jobs such as Assistant Station Master, driver, and motorman, there should be both a written test and interview.
35	3.9.3	Henceforth, there should be no appointments made on compassionate grounds to posts in the safety categories, which must be filled up only through proper selection. IR should also immediately work out an alternative scheme in the form of an attractive cash compensation package for families of the unfortunate railwaymen whose careers have been cut short either due to medical de categorization or death.
36	3.11.4	IR should have a central training cell manned by a multi-disciplinary team of selected individuals specialized in training This cell should be entrusted with the responsibility of designing training courses, preparing standard

		lesson plans and training material it should arrange for producing audio-visual training material with the assistance of specialist agencies. At Zonal level the performance of the trainers and availability of Infrastructure and training aids in the training institutions should be monitored by Additional General Manager personally.
37	3.11.4	Selection of trainers should be based on their aptitude for training as judged by their CRs, where this aspect should be specially commented upon, and interview by 3 HODS The trainers should be trained at an appropriate training center and should have a minimum tenure of three years.
38	3.11.4	Selection of trainers should be based on their aptitude for training as judged by their CRs, where this aspect should be specially commented upon, and interview by 3 HODS The trainers should be trained at an appropriate training center and should have a minimum tenure of three years.
39	3.11.4	In tune with the National Training Policy, the Budget allocation for training should be 1.5% of the staff costs.
40	3.12.5	A suitable meditation package must be made an integral part of the Refresher Courses in all Zonal Training Schools of IR.
41	5.2.7	The initial and refresher training capsules for asst. drivers and drivers be reviewed in their entirety, so that greater emphasis is placed on practical training and the use of the latest

		training aids such as simulators and interactive computers
		Psychological Testing
42	3.8.3	In view of the differing views on the reliability of psycho testing, in-service psycho testing of Railway staff should be dispensed with.
43	3.8.4	Optical Mark Reader (OMR) equipment should be installed without further delay in the headquarters offices of all Zonal Railways so that psychological test answer sheets are evaluated promptly, preferably on the same day that the exam is conducted.
		Trade Unions
44	7.6.6	Our committee believes that there should be an upper limit on the number of branches that a union can set up. Our recommendation in this regard would be that each recognized union be allowed a maximum of one branch for 5000 men on a division.
45	7.6.9	We strongly recommend that the Trade Union Act be suitably amended to include a clause stipulating that a union or association can be registered only if a minimum of 20 per cent of the workforce supports such a formation.
46	7.6.11	Our committee is convinced that in an industrial undertaking, there is no place for such category-wise outfits. We recommend that these associations should Immediately be disbanded as they breed disharmony even among workers belonging to the same professional category.
47	7.6.12	At the Divisional level, union representatives

		should be restrained from contacting officers, barring those belonging to the personnel department, except under the auspices of the PNM forum. As policy issues are not decided by the Divisions, the PNM at the Divisional level should be devoted to dealing with all forms of staff grievances.
Other Personnel Matters		
48	4.2.3	The orders regarding lateral induction of gangmen up to 35 years of age into other departments should be withdrawn.
49	4.2.3	Railway Ministry should arbitrate that for certain jobs such as that of gangmen, the retirement age would be 55 years, with a generous "golden handshake" in tow.
CIVIL ENGINEERING		
50	3.17.2	The recent circular restricting recourse to temporary single line working should be withdrawn as this will have an adverse impact on grant of maintenance blocks on high-density sections. It may, however, be specified that whenever temporary single line working is introduced an officer must be specially nominated to monitor compliance with the rules.
51	4.2.3	Instead of the present ad hoc spread of mechanized maintenance of track, the Railway Ministry should draw up a comprehensive Track Mechanization Plan that will target and notify the routes that will switch to complete mechanized maintenance, year-wise, and provide the commensurate inputs.

52	4.4.1	The track renewal arrears along with fresh accruals should be cleared in the next seven years, with a one- time grant from the Central Government.
53	4.4.4(a)	IR has to find ways and means to exclude second-rate suppliers in high value supply contracts. For safety stores intensive monitoring is needed.
54	4.4.4(b)	IR must immediately equip its track inspection cars to measure track elasticity and take measures on a war footing to provide 250 cm cushion of clean/compact ballast, a good resilient pad and an elastic clip with adequate toe load.
55	4.4.4(f)	IR should ensure adequate funds and wherewithal for specified preventive maintenance based on zero-based budgeting.
56	4.4.4(f)	The PWI's half yearly report in the original format should be reintroduced immediately and be maintained carefully like the record of bridges.
57	4.4.6	A multi-disciplinary committee of Additional Members should review the matter of premature track renewal in detail and put up its recommendations to the Board in three months.
58	4.5.4	Recommendations regarding handling of rails: **(a)** Apart from inspection of the quality of rails, the proper loading of rails at Bhilai steel plant should be supervised and certified by a Railway representative. **(b)** IR should preferably nominate one but not more than two ports for imported rail

		handling and these ports should be equipped with the necessary machinery for unloading rails. **(c)** Rails coming from steel plants should be unloaded only in welding plants by overhead gantries and magnets. In the field welded panels should be end unloaded using special rakes provided with rollers. Single rails should be unloaded in the field by ramps and ropes to prevent impact. **(d)** much greater attention needs to be given to providing rolling stock of the right design and in fine fettle. Our committee is of the view that the upkeep, maintenance and movement of departmental rolling stock and trains should be given high priority; and **(e)** the RDSO guidelines on handling of rails should form an integral part of the training courses for all categories of staff of the Civil Engineering department.
59	4.6.3	Recommendations maintenance practices improvement on in track (a) IR should work quickly towards adopting the pattern of track maintenance established by KRC, where each gang has been provided with a mobile maintenance vehicle and has a jurisdiction of 40 kms. Complete switchover to machine maintenance should be made a mission area, to be given priority on par with any other activity connected with track.

		(b) Duties of the sectional permanent way gangs should be redefined with upgradation in technology and bundling out of certain functions on contract. Moreover, the gang tools need to be modified in the context of changes in the track structure Use of crowbars in PRC track is supposed to be prohibited, and yet, in the absence of the right mix of tools, punning is done with the blunt ends of crowbars. Keeping in mind the new track structure and the increasing difficulties in getting adequate blocks, it is essential that easy- to-handle mechanised tools are introduced for routine track maintenance. (c) The attire of the gangman must be redesigned so that it is not a mere uniform but also serves to provide a degree of protection at the work spot and leads to a sense of pride. For this purpose, bright coloured clothing should replace the drab Khaki, along with luminescent strips for night working. (d) Maintenance of Permanent way today is hamstrung on account of lack of mobility of the field staff/equipment and inadequate communication facilities. These aspects need to be addressed by IR on priority
60	4.7.4	Without further debate, safety tolerances should be drawn up for different speeds and categories of track.
61	4.8.2	In view of the inherent vulnerability of points

		and crossings, the inspection schedules should be vigorously enforced.
62	4.8.3	IR should provide thick webbed curved switches on the major trunk routes on priority. The programme for provision of these high-speed turnouts should strictly be progressed, route section wise, so that immediate benefits can be obtained.
63	4.9.2	In this period of transition, IR should seriously consider closing down some of the uneconomic branch lines on MG/NG on safety considerations, especially those lines where traffic is negligible, and which require substantial inputs for keeping them operational; preventive maintenance and condition-based renewal must be taken up systematically on the remaining MG lines for safety.
64	4.10.5	Railway Board should urgently approach the Supreme Court and obtain a relaxation to buy wooden sleepers for bridges as well as points/crossings for the next five years during which time adequate substitutes should be developed.
65	4.11.2	A detailed divisional plan for arrangements to execute scheduled work involving line blocks be made for a week in advance covering all departments and thereafter adhered to.
66	5.18.4	The track maintenance practices, or German Railways be studied in detail for adoption on IR so as to Improve track quality and reduce costs.
67	5.19.3	The process of stone blowing on British Rail be studied by a team of engineers and adopted on

		trial basis on an important line using both off track and on track systems.
68	5.20.3	The expertise to measure rail stress in-situ be obtained urgently in the interest of safety and economy.
		MECHANICAL
69	3.3.3	An automatic device to switch on the locomotive flasher lights in the event of train parting should be developed on very high priority and installed on all locomotives
70	3.16.5	4-wheeler tank wagons should be worked only in closed circuits, which will ensure better maintenance and better monitoring of the fleet. We would also reiterate our earlier recommendation that 4-wheeler tank wagons should be utilized only on single line routes to avoid the possibility of major disasters
71	4.4.4(e)	IR needs to devise procedures to specify and ensure adequate power of locomotives vis-a-vis train attached loads.
72	4.12.1(1)	Recommendations to improve the functioning of the distributor valves: (a) Certain critical rubber and other small components in the distributor valve have been identified as vulnerable to failure primarily on account of their poor quality. As the cost of these components forms hardly 5% of the total cost of the distributor valve, we recommend that RDSO should identify these critical components and the manufacturers advised to import these as a kit from their principals, viz., M/s. Knorr

		Bremse/Sab Wabco. (b) IR had switched over to cast iron distributor valves from aluminium some years back to counter the Incessant problem of theft. While theft has been drastically reduced, we were informed that a number of manufacturers are neither cleaning the cast iron bodies nor providing them with wax coating, which is another prime cause for malfunctioning of the distributor valves. We recommend that RDSO should specify a detailed cleaning and treatment procedure for the cast iron bodles and their periodicity. (c) We found that during POH, "must change" items in distributor valves are not renewed in a large number of workshops, primarily on account of their non- availability Some manufacturers of air brake equipment informed our Committee that they were prepared to set up POH facilities for distributor valves In the various workshops, with a guaranteed five years warranty and an accompanying penalty clause for every failure of a distributor valve attributed to had product/workmanship Most of the Ra ways in Europe and USA do not have in-house facilities for maintenance of air brakes and they have this done by the OEMs. Since this would be a new practice for Indian Railways, a wholesole switchover may be difficult and, therefore,

		we recommend that one Railway may be identified for setting up such a facility for DVs fitted on coaching stock Based on the results of this project, the scheme can be considered for implementation in other workshops. (d) Moisture, dust and rust particles (from the steel pipes) cause malfunctioning of the distributor valves While in our Part-1 report we have already recommended fitment of air driers on a war footing on the locomotives so as to ensure supply of dry air the problem of rust particles emanates from the air piping on the rolling stock. We recommend that in coaching stock stainless steel train pipes should be provided, while for freight stock, we recommend use of seamless pipes duty treated to reduce corrosion.
73	4.12.1(2)	Recommendations in the context of malfunctioning of slack adjusters. • Failures are monitored, workshop-wise as well as maker-wise, and responsibility fixed. This should be monitored at Zonal Headquarters/Railway Board level. • All repairs are done only in workshops;
74	4.12.1(3)	Retrofitment of the existing stock with bogie mounted brakes should be expedited to a time frame.
75	4.13.3	IR should switch over to twin beam halogen headlights on all new locos and also retrofit these headlights on the existing locos.

76	4.14.6	The Railway administration should ensure that the new locomotives of all types manufactured by IR are provided with the Vigilance Control Device (VCD) with necessary modification of the braking system.
77	4.15.1	IR should draw up a plan for providing dynamic brakes in all locomotives within the next one year.
78	4.16.3	There should be strict enforcement of Section 59 of the Railway Act by making the provision of a functioning audio-visual warning system on passenger trains to be a mandatory requirement on par with brake-power of a train. The audio-visual alarm should be tested at the starting/crew changing station, and treated as a rejectable defect necessitating change of loco if not found functional. We also reiterate our recommendation in Part I concerning provision of through wiring on passenger rakes.
79	4.17.3	IR management should have adequate number of in motion weighbridges on each Railway for monitoring overloading of wagons. The focus on sheer increase in number of weighbridges cannot solve the problem of overloading IR should focus on: (a) installing weighbridges selectively on routes where traffic most susceptible to overloading moves and (b) making the available weighbridges work properly.
80	4.18.1	From here on it should be stipulated that all primary train examination points should ensure 100 percent brake power on air braked trains,

		against the present stipulation of 85 percent. Brake pressure as specified by Board should be followed by ail Railways.
81	4.19.2	The maintenance of coaching stock should only be under one department as in the case with locomotives and EMUS
82	5.5.2	IR should proceed with urgency to install digital data loggers that would not only record signal infractions but will also help in detecting SPADS, preventive maintenance and for ascertaining the status of signals in the event of a dispute.
83	5.5.4	IR management should take measures to improve the system of monitoring and investigation of SPAD cases on IR almost on the same lines as on British Railways.
84	5.10.7	The Delhi-Mathura project should be the touchstone for deciding on the future of train control systems on IR because, given the country's problems and the competing priorities, there is no room for costly technologies which are hard to sustain.
85	5.11.1	IR should install Computerized Train Despatch Systems on busy sections
86	5.13.3	At least two Wheel Impact Load Detector (WILD) systems should immediately be procured and installed at key locations.
87	5.14.4	To begin with, event recorders roughly on the lines mentioned in para 5.14 be fitted on all new locos and used not just for inquiry investigations but also for monitoring driving skills. Subsequently the question of retrofitting

		should also be considered.
88	5.15.5	For improving the crash worthiness of the coaches, IR should: **(i)** Closely interact with research agencies in Europe and USA to improve anti-climbing and crash worthiness of the coach bodies, both for existing fleets and for future builts; **(ii)** Adopt hydraulic buffing arrangements at least for SLRS, power cars and locomotives to reduce impact forces.
89	5.21.2	PUEBLO Research Centre be contacted and device to check dynamic performance of rolling stock be installed on our busy lines to locate rolling stack units for special maintenance thereby avoiding their involvement in accidents.
SIGNAL & TELECOMMUNICATION		
90	3.2.2	Implementation of our Committee's recommendation on Mobile Train Radio Communication should be given a very high priority by IR and the usual reason of "non availability of funds should not apply to this device
91	4.21.1	The standard I interlocking at all stations or the BG main and trunk routes should be converted to standard Ill within the next two years excepting those where there are special reasons.
92	4.22.4	Within the next one year all kerosene lit distant/warner signals on the main and trunk lines should be electrically lit.
93	4.23.2	For all major projects Involving doubling and conversion of main and trunk routes, the

		minimum standard of signalling should be MAUQ and preferably colour light signalling Further, a comprehensive plan be drawn up by each Zonal Railway for modifying signalling arrangements to attain uniformity of signalling on all BG trunk and main line routes within the next five years.
DRIVERS		
94	3.10.2	The driving seats in the locomotives should be replaced by comfortable chairs with back rests in the shortest time possible.
95	3.10.3	On all Divisions concerned officers and supervisors should be provided with mobile breathalyzer equipment for testing running staff on the footplate on a regular basis.
96	3.10.4	Each Railway should try giving on contract the management of a few running rooms. The system can be extended progressively.
97	4.2.5	The annual medical tests for drivers conducted after 55 years should not be confined only to a vision test hut should also check the cardiac condition. Also, the psycho-technical cell of RDSO should undertake a fresh study to assess the impact of increase in retirement age on the performance of drivers.
WORKSHOPS		
98	4.20.6	Recommendations on Workshop Audit • RDSO's workshop audit team should include a TA grade open line officer from a different railway 10 make the reports more meaningful. • The reports should be discussed once a

		year for follow up in a suitable forum convened by the Railway Board • Their reports should also include recommendations for charges in manufacturing/repair practices. This should also be discussed in the Annual Review for acceptance.
99	4.20.9	Recommendations regarding manufacturing facilities and practices with regard to springs: • There is need to ensure that the basic infrastructure for manufacturing and repair of springs is available in all workshops where springs are attended: • Workshop-wise failure of springs should be monitored at Railway Board level; a prerequisite should be legible markings of the manufacturer's name and date of manufacture.
100	4.20.12	Recommendations regarding manufacturing facilities: • Workshops must ensure 100% dropping of couplers, their gauging and repairs as laid down in RDSO'S Manual G-47. • Monitoring of coupler failures workshop-wise is a must to identify workshops that need to improve Again, legible marking where the coupler was last attended to and date is a must; • Availability of coupler spares and their quality, viz., steel castings, must improve There is need to develop additional sources as the current sources are interested in

		supplying only full couplers,
101	4.20.15	Recommendations for improving the infrastructure/ working environment of Workshops: • Civil Engineering and Electrical Officers/officials responsible for maintenance of workshops be placed under the administrative control of the Workshop In- charge. • Separate funds for repair and maintenance of workshops be communicated, which should be spent with the specific approval of the Workshop In-charge. • Whenever possible, separate zona contracts be placed for workshops and work orders be released only with the approval of the Workshop In-charge.
102	4.20.19	The present workshop procurement powers are limited and need to be enhanced as further elaborated in this para.
		LEVEL CROSSING
103	3.14.4	A much higher weightage should be given for rail traffic than is provided in the existing system of calculating TVUS On all branch lines and other sections where there are only one or two pairs of trains plying, the level crossings should be demanned and if necessary, a permanent speed restriction of 10 to 15 kmph imposed for trains while negotiating unmanned gates having a high level of road traffic. We also recommend that, as with track circuiting, the Railways must upgrade level crossings,

		route wise, on the basis of density of rail traffic.
104	3.14.5	The Railways should immediately revise the norms for categorization of level crossing gates based on traffic handled and nature of the road so that the provision of safety aids is commensurate with the level of risk.
105	5.16.6	IR should review the existing provisions relating to use of speed breakers and rumble strips, which are designed to slow down road traffic short of LCS.
106	5.16.9	Recommendations to improve safety at unmanned level crossings: **(i)** Poor visibility for the road user at unmanned level crossings is a major hazard. It is vital that each division of IR ab initio checks every unmanned LC gate with special emphasis on vegetation to ensure that visibility for the road user is adequate. **(ii)** It is about time that IR modified the signage at LC gates which has been existing since long. Much more prominent and instructive road signs reed to be installed at unmanned LCs. **(iii)** Enforcement of traffic laws at level crossings must be stepped up and sustained through close liaison with the police authorities. **(iv)** Local bodies such as the Panchayats need to be actively associated with issues relating to LC gates, in terms of education of road users as also closure of gates In

		India also drives on the pattern of Operation of Live Savers (OL) Involving IR, State Governments, Local authorities including Panchayats should be launched to educate the public and enforce laws at level crossings. The nodal authority for enforcing these rives should be the Union Ministry of Home so that adequate support is received from local police and other authorities.
		FIRE
107	3.15.3	The initial and periodic refresher training courses for running staff and AC attendants should have a programme on firefighting/use of fire extinguishers.
108	3.15.3	At least 5 percent of the fire extinguishers on locomotives/coaches/brake vans should be tested at random by the custodian depot/shed in the presence of an officer and a proper record maintained of these tests
109	3.15.4	The ticket checking staff should be imparted training in Fire Fighting, First Aid and Cardio Pulmonary Resuscitation (CPR) during their initial training at the time of recruitment and thereafter every three years Their duty lists should necessarily incorporate such functions.
		DISASTER MANAGEMENT
110	3.18.4 & 3.18.5	Recommendations on Disaster Management and ART Upgradation 1. Setting up of Disaster Training Cells at Zonal Training Centers of each Railway 2. Setting up of a centralized Disaster

		Management Institute for training of trainers of Zonal Training Centers, and to supervise the working of the Training Cells 3. A system of licensing of all ART staff (Skilled artisan and above) based on successful completion of an initial training programme and refresher courses in alternate years. 4. Training to include: • Administration of first aid and evacuation/ extrication of injured passengers. • Handling of traumatized passengers. • Firefighting. • Overall management during major accidents. In the centralized institute, courses should specifically be held for senior officers like DRMS etc., who are officers-In-charge at major accident spots.
		SAFETY ORGANISATION
111	6.8.6 & 6.8.7	The Safety Department on IR should be made broad based and suitable officers from Traffic, Civil, Mechanical. Signal and Electrical Engineering Departments should be posted as Safety officers at all levels. Our committee further recommends the following: **(i)** The Chief Safety Officer should be given the status of PHOD and the incumbent should have worked successfully as DRM.

		(ii) There should be four officers of Dy HOD rank (from departments other than that of CSO) reporting to him. **(iii)** Similar pattern should be adopted on the Divisions where the DSO should invariably be in JA grade. He should have Assistant/Senior Scale officers reporting to him. **(iv)** All safety officers should have a minimum tenure of three years. **(v)** Each safety group should have a transport available for surprise checks. **(vi)** Experience as DSO/CSO should be necessary for promotion to PHOD/ GM
112	6.9.11	The concept of safety audits should be introduced on IR. Details can be worked out by IR
ORGANIZATIONAL ISSUES		
113	7.5.6	Several Committees have suggested a major revamp of the organizational structure on the Railways as the only remedy for departmentalism. We entirely agree and recommend that the first step regarding restructuring of IR should focus on consolidation/merger of departments function-wise.
114	7.5.7	Only officers who have had a minimum exposure of 8 years to field working should be considered for posting as DRMs. We further recommend that the minimum tenure for DRMS should be raised to 3 years. Successful DRMS may be given a second spell on another

		Division.
RDSO		
115	6.4	RDSO should play the role of facilitator by seeking the active collaboration of Industry, Institutes of technology and other specialist agencies for developing technologies.
116	6.4	Henceforth ROSO should concentrate on identifying the new technologies that can most suitably be adopted by IR and thereafter associate manufacturers and technical institutions in developing and upgrading these technologies in a time-bound programme.
117	6.5	There is hardly
118	6.6	There is hardly any sustained Interaction between IR and R&D Institutions of the advanced Railway systems. The Committee recommends that the links with such Institutions should be quickly established and strengthened through exchange of ideas on technical, operating issues, new technologies, etc.
COMMISSION OF RAILWAY SAFETY		
119	6.7.4	Our committee firmly believes that the first step to be initiated to restore public confidence is to make all CRS inquiries public and transparent.
120	6.7.4	Likewise, the inquiry reports of the CRS should be made available to the public immediately after finalization.
121	6.7.4	A cause should be included in the relevant laws that no railway servant can be prosecuted without the sanction of the authority competent

		to appoint him or a higher authority. Further, it should be stipulated that the Commissioner of Railway Safety or any other Investigating authority who has powers of a civil court for conduct of enquiries cannot be called as witness or for examination by any court in cases which arise from Investigations done by them Finally, the report and the findings of the CRS should not be allowed to be used as evidence
122	6.7.5	The Chief Commissioner should be of the rank of Secretary to the Government of India and the Commissioners of the rank of Special Secretaries.
123	6.7.6	Designation of Commissioner of Railway Safety Invariably leads public and media to consider him a part of Railway Organisation. To change this public perception, we recommend that the designation be changed to Commissioner of Safety.
124	6.7.7	Our committee recommends that railwaymen from other disciplines directly associated with train operations such as Mechanical, Traffic, Signal and Electrical, should also be eligible for posting as CRS.
125	6.7.8	The CRS should be relieved of the function of approving new designs of rolling stock before they are pressed into service. This will require deletion of Section 27 of the Railway Act, 1989.
126	6.7.9	The finalization and conclusions and recommendations of serious accident inquiry

		reports should be adopted after discussions in a Board consisting of at least two Commissioners, preferably with different professional backgrounds.
127	6.7.10	Each Commissioner should be assisted by at least one Deputy Commissioner in JA Grade and two senior inspectors, care being taken to see that, to the extent possible, they have different professional backgrounds.
128	6.7.10	The sanctions for the posts of Dy CRSs should be in combined J.A and Selection Grade to permit Officers in either grade to be posted and continued in the post even after promotion from J A. to Selection Grade.

Part – II of the Report of the Railway Safety Review Committee, 1998, is submitted herewith to the Ministry of Railways.



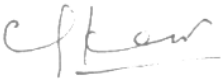
(Justice H.R. Khanna)
(Retd.)
Chairman



(Maheshwar Singh, MR)
Member



(Ananta Sethi, MP)
Member



(C. L. Kaw)
Member



(L. K. Sinha)
Member



(S. M. Vaish)
Member



(V. S. Dutta)
Member



(Dr. Vinod Chandra)
Member



(Mathew John)
Secretary

New Delhi
02nd February, 2001

ANNEXURE- 'A'

Terms of Reference

The task entrusted to our committee was spelt out in the Ministry of Railways notification No.- ERB-I/97/23/39 dated 03.08.1998, which is reproduced below: -

Resolution

In view of the concern voiced by various sections of Indian society in regard to train accidents and the public concern expressed regarding the safety performance of Indian Railways, Ministry of Railways (Railway Board) have decided to set up a High-Power Railway Safety Review Committee to go into all aspects connected with the sale running of train services in the country. The constitution of the Committee will be as follows:

	S/Shri	
1	**Justice H.R Khanna,** Retired Judge of the supreme Court	**Chairman**
2	**V. Dhananjaya Kumar,** Member of Parliament (Lok Sabha)	**Member**
3	**Ananta Sethi,** Member of Parliament (Rajya Sabha)	**Member**
4	**C.L. Kaw,** Retd. Chairman, Railway Board	**Member**
5	**L.K Sinha,** Retd. Member Mechanical, Railway Board	**Member**
6	**S.M, Vaish,** Retd. General Manager, Northern Railway	**Member**
7	**V.S Dutta,** Commissioner of railway Safety, Northern Circle	**Member**
8	**Dr. Vinod Chandra,** Professor, Deptt. Of Elec. Engg., IIT, Delhi	**Member**

2. One Senior Administrative Grade Officer will be appointed as Secretary of the Committee
3. The terms of reference of the Committee will be as under:
   (a) To review the position of accidents on the Indian Railways since the appointment of the Railway Accidents Inquiry Committee, 1968 and to review the implementation of the recommendations of all previous Accident Inquiry Committees.
   (b) To examine the adequacy of the existing organisation, equipments and practices for ensuring safe running of trains on Indian Railways and to suggest measures for prevention of accidents.
   (c) Implications of financial investment planning of Railway projects on safety; and
   (d) To examine safety measures/equipment/technology as adopted by Railways of some of the advanced countries which would have relevance for Indian Railways and could also be adopted for use on Indian Railways.
4. The Committee will be required to submit the report within six months from the date of its constitution.

Sd/-
D.P. TRIPATHI
SECRETARY, RAILWAY BOARD AND
EX-OFFICIO ADDITIONAL SECRETARY
TO THE GOVERNMENT OF INDIA

(On account of the dissolution of the 12th Lok Sabha, the Committee was deprived of the services of Shri V Dhananjaya Kumar from 26.4.1999. However, the Committee was back to full strength with the appointment of Shri Maheshwar Singh, Member of Parliament (Lok Sabha) vide Ministry of Railway's Resolution No. ERBI / 97 / 23 / 39 dated 27.03.2000)

ANNEXURE- 'B'

Reiterated Recommendations

S.N.	Recommendation in Part I Report	Views of the Ministry of Railways	Reiterated Recommendation
1	Implementation of accepted recommendations of Railway Committees Accident should be regularly reviewed and monitored at various levels once in two months.	Partially Accepted Implementation of accepted recommendations of this and future Railway Accident Committees will be reviewed at Railway Board level at the frequency of six months. Zonal Railways and Divisions to review accepted recommendations at an interval of three months and send progress report to Safety Directorate of Railway Board.	The Committee feels that Involvement of the Commission of Railway Safety is very important.
2	Decisions on safety projects should cover the items completely. In all aspects like funding, time-schedules, actions, accountability, etc., over several years.	Accepted. Safety Plan has been formulated, Implementation subject to availability of funds.	Specific time schedules and funding over specific number of years should be indicated at the time of sanction along with benchmarks of physical achievement.
3	Henceforth, for any job on the Railways, the minimum educational qualification should be matriculation.	Not accepted. As per recommendations of 5 deg Pay Commission accepted by Government, any for which the Job minimum educational qualification Is stipulated as matriculate must be classified as Group 'C'. Hence It is not possible to prescribe matriculation for Group 'D' posts.	IR cannot be compared with other Government establishments as human lives are involved. People recruited in Group 'D' ultimately get promoted to some essential category of supervisory safety posts and therefore should have minimal Class X Board Certificate.

4	Teaching allowance should be fixed at 40 percent of the basic salary in all Railway Training Institutions as this will help draw individuals of high caliber to take these critical assignments	Not Accepted. In view of revised pay scales Implemented in line with recommendations of 5 deg Pay Commission, amount of training allowance of 15% of basic pay significantly has also Increased Therefore, recommendation of Railway Safety Review Committee to increase this allowance to 40% of basic pay is not accepted.	The recommendation was made keeping In view the revised pay scales and creating a differential which will motivate the meritorious employees.
5	A reliable Train Radio Communication between driver, facility guard, ASM, level crossing gate and approaching trains should be provided as a first step within 3 years on 'C' and 'A' routes in another three years on - B' route Once optical fibre backbone is in place, the communication facility should be extended to control office. The system should have in-built call override, broadcast and 505 facilities.	Accepted. Action for provision of Mobile Train Radio System in a phased manner, first on ^ A deg and 'C' route and then on 'B' route has already been initiated.	A very high priority needs to be given to this item and the recommended schedule adhered to. time
6	CRTS (till withdrawn) and four-wheeler tank wagons which are derailment prone should preferably be	Partially accepted. It is not always feasible, since traffic pattern will not permit such segregation, since 75% of	We consider it should be possible for IR to restrict the use of these wagons to single lines only.

	utilized only on single line routes to possibility disasters. avoid of the major.	tank wagons wheelers. Are 4- Nonetheless attempts would be made in this direction to the extent possible.	
7	No new train should be introduced till the concerned Commissioner of Railway Safety has certified the adequacy of maintenance Infrastructure and manpower.	Not accepted. Not feasible. Since Ministry of Railways must retain overall control regarding Introduction of new trains.	Even after involving Commissioner of Railway Safety, Railways will still have the final word.
8	Supervisors should not be allowed to join the unions. They should be permitted. To form their own association to represent their interests and grievances.	No accepted. Under present Trade Union Act it is not possible to accept the recommendation, since it has legal Implications and Trade Union Act will have to be modified.	The subject is extremely Important and the Act should be amended.
9	In the case of transfers of union officials, it should be sufficient to give the trade unions months, a notice of 3 tom enable alternative arrangements being made. The transfer should have the approval of an officer one level higher than the one ordinarily competent to order the transfer.	Not accepted. The extant instructions do not bar transfer of union office bearers, though some guidelines have been issued for effecting such transfers with a view to maintain continuity in the functioning of unions. GMs are competent to transfer union officials. No change in existing instructions necessary.	The present system is not working satisfactorily, and the recommended change needs to be implemented.
10	Provision of an emergency button suitably located in the	Not accepted No such universal device	It should not be difficult to develop such a device.

	driver's cab should be made which, when pressed, will: (1) cut off power of the loco; (II) put on the flasher lights; (iii) set off an emergency siren; (iv) shoot flares in the sky, and (v) send an SOS signal on the mobile train radio, if available.	available.	
11	Considering the critical importance of the audio visual warning device in emergences involving passenger distress and generation of wheel flats, Railways must, without further delay, ensure that the system of through wiring in the coaches to activate this device restored	Not accepted. Recently developed Audio/ Video alarm system is working satisfactorily.	The recommendation was made after looking at the reliability of the present audio-visual device and other benefits which can be derived by through wiring of coaches.
12	Railways should quickly switch over to self-steering bogies which reduce wheel flange wear besides exerting very low flange forces on the track.	Accepted. Implementation subject to availability of funds.	A self-steering bogie will perhaps cost marginally more bogie than the present but the saving effected due to lesser wear in track and wheels will more than compensate the additional cost.
13	'F' deg type couplers, which are robust, have little wear and reduce chances of uncoupling in accidents, should be introduced early.	Accepted. Implementation subject to success of trials.	'F' type couplers are being successfully used all over the world.

LIST OF ABBREVIATION

ABB	Asian Brown Bovary
ACP	Alarm Chain Pulling.
AEN	Assistant Engineer
AGM	Additional General Manager
AILRSA	All India Loco Running Staff Association
ART	Accident Relief Train
ASM	Assistant Station Maste
ATP	Automatic Train Protection
AWS	Auxiliary Warning System
BB	Chhatrapati Shivaji Terminus, Mumbai
BG	Broad Gauge
BPC	Brake Power Certificate.
BR	British Rail
BSL	Block Section Limit
CCEA	Cabinet Committee on Economic Affairs
CCRS	Chief Commissioner of Railway Safety
CERN	Committee for Expansion of Rail Network
CFC	Chlorinated Fluorocarbon
CIRAS	Confidential Incident Reporting and Analysis System.
CLW	Chittaranjan Locomotives Works
CN	Canadian National Railway
CP	Canadian Pacific Railway
CPR	Cardiopulmonary Resuscitation
CR	Central Railway
CRs	Confidential Reports
CRS	Commission/Commissioner of Railway Safety
CR1	Vacuum braked four-wheeler covered Wagon
CWE	Chief Workshops Engineer
D&AR	Discipline & Appeal Rules
DBAG	German Railways

DBG	Dibrugarh
DCP	Dry Chemical Powder
DED	Dragging Equipment Detector
DEN	Divisional Engineer
DLI	Delhi Junction
DLW	Diesel Locomotive Works
DMU	Diesel Multiple Unit
DOT	Department of Transport
DRM	Divisional Railway Manager
DSO	Divisional Safety Officer
DV	Distribution Value
DVB	Delhi Vidyut Board
ETCS	European Train Control System
FAST	Fitness, Alertness, Sleep and Time- off
FM	Fouling Mark
FRA	Federal Railroad Administration
GC	Gauge Conversion
GIR	Government Inspector
GM	General Manager
GMT	Gross Million Tonnes
GR	General Rules
HBD	Hot Box Detector
HMRI	Her Majesty's Railway Inspectorate
HOD	Head of Department
HOER	Hours of Employment Regulations
HWD	Hot Wheel Detector
HWH	Howrah Junction
ICF	Integral Coach Factory
IIC	Investigator -in – Charge
IR	Indian Railway
IRCA	Indian Railway Conference Association

IRFC	Indian Railway Finance Corporation
IRPWM	Indian Railway Permanent Way Manual
IRR	Internet Rate of Return
JA	Junior Administrative
JARTS	Japan Railway Technical service
JCM	Joint Consultative Machinery
Jn	Junction
KRCL	Konkan Railway Corporation Limited
LC	Level Crossing
LDCE	Limited Departmental Competitive Examination
LMG	Lumding
LRDSS	Long Range Decision Support System
MAUQ	Multiple Aspect Upper Quadrant
RITES	Rail India Technical & Economic services
ROH	Routine Overhaul
ROR	Routine Overhaul
RPF	Railway Protection Force
RRB	Railway Recruitment Board
RRC	Railway Reforms Committee
RSC	Railway Staff College
MEMU	Mainline Electric Multiple Unit
MG	Meter Gauge
MP	Member of Parliament
NARAP	North American Rail Alertness Partnership
NCC	National Communication Centre
NF	Northeast Frontier
NG	Narrow Gauge
NJP	New Jalpalguri
NTPC	National training & Productivity Council
NTSB	National Transportation Safety Board
OBC	Other Backward Caste

OEM	Original Equipment Manufacture
OL	Operation Lifesaver Programme
OMR	Optical Mark Reader
OSD	Officer on Special Duty
OWE	Ordinary Working Expenses
P. Way	Permanent Way
PAC	Propnetary Article Certificate
PHOD	Principal Head Of Department
PME	Periodic Medical Examination
PNM	Permanent Negotiating Machinery
POH	Periodic Overhaul
PRC	Pre-Reinforced Concrete Sleeper
PREM	Participation of Railway Employees in Management
PRS	Passenger Reservation System
PWI	Permanent Way Inspector
R&D	Research & Development
RDSO	Research Designs & Standards Organization
S&T	Signalling & Telecommunication
SAG	Senior Administrative Grade.
SDGM	Senior Deputy General Manager
SI	Signal Inspector
SM	Station Master
SNCF	French National Railways
SPAD	Signal Passed At Danger
Spl	Special.
SPR	Southern Punjab Railway
SR	Subsidiary Rule
ST	Scheduled Tribe
SWR	Station working Rules.
TREL	The Elementary Reaction Test
TSB	Transportation Safety Board

TTCI	Transportation Technology Centre, Peublo, USA
TVUs	Train Vehicle Units
UIC	International Union of Railways
UK	United Kingdom
USA	United States of America
USFD	Ultra Sonic Flaw Detector
UTS	Ultimate Tensile Strength
VCD	Vigilance Control Device
WILD	Wheel Impact Load Detector
WIS	Way-side Inspection System
WTT	Working Time-Table
X-ing	Crossing
ZTS	Zonal Training School

IMPLEMENTATION STATUS OF RECOMMENDATIONS OF RAILWAY SAFETY REVIEW COMMITTEE-1998 (KHANNA COMMITTEE, 1998)

(POSITION AS ON 30-6-2010)

IMPLEMENTATION STATUS
OF RECOMMENDATIONS OF
RAILWAY SAFETY REVIEW COMMITTEE-1998
(KHANNA COMMITTEE, 1998) (POSITION AS ON 30-6-2010)
SOURCE: MINISTRY OF RAILWAYS
(RAILWAY BOARD) SITE: https://indianrailways.gov.in/railwayboard/view_section.jsp?lang=0&id=0,1,304,366,389,400,410
CMS TEAM LAST REVIEWED ON: 05-02-2011

I

1.0 Background

i) Railway Safety Review Committee-1998 (Khanna Committee) submitted their Report in two parts. In Part-I, the Committee has made 150 recommendations whereas in Part-II, the Committee has made 128 recommendations.

ii) As per the latest position, out of 278 recommendations made in both the parts, 236 recommendations have been accepted fully or partially of which 217 recommendations have been implemented, and 5 recommendations accepted but 'non-implementable'.

iii) The accepted recommendations of Part I were circulated to Directorates of Board in November 2000 for initiating implementation.

iv) 83 accepted recommendations of Part II were circulated to Directorates of Board in October 2002 and remaining 31 in April 2003 for taking follow-up action.

2.0 Present Status

The present status of these recommendations is as under:

S.N.	Classification	RSRC (Part-I)	RSRC (Part-II)	Total
1	**Total No. of Recommendations**	150	128	278
2	**Recommendations Not Accepted**	18	19	37
3	**Accepted Recommendations:**			
	Partially Accepted	30	39	69
	Completely Accepted	101	66	167
	Total	**131**	**105**	**236**
4	**Recommendations Implemented**			
	Partially Accepted	30	37	67
	Completely Accepted	90	60	150
	Total	**120**	**97**	**217**
5	**Recommendation Accepted but 'Not Implementable'**			
	Partially Accepted	-	1	1
	Completely Accepted	1	3	4
	Total	**1**	**4**	**5**
6	**Recommendations U/Implementation**			
	Partially Accepted	00	02	02
	Completely Accepted	11	06	17
	Total	**11**	**08**	**19**

*Recommendation No. 5.11, & of RSRC (Pt. I) and 20, 32, 35, 36, 45 of RSRC (Pt. II) are later reclassified from 'Accepted'/ 'Partially

Accepted' to 'Not Accepted'. Recommendation No. 36.2 of RSRC (Pt. I) Accepted but non-implementable and 28, 121, 122 & 126 of RSRC (Pt. II) Accepted/Partially Accepted but non-implementable.

3.0 Recommendations Not Accepted

Recommendation No. of Railway Safety Review Committee – 1998 which have been classified as "Not Accepted" are as under:

Part – I = 18	**Part – II = 19**
3.4, 4.1, 5.1, 5.2, 5.8, 5.9, 5.11*, 16.3, 21.1, 22.1*, 23.2, 24.3, 29.4, 30.1, 33.1, 34.2, 34.6, 35.6,	2, 4, 20*, 22, 32*, 34, 35*, 36*, 38, 45*, 46, 47, 49, 55, 85, 113, 114, 123, 125,

- Reclassified later as "Not Accepted"

4.0 Recommendation Accepted/Partially Accepted but 'non-implementable'

Pt.- I = 1	**Pt. – II = 4**
36.2	28, 121, 122 & 126

5.0 Recommendations 'Partially Accepted'

Recommendation Nos. of Railway Safety Review Committee - 1998 which have been classified as "Partially Accepted" are as under:

Part-I = 30	**Part-II = 39**
1.1, 2.1, 3.7, 4.2, 5.3, 5.7, 6.2, 6.3, 7.2, 7.5, 8.2, 8.5, 14.3, 14.4, 15.1, 17.1, 18.1, 24.1, 24.2, 28.1, 28.4, 29.3, 32.2, 34.3, 34.4, 34.7, 35.3, 36.1, 37.4, 38.1.	1, 6, 7, 8, 10, 12, 13, 16, 17, 18, 25, 29, 42, 44, 48, 54, 56, 59, 60, 64, 70, 72, 73, 77, 78, 80, 81, 83, 90, 92, 93, 97, 101, 102, 103, 108, 111, 118, 119,

6.0 Recommendations Implemented

Directorate wise list of Accepted/ Partially Accepted Recommendations of Part-I & Part-II of the Report of Railway Safety Review Committee (RSRC-98) – Khanna Committee that are finally Implemented is as under:

6.1 Part-I Recommendations

Recommendation No.	Total No.	Directorate
3.1, 3.2, 3.3, 3.5, 3.6, 4.2, 4.3, 7.1, 24.1,	9	Establishment
3.7, 3.8	2	Estt. /RDSO/Safety
5.4	1	MS & Safety (A&R)
37.4	1	MS & Safety (I)
5.3, 5.5, 5.6, 5.7, 5.10, 7.9	6	Management Services
10.2, 10.3	2	Budget
7.5, 14.2, 14.1, 14.3, 16.1, 16.2, 16.4, 26.1, 29.2, 29.6, 29.8, 29.9, 31.2, 35.4, 35.5, 35.7	16	Mechanical
7.7	1	Mech., Elec., Safety
7.2	1	Mech., Elec., TT
7.3, 7.4, 7.6, 7.8, 7.10, 28.1, 28.3, 28.4, 28.5, 29.3.	10	Mechanical & Electrical
10.1	1	Mech., Elect, Signal, CE
38.1	1	Electrical
14.4, 31.1	2	TT & Mech.
17.1, 32.1, 32.2.	3	TT

25.1, 25.2, 25.3, 25.5.	4	TT, Signal, Elec., Mech., Civil
12.1, 13.2, 13.3, 15.1, 15.2, 15.4, 15.8, 15.9, 15.10, 17.2, 17.4, 17.5, 17.6, 27.1, 27.2, 27.3, 27.4, 34.5, 34.1	19	CE
34.3	1	CE & Signal
6.2, 6.3, 6.4, 11.1, 34.4.	5	Signal
27.5	1	Telecommunication
18.1, 37.1, 37.2, 37.5	4	Secretary
19.1	1	Planning
1.1, 8.1, 8.2, 8.3, 8.4, 20.1, 23.3, 23.5, 28.2, 37.3, 39.1, 39.2 ,8.5, 23.4	14	Safety
25.4	1	Safety, Mech., Elec. & Signal
2.1	1	Safety, CE, Signal, Mech. & Electrical.
36.1, 36.3	2	Traffic (Commercial)
15.6	1	Traffic (Commercial) & Mech.
9.1, 9.2	2	Stores, Mech., Elec., RDSO, CE, Signal, Tele.
9.3, 9.4, 9.5, 9.6	4	Stores
35.3	1	Health
24.2, 34.7	2	Pay Commission
23.1	1	Safety, Accounts & Traffic Commercial
Total	**120**	

6.2 Recommendation Accepted but 'Not Implementable'

36.2	**1**	**Traffic Commercial**
Total	**1**	

6.3 Part-II Recommendations

Recommendation No.	Total	Directorate
14, 37, 40, 41	4	Management Services
109	1	M.S & T.C
111.	1	Secretary
107	1	MS, Mech. & Elec.
27, 33, 43, 48	4	Establishment
44	1	IR
29	1	E&R
115, 116, 117	3	E&R / RDSO
97	1	Health / RDSO
50	1	TT & Safety(A&R)
70	1	TT
71	1	TT, Mech. & Electrical
3, 63	2	Traffic Commercial
79	1	Traffic Commercial & Mechanical
72, 73, 74, 80	4	Mechanical
98, 99, 100, 101, 102	5	Mechanical (PU)
31	1	Mech., Elec., CE, Signal, Tele, MS, Stores
24	1	Mech., Elec., CE, Signal, Tele, MS, Safety, TC, Health, Security etc.
21, 30	2	Mech., Elec., CE, Signal, Tele

69, 75, 76, 77, 78, 87, 94, 95, 96, 108	10	Mech. & Elec.
15	1	Mech., Elec., CE, Signal, Tele, RE, Works
12	1	Mech., Elec., CE, Signal, Tele, Budget, Accounts etc.
16, 25, 26, 83, 112, 119, 120., 127, 128	9	Safety
23	1	Safety & Signal
42, 118	2	Safety & RDSO
6, 8, 10	3	Works
7, 18	2	Works, Finance (B), R.E
9	1	Planning, Mech., Elec., CE, Signal, Tele, RE, Finance (B), Works
5	1	Planning
65	1	CE, Elec, Signal
1	1	Planning & Works
64	1	CE & Track
82, 84, 91, 92, 93	5	Signal
61	1	CE & Signal
58	1	CE & Mech.
59	1	CE & Tele
51, 52, 56, 60, 62, 66, 67, 68, 103, 104, 105	11	C.E
106	1	C.E & Safety
11, 19	2	Finance (Budget)
39	1	Finance (Budget) & MS
13, 17	2	Finance (Exp.)
53	1	Stores & CE
124	1	Secretary
Total	**97**	

6.4 Recommendation Accepted but 'Not Implementable'

121, 122 & 126	**3**	**Safety**
28	**1**	**Secretary**
Total	**4**	

7.0 Recommendations 'Under Implementation'

Directorate wise list of Accepted/ Partially Accepted Recommendations of Part-I & Part-II of the Report of Railway Safety Review Committee (RSRC-98) – Khanna Committee that are under Implementation is as under:

7.1 Part-I Recommendations

Directorate	Recommendation No.(s) marked to only one Dte	Total No.	Recommendation No.(s) marked to more than one Directorate	Total No.	Grand total
Civil Engg.	15.3, 15.5, 15.7, 17.3,	4	0	4	
Mechanical	29.1, 29.5^, 29.7^, 35.2.	4	35.1.	1	5
Safety	-	35.1.	1	1	
Establishment	0	-	-		
Tele.	6.1^	1	0	1	
Traffic Commercial	0	-	-		
RDSO	0	13.1.	1	1	
Accounts	-	-			
Total		**9**		**03*/02**	**12*/11**

*These are essentially only 02 recommendations, each marked to more than one Dte, on which action is to be taken by different Directorates.
** In all 11recommendations are still to be implemented.
^ Reiterated in Part-II

7.2 Part-II Recommendations

Directorate	**Recommendation No.(s) marked to only one Dte**	**Total No.**	**Recom--mendation No.(s) marked to more than one Directorate**	**Total No.**	**Grand total**
Mechanical	86, 88, 89.	3	81	1	4
Electrical	-	-	-		
Civil Engg.	54, 57	2	-	2	
Secretary	-	-	-		
Tele	90.	1	-	1	
Safety	-	110,	1	1	
Health	-	110.	1	1	
MS	-	110	1	1	
Total	**06**	**04*/02**	**10**/08**		

* These are essentially only 02 recommendations, each marked to more than one Dte, on which action is to be taken by different Directorates.
** In all, 08 recommendations are yet to be implemented.

Progress of Implementation of Accepted / Partially Accepted recommendations of Railway Safety Review Committee-1998 (Khanna Committee) (Position as on 30.6.2010)

Dte.	Accepted/P. Accepted Recommendations			Implemented as on 31.5.2010			Implemented during June, 2010			Balance		
	Pt. I	Pt. II	Total	Pt. I	Pt. II	Total	Pt. I	Pt. II	Total	Pt. I	Pt. II	Total
C.E	35	27	62		31	25	56			4	2	6
Track		1	1	1	1							
Works	9	9			9	9						
Mech.	50	31	81	45	27	72				5	4	9
Mech./PU		6	6		6	6						
Elec.	26	22	48		26	22	48					
R.E		4	4		4	4						
Signal	18	15	33	18	15	33						
Safety	23	18	41	22	17	39				1	1	2
Secretary	4	3	7		4	3	7					
Finance/B	2	6	8		2	6	8					
Finance/Exp.	1	1	2		2	2						
Accounts	1	1	2		1	1	2					
Security		1	1		1	1						
Estab.	11	4	15	11	4	15						

Pay. Com.	2		2	2		2						
Ind. Rel		1	1		1	1						
Tele	4	9	13	3	8	11				1	1	2
Stores	6	3	9	6	3	9						
T.C	4	5	9	4	5	9						
T.T	10	3	13	10	3	13						
Health	2	2	4	2	1	3					1	1
Planning	1	3	4	1	3	4						
RDSO	5	6	11	4	6	10				1		1
E&R		1	1		1	1						

Note:

i) Total no. of recommendations implemented up to 30-6-2010 = 217+ 5 (Pt. I - 120+ 1Pt.II 97+4).

ii) Total no. of recommendations fully implemented during June, 2010= 0

iii) Total no. of recommendations partially implemented during June 2010 = 0

iv) There are number of recommendations, which are marked to more than one Directorate due to which the total of recommendations under the columns "Accepted/Partially accepted" is more than 236.

v) Recommendation No. 5.11, of part I and 20, 32, 35, 36 & 45 of part II which were earlier classified "Accepted" has later been reclassified as "'Not Accepted").

vi) Recommendation No. 36.2 of RSRC (Pt. I) Accepted but 'non-implementable' and 28, 121, 122 & 126 of RSRC (Pt. II) Accepted/Partially Accepted but 'non-implementable'.

vii) In all 11 Recommendations of Part-I and 08 Recommendations of Part-II are yet to be implemented.

Source: Ministry of Railways (Railway Board) CMS Team Last Reviewed on: 05-02-2011

RECOMMENDATIONS NOT ACCEPTED

II

SOURCE: MINISTRY OF RAILWAYS
(RAILWAY BOARD) SITE: https://indianrailways.gov.in/railwayboard/view_section.jsp?lang=0&id=0,1,304,366,389,400,410
CMS TEAM LAST REVIEWED ON: 05-02-2011
(THE RAILWAY SAFETY REVIEW COMMITTEE, 1998
PART I AND II: H. R. KHANNA COMMITTEE REPORT 1998 PART I AND II)

Recommendation No. of Railway Safety Review Committee – 1998 which have been classified as "Not Accepted" are as under:

Part – I = 18	**Part – II = 19**
3.4, 4.1, 5.1, 5.2, 5.8, 5.9, 5.11*, 16.3, 21.1, 22.1*, 23.2, 24.3, 29.4, 30.1, 33.1, 34.2, 34.6, 35.6,	2, 4, 20*, 22, 32*, 34, 35*, 36*, 38, 45*, 46, 47, 49, 55, 85, 113, 114, 123, 125,

- Reclassified later as "Not Accepted"

PART – I = 18

Recommendation No. 3.4

To attract talent, the Chairman, RRB, should be entitled to a special allowance equivalent to 40 percent of basic salary. (Para no. 2.5.6 (iv) of RSRC 1998, Part I)

Recommendation No. 4.1

Henceforth, for any job on the Railways, the minimum educational qualification should be matriculation. (Para no. 2.7.1 of RSRC 1998, Part I)

Recommendation No. 5.1

Teaching allowance should be fixed at 40 percent of the basic salary in all Railway training institutions as this will help draw individuals of high calibre to take up these critical assignments. (Para no. 2.9.4 of RSRC 1998, Part I)

Recommendation No. 5.2

As a small incentive, the trainees should be provided free food during the period of training in addition to normal DA. (Para no. 2.9.5 of RSRC 1998, Part I)

Recommendation No. 5.8

In order to upgrade the skills of existing staff, they should be given liberal incentives to join ITI Courses, with Railways even reserving seats in reputed II institutions for deserving Railwaymen. (Para no. 2.9.8 of RSRC 1998, Part I)

Recommendation No. 5.9

All staff belonging to the technical categories who are enrolled in a recognized ITI Course should be granted study leave with full pay and allowances for the duration of the course. (Para no. 2.9.8 of RSRC 1998, Part I)

Recommendation No. 5.11*

An all-India body like IRCAMTECH may be entrusted with the task of providing certification of the competence of teachers/trainers so that uniform and adequate standards are enforced. (Para no. 2.9.10 of RSRC 1998, Part I)

Recommendation No. 16.3

No new train should be introduced till the concerned Commissioner of Railway Safety has certified the adequacy of maintenance infrastructure and manpower. (Para no. 2.21.5(a) of RSRC 1998, Part I)

Recommendation No. 21.1

Supervisors should not be allowed to join the unions. They should be permitted to form their own association to represent their interests and grievances. (Para no. 3.2.3 & 3.2.4 of RSRC 1998, Part I)

Recommendation No. 22.1*

In the case of transfers of union officials, it should be sufficient to give the trade unions notice of 3 months, to enable alternative arrangements being made. The transfer should have the approval of an officer one level higher

than the one ordinarily competent to order the transfer. (Para no. 3.2.5 of RSRC 1998, Part I)

Recommendation No. 23.2

All manuals containing rules for the different categories of staff associated with safety should be available in the vernacular languages, apart from Hindi and English, but as separate books. (Para no. 3.3.4(1) of RSRC 1998, Part I)

Recommendation No. 24.3

Supervisors should be given the powers to grant on-the-spot cash awards up to a maximum of Rs.100/- to staff under their control subject to a maximum of Rs.2000/- per year. (Para no. Para 3.4.2(iii) of RSRC 1998, Part I)

Recommendation No. 29.4

Considering their crucial implications, the critical rubber components should be manufactured by the Railways in-house, by developing the required wherewithal, in some of the Railways' existing manufacturing units. (Para no. 3.11.3(iv) of RSRC 1998, Part I)

Recommendation No. 30.1

The POH load to the different workshops should be distributed in a manner that one shop handles only one or, at best, two types of wagons. (Para no. 3.12.1 of RSRC 1998, Part I)

Recommendation No. 33.1

In case radio communication is not provided and considering the fact that train partings are still an endemic feature on the Railways, the Committee

recommends adoption of block proving with axle counters on a large scale on busy routes. (Para no. 3.17.2 of RSRC 1998, Part I)

Recommendation No. 34.2

The working instructions at non-interlocked manned gates having telephone should be modified. (Para no. 3.18.4 of RSRC 1998, Part I)

Recommendation No. 34.6

Rumble-strips constructed at the approach of manned gates should be removed. (Para no. 3.18.8 of RSRC 1998, Part I)

Recommendation No. 35.6

Two horizontal telescopic boom cranes should be provided on the IR for trials. (Para no. 3.19.8 of RSRC 1998, Part I)

PART – II = 19

Recommendation No. 2

With immediate effect, the requirements for asset renewal should be excluded from the Plan outlay as these only represent the wear and tear due to carrying traffic and are not investments per se. (Para no. 2.5.3 of RSRC 1998, Part II)

Recommendation No. 4

Item (d) of the policy for construction of New Lines (Para 2.7.4) should be deleted. (Para no. 2.7.6(i) of RSRC 1998, Part II)

Recommendation No. 20*

Drastic steps be taken to reduce staff strength to a level of 12 lakhs by the year 2010 and the

share of staff cost be confined to 45% of Gross Traffic Receipts. (Para no. 2.18.3 of RSRC 1998, Part II)

Recommendation No. 32*

A separate task force should examine all matters concerning change of rules and systems to inculcate in the railwaymen a sense of belonging and pride. (Para no. 7.8.5 of RSRC 1998, Part II)

Recommendation No. 34

At least for the selection of the front-line safety category jobs such as Assistant Station Master, driver, and motorman, there should be both a written test and interview. (Para no. 3.7.1 of RSRC 1998, Part II)

Recommendation No. 35*

Henceforth, there should be no appointments made on compassionate grounds to post in the safety categories, which must be filled up only through proper selection. IR should also immediately work out an alternative scheme in the form of an attractive cash compensation package for families of the unfortunate railwaymen whose careers have been cut short either due to medical de categorization or death. (Para no. 3.9.3 of RSRC 1998, Part II)

Recommendation No. 36

IR should have a central training cell manned by a multi-disciplinary team of selected individuals specialized in training This cell should be entrusted with the responsibility of designing training courses, preparing standard lesson plans

and training material it should arrange for producing audio-visual training material with the assistance of specialist agencies. At Zonal level the performance of the trainers and availability of Infrastructure and training aids in the training institutions should be monitored by the Additional General Manager personally. (Para no. 3.11.4 of RSRC 1998, Part II)

Recommendation No. 38

Selection of trainers should be based on their aptitude for training as judged by their CRs, where this aspect should be specially commented upon, and interview by 3 HODS The trainers should be trained at an appropriate training center and should have a minimum tenure of three years. (Para no. 3.11.4 of RSRC 1998, Part II)

Recommendation No. 45*

We strongly recommend that the Trade Union Act be suitably amended to include a clause stipulating that a union or association can be registered only if a minimum of 20 per cent of the workforce supports such a formation. (Para no. 7.6.9 of RSRC 1998, Part II)

Recommendation No. 46

Our committee is convinced that in an industrial undertaking, there is no place for such category-wise outfits. We recommend that these associations should Immediately be disbanded as they breed disharmony even among workers

belonging to the same professional category. (Para no. 7.6.11 of RSRC 1998, Part II)

Recommendation No. 47

At the Divisional level, union representatives should be restrained from contacting officers, barring those belonging to the personnel department, except under the auspices of the PNM forum. As policy issues are not decided by the Divisions, the PNM at the Divisional level should be devoted to dealing with all forms of staff grievances. (Para no. 7.6.12 of RSRC 1998, Part II)

Recommendation No. 49

The Railway Ministry should arbitrate that for certain jobs such as that of gangmen, the retirement age would be 55 years, with a generous "golden handshake" in tow. (Para no. 4.2.3 of RSRC 1998, Part II)

Recommendation No. 55

IR should ensure adequate funds and wherewithal for specified preventive maintenance based on zero-based budgeting. (Para no. 4.4.4(f) of RSRC 1998, Part II)

Recommendation No. 85

IR should install Computerized Train Dispatch Systems on busy sections (Para no. 5.11.1 of RSRC 1998, Part II)

Recommendation No. 113

Several Committees have suggested a major revamp of the organizational structure on the

Railways as the only remedy for departmentalism. We entirely agree and recommend that the first step regarding restructuring of IR should focus on consolidation/merger of departments function-wise. (Para no. 7.5.6 of RSRC 1998, Part II)

Recommendation No. 114

Only officers who have had a minimum exposure of 8 years to field working should be considered for posting as DRMs. We further recommend that the minimum tenure for DRMS should be raised to 3 years. Successful DRMS may be given a second spell on another Division. (Para no. 7.5.7 of RSRC 1998, Part II)

Recommendation No. 123

Designation of Commissioner of Railway Safety Invariably leads public and media to consider him a part of Railway Organization. To change this public perception, we recommend that the designation be changed to the Commissioner of Safety. (Para no. 6.7.6 of RSRC 1998, Part II)

Recommendation No. 125

The CRS should be relieved of the function of approving new designs of rolling stock before they are pressed into service. This will require deletion of Section 27 of the Railway Act, 1989. (Para no. 6.7.8 of RSRC 1998, Part II)

RECOMMENDATION ACCEPTED/ PARTIALLY ACCEPTED BUT 'NON-IMPLEMENTABLE'

III

SOURCE: MINISTRY OF RAILWAYS
(RAILWAY BOARD) SITE: https://indianrailways.gov.in/railwayboard/view_section.jsp?lang=0&id=0,1,304,366,389,400,410
CMS TEAM LAST REVIEWED ON: 05-02-2011
(THE RAILWAY SAFETY REVIEW COMMITTEE, 1998
PART I AND II: H. R. KHANNA COMMITTEE REPORT 1998 PART I AND II)

Recommendation Accepted/Partially Accepted but 'non-implementable'

Pt.- I = 1	**Pt. – II = 4**
36.2	28, 121, 122 & 126

PART- I = 1

Recommendation No. 36.2

Even one Member of the Tribunal should be fully authorized to decide claims in accident cases, irrespective of the amount involved. (Para no. 3.20.3 of RSRC 1998, Part I)

PART- II = 4

Recommendation No. 28

The surrender of the posts of Railway Advisers in Indian Embassies of advanced countries is a

very retrograde step, we recommend revival of all these posts forthwith. (Para no. 5.17.2 of RSRC 1998, Part II)

Recommendation No. 121

A cause should be included in the relevant laws that no railway servant can be prosecuted without the sanction of the authority competent to appoint him or a higher authority. Further, it should be stipulated that the Commissioner of Railway Safety or any other Investigating authority who has powers of a civil court for conduct of enquiries cannot be called as witness or for examination by any court in cases which arise from Investigations done by them Finally, the report and the findings of the CRS should not be allowed to be used as evidence. (Para no. 6.7.4 of RSRC 1998, Part II)

Recommendation No. 122

The Chief Commissioner should be of the rank of Secretary to the Government of India and the Commissioners of the rank of Special Secretaries. (Para no. 6.7.5 of RSRC 1998, Part II)

Recommendation No. 126

The finalization and conclusions and recommendations of serious accident inquiry reports should be adopted after discussions in a Board consisting of at least two Commissioners, preferably with different professional backgrounds. (Para no. 6.7.9 of RSRC 1998, Part II)

RECOMMENDATIONS 'PARTIALLY ACCEPTED'

SOURCE: MINISTRY OF RAILWAYS
(RAILWAY BOARD) SITE: https://indianrailways.gov.in/railwayboard/view_section.jsp?lang=0&id=0,1,304,366,389,400,410
CMS TEAM LAST REVIEWED ON: 05-02-2011
(THE RAILWAY SAFETY REVIEW COMMITTEE, 1998
PART I AND II: H. R. KHANNA COMMITTEE REPORT 1998 PART I AND II)

IV

Recommendations 'Partially Accepted'

Recommendation Nos. of Railway Safety Review Committee - 1998 which have been classified as "Partially Accepted" are as under:

Part-I = 30	**Part-II = 39**
1.1, 2.1, 3.7, 4.2, 5.3, 5.7, 6.2, 6.3, 7.2, 7.5, 8.2, 8.5, 14.3, 14.4, 15.1, 17.1, 18.1, 24.1, 24.2, 28.1, 28.4, 29.3, 32.2, 34.3, 34.4, 34.7, 35.3, 36.1, 37.4, 38.1.	1, 6, 7, 8, 10, 12, 13, 16, 17, 18, 25, 29, 42, 44, 48, 54, 56, 59, 60, 64, 70, 72, 73, 77, 78, 80, 81, 83, 90, 92, 93, 97, 101, 102, 103, 108, 111, 118, 119,

PART- I = 30

Recommendation No. 1.1

Implementation of accepted recommendations of Railway Accident Committees should be regularly reviewed and monitored at various levels once in two months. (Para no. 2.2.1 & 2.2.2 of RSRC 1998, Part I)

Recommendation No. 2.1

Decisions on safety projects should cover the items completely in all aspects like funding, time schedules, actions, accountability, etc. over several years. (Para no. 2.3.1 of RSRC 1998, Part I)

Recommendation No. 3.7

There should be immediate upgrading and revalidation of the psychological tests, and this should be a periodic feature. A competent external professional agency should be asked to do it within the next six months. (Para no. 2.6.3 (1) of RSRC 1998, Part I)

Recommendation No. 4.2

Certain changes in criteria for recruitment/promotion for certain safety category posts. (Para no. 2.7.2 of RSRC 1998, Part I)

Recommendation No. 5.3

Successful completion of training course should be linked to promotion/increment. (Para no. 2.9.6 of RSRC 1998, Part I)

Recommendation No. 5.7

Yoga and meditation lessons should be imparted to trainees in all the training institutions. (Para no. 2.9.7(ii) of RSRC 1998, Part I)

Recommendation No. 6.2

A suitable Train Protection and Warning System should be adopted with the features. (Para no. 2.12.1 of RSRC 1998, Part I)

Recommendation No. 6.3

(Para no. 2.5.3 of RSRC 1998, Part I)

Recommendation No. 7.2

Running Rooms should be provided with the amenities indicated. (Para no. 2.14.3 of RSRC 1998, Part I)

Recommendation No. 7.5

Action should be initiated forthwith so that within next one year IR has 16 simulators. (Para no. 2.14.6 of RSRC 1998, Part I)

Recommendation No. 8.2

It should also be made clear to officials down the line that an act of suppression of any accident or asset failure will be viewed to be as grave an offence as being responsible for causing an accident. (Para no. 2.15.8(ii) of RSRC 1998, Part I)

Recommendation No. 8.5

Within one hour of occurrence of the accident the Control Office should record the details in a standard format, preferably on computer which is networked with Headquarters and Railway Board. The system should be such that deletion of an entry is not possible. (Para no. 2.15.8(v) of RSRC 1998, Part I)

Recommendation No. 14.3

Considering the condition of the BOX fleet and their unreliable performance, the Committee recommends that their codal life be reduced to 25 years. (Para no. 2.19.3 of RSRC 1998, Part I)

Recommendation No. 14.4

The CRTS (till withdrawn) and four-wheeler tank wagons which are derailment-prone should preferably be utilized only on single line routes to avoid the possibility of major disasters. (Para no. 2.19.5 of RSRC 1998, Part I)

Recommendation No. 15.1

A group headed by a senior administrative grade IR officer of impeccable credentials should take over inspection and certification of quality of rails. (Para no. 2.20.2 of RSRC 1998, Part I)

Recommendation No. 17.1

On routes where mechanized maintenance has been introduced, adequate blocks - preferably of the duration of 4 hours - should be given. During these blocks several departments should co-ordinate and take up works concerning OHE, signalling, etc., besides track maintenance. (Para no. 2.22.3 of RSRC 1998, Part I)

Recommendation No. 18.1

On The Ministry of Railways should, as a mark of respect to the dead and Injured in various train accidents, announce an immediate and complete moratorium on all types of celebratory and ceremonial functions for, at least, the next three years and dedicate this period whole-heartedly and completely to improving safety on the Railways. (Para no. 2.24.1 of RSRC 1998, Part I)

Recommendation No. 24.1

Supervisors in scale Rs 6500-10500/- who exercise establishment powers should have most of the disciplinary powers which are at present with Junior Scale Officers. (Para no. 3.4.2(i) of RSRC 1998, Part I)

Recommendation No. 24.2

Because of their position in the hierarchy and nature of their duties involving supervision of senior ranking Class III employees, the posts of the Lis and Tis should only be in the two highest supervisory grades viz. Rs.6500-10500/- and Rs. 7450-11500/-. (Para no. 3.4.2 (ii) of RSRC 1998, Part I)

Recommendation No. 28.1

The provision of an emergency button suitably located in the driver's cab should be made which, when pressed, will: (1) cut off power of the loco; (ii) put on the flasher lights; (iii) set off an emergency siren; (iv) shoot flares in the sky; and (v) send an SOS signal on the mobile train radio, if available. (Para no. 3.10.2of RSRC 1998, Part I)

Recommendation No. 28.4

It is imperative that all locomotives, without exception, are provided with reliable speed recorders with digital memory. Micro-processor-based speed recorders should be developed which not only record speed, distance and time, but also activities like brake application, throttle

position, use of whistle, etc. (Para no. 3.10.5 of RSRC 1998, Part I)

Recommendation No. 29.3

Fitment of air springs should be statutory for EMU stock and this should be completed in five years. Railways should also examine the possibility of fitting them on other coaching stock. (Para no. 3.11.3(iii) of RSRC 1998, Part I)

Recommendation No. 32.2

The discipline of logging of the Kms run thereby ensuring timely examination, is not being maintained. This discipline needs to be enforced. (Para no. 3.15.1 of RSRC 1998, Part I)

Recommendation No. 34.3

The Railways should identify and upgrade such gates where there is heavy train as well as road traffic through inter-locking. The only complete solution is a road over/under bridge. In view of very large expenditure involved this is only possible if a cess is levied on road users through sale of road vehicles/fuel as was recommended sometime back by Railway Administration. (Para no. 3.18.5 of RSRC 1998, Part I)

Recommendation No. 34.4

In the first stage the Railways should install the TAWD at 100 manned gates not provided with telephone within the next one year. (Para no. 3.18.6 of RSRC 1998, Part I)

Recommendation No. 34.7

The grade of the gatemen (of Engineering and Traffic) should be raised to that of keyman. Further, the medical category for gatemen should be revised from A3 to B1 to improve availability. (Para no. 3.18.9 of RSRC 1998, Part I)

Recommendation No. 35.3

Every Railway health unit should be provided with a road ambulance and a driver. (Para no. 3.19.5 of RSRC 1998, Part I)

Recommendation No. 36.1

The jurisdiction clause of the RCT Act should be suitably amended so that the applicant can file the case with any RCT Bench. (Para no. 3.20.2 of RSRC 1998, Part I)

Recommendation No. 37.4

All posts of DSOs should be in JA grade so that they can interact with colleagues in the best possible manner. (Para no. 3.21.2(iv) of RSRC 1998, Part I)

Recommendation No. 38.1

The definition of fire in Metro Railway's Accident Manual be revised so as to include smoke emission. (Para no. 3.22.2of RSRC 1998, Part I)

PART- II = 39

Recommendation No. 1

Financial justification should be the only consideration for approving and prioritizing an investment proposal. Further, only projects which yield a minimum rate of return of 20 percent, slightly more than the prevailing market rate of interest, should henceforth be undertaken. It is also necessary to arbitrate that in view of IR's financial crisis, no authority should be allowed to clear projects that do not fulfil this minimum RoR*, except where strategic lines are involved; the concerned codes should accordingly be amended. *RoR - Rate of Return (Para no. 2.3.2 of RSRC 1998, Part II)

Recommendation No. 6

There should be an immediate review of all New Line projects which are not project-oriented lines or lines of strategic importance. Such of these non-remunerative lines which are nowhere near completion should be dropped without further delay. (Para no. 2.7.7 of RSRC 1998, Part II)

Recommendation No. 7

Projects where only token allotments have been made in two successive years should be dropped forthwith. (Para no. 2.7.8 of RSRC 1998, Part II)

Recommendation No. 8

Ministry of Railways should announce an immediate freeze on further sanction of GC

projects. Of the GC projects on the anvil, careful prioritization must be done entirely on the basis of financial returns taking into account the likely expenditure on replacement of assets like track/bridges/signalling etc. on condition basis in the foreseeable future and operational benefits that will accrue to the Railways. (Para no. 2.8.13 of RSRC 1998, Part II)

Recommendation No. 10

For the next five years, where no strategic considerations are involved, surveys should be done only for project-oriented lines or missing links/lines that, prima facie, are remunerative. (Para no. 2.10.1 of RSRC 1998, Part II)

Recommendation No. 12

Further Recommendations on DRF and allied matters:

(i) The problem of premature retirement of assets, particularly track, needs to be tackled on a war footing.

(ii) A reassessment of the codal life of major assets on 18. should be done by a small disciplinary team of Railway and outside experts on the basis of past performance of the asset, extent of use and other related factors.

(iii) IR must introduce a proper prioritization for the renewal of major assets based on the importance of the route, the extent of wear and tear, the extent of use, and most

importantly, the performance of the art from the safety angle and the cost of maintenance.

(iv) The yearly contribution to DRF should be the first charge on the revenues of IR as rehabilitation of over aged assets is of prime importance for ensuring the safety of the system. IR should ensure that under no circumstances the depreciation provision is depressed.

(v) The funds in the DRF should be kept outside the purview of Plan Finance in order to ensure that withdrawals from the fund are not subject to the vagaries of the ways and means position of the Central Exchequer. (Para no. 2.11.5 of RSRC 1998, Part II)

Recommendation No. 13

It should be made mandatory for Zonal Railways to maintain proper records of the actual returns on projects costing over Rs 50 crores to be calculated on a yearly basis for at want 10 years after completion. There should be accountability of the variance from the projected RoR is excessive. (Para no. 2.12.9 of RSRC 1998, Part II)

Recommendation No. 16

The actual loss due to each accident must be worked out, taking into account direct and

indirect losses. (Para no. 2.13.1 of RSRC 1998, Part II)

Recommendation No. 17

The financial advice to executives should be only recommendatory in nature and the executive should have the ultimate decision-making power along with responsibility. (Para no. 2.14.3 of RSRC 1998, Part II)

Recommendation No. 18

Market horrowings should be used for investment only in viable new assets required on additional account. This principle should also be extended to projects. The RoR should be higher than the lease charges as the outgo. The actual return should be assessed after five years of acquisition/completion. (Para no. 2.16.4 of RSRC 1998, Part II)

Recommendation No. 25

The 1968 circular on minimum punishments for accidents should be modified, if it cannot be dispensed with altogether. In this context, our committee strongly recommends that at the very least, the clause relating to "signals passed at danger (SPAD)", but not causing any accident, should be deleted from the circular. (Para no. 4.3.2 of RSRC 1998, Part II)

Recommendation No. 29

Our committee is of the view that for putting in place an effective system of accountability, the first prerequisite is intellectual honesty to ensure

that all distortions in the reporting of accidents, asset failures and other related statistics are corrected. We recommend that at least for the next two years there should be no targets prescribed for accidents and asset failures. Instead, the corporate emphasis should be on ensuring that all failures are faithfully reported and actions to prevent recurrence crystallized and followed up. (Para no. 7.7.10 of RSRC 1998, Part II)

Recommendation No. 42

In view of the differing views on the reliability of psycho testing, in-service psycho testing of Railway staff should be dispensed with. (Para no. 3.8.3 of RSRC 1998, Part II)

Recommendation No. 44

Our committee believes that there should be an upper limit on the number of branches that a union can set up. Our recommendation in this regard would be that each recognized union be allowed a maximum of one branch for 5000 men on a division. (Para no. 7.6.6 of RSRC 1998, Part II)

Recommendation No. 48

The orders regarding lateral induction of gangmen up to 35 years of age into other departments should be withdrawn. (Para no. 4.2.3 of RSRC 1998, Part II)

Recommendation No. 54

IR must immediately equip its track inspection cars to measure track elasticity and take measures on a war footing to provide 250 cm cushion of clean/compact ballast, a good resilient pad and an elastic clip with adequate toe load. (Para no. 4.4.4(b) of RSRC 1998, Part II)

Recommendation No. 56

The PWI's half yearly report in the original format should be reintroduced immediately and be maintained carefully like the record of bridges. (Para no. 4.4.4(f) of RSRC 1998, Part II)

Recommendation No. 59

Recommendations maintenance practices improvement on in track

(a) IR should work quickly towards adopting the pattern of track maintenance established by KRC, where each gang has been provided with a mobile maintenance vehicle and has a jurisdiction of 40 kms. Complete switchover to machine maintenance should be made a mission area, to be given priority on par with any other activity connected with track.

(b) Duties of the sectional permanent way gangs should be redefined with upgradation in technology and bundling out of certain functions on contract. Moreover, the gang tools need to be modified in the context of changes in the track structure Use of

crowbars in PRC track is supposed to be prohibited, and yet, in the absence of the right mix of tools, punning is done with the blunt ends of crowbars. Keeping in mind the new track structure and the increasing difficulties in getting adequate blocks, it is essential that easy- to-handle mechanized tools are introduced for routine track maintenance.

(c) The attire of the gangman must be redesigned so that it is not a mere uniform but also serves to provide a degree of protection at the work spot and leads to a sense of pride. For this purpose, bright coloured clothing should replace the drab Khaki, along with luminescent strips for night working.

(d) Maintenance of Permanent way today is hamstrung on account of lack of mobility of the field staff/equipment and inadequate communication facilities. These aspects need to be addressed by IR on priority. (Para no. 4.6.3 of RSRC 1998, Part II)

Recommendation No. 60

Without further debate, safety tolerances should be drawn up for different speeds and categories of track. (Para no. 4.7.4 of RSRC 1998, Part II)

Recommendation No. 64

Railway Board should urgently approach the Supreme Court and obtain a relaxation to buy

wooden sleepers for bridges as well as points/crossings for the next five years during which time adequate substitutes should be developed. (Para no. 4.10.5 of RSRC 1998, Part II)

Recommendation No. 70

4-wheeler tank wagons should be worked only in closed circuits, which will ensure better maintenance and better monitoring of the fleet. We would also reiterate our earlier recommendation that 4-wheeler tank wagons should be utilized only on single line routes to avoid the possibility of major disasters. (Para no. 3.16.5of RSRC 1998, Part II)

Recommendation No. 72

Recommendations to improve the functioning of the distributor valves:

(a) Certain critical rubber and other small components in the distributor valve have been identified as vulnerable to failure primarily on account of their poor quality. As the cost of these components forms hardly 5% of the total cost of the distributor valve, we recommend that RDSO should identify these critical components and the manufacturers advised to import these as a kit from their principals, viz., M/s. Knorr Bremse/Sab Wabco.

(b) IR had switched over to cast iron distributor valves from aluminium some years back to counter the Incessant problem of theft.

While theft has been drastically reduced, we were informed that a number of manufacturers are neither cleaning the cast iron bodies nor providing them with wax coating, which is another prime cause for malfunctioning of the distributor valves. We recommend that RDSO should specify a detailed cleaning and treatment procedure for the cast iron bodles and their periodicity.

(c) We found that during POH, "must change" items in distributor valves are not renewed in a large number of workshops, primarily on account of their non- availability Some manufacturers of air brake equipment informed our Committee that they were prepared to set up POH facilities for distributor valves In the various workshops, with a guaranteed five years warranty and an accompanying penalty clause for every failure of a distributor valve attributed to had product/workmanship Most of the Ra ways in Europe and USA do not have in-house facilities for maintenance of air brakes and they have this done by the OEMs. Since this would be a new practice for Indian Railways, a wholesole switchover may be difficult and, therefore, we recommend that one Railway may be identified for setting up such a facility for DVs fitted on coaching stock Based on the

results of this project, the scheme can be considered for implementation in other workshops.

(d) Moisture, dust, and rust particles (from the steel pipes) cause malfunctioning of the distributor valves. While in our Part-1 report we have already recommended fitment of air driers on a war footing on the locomotives so as to ensure supply of dry air the problem of rust particles emanates from the air piping on the rolling stock. We recommend that in coaching stock stainless steel train pipes should be provided, while for freight stock, we recommend use of seamless pipes duty treated to reduce corrosion. (Para no. 4.12.1(1) of RSRC 1998, Part II)

Recommendation No. 73

Recommendations in the context of malfunctioning of slack adjusters.

- Failures are monitored, workshop-wise as well as maker-wise, and responsibility fixed. This should be monitored at Zonal Headquarters/Railway Board level.
- All repairs are done only in workshops; (Para no. 4.12.1(2) of RSRC 1998, Part II)

Recommendation No. 77

IR should draw up a plan for providing dynamic brakes in all locomotives within the next one year. (Para no. 4.15.1 of RSRC 1998, Part II)

Recommendation No. 78

There should be strict enforcement of Section 59 of the Railway Act by making the provision of a functioning audio-visual warning system on passenger trains to be a mandatory requirement on par with brake-power of a train. The audio-visual alarm should be tested at the starting/crew changing station and treated as a rejectable defect necessitating change of loco if not found functional. We also reiterate our recommendation in Part I concerning provision of through wiring on passenger rakes. (Para no. 4.16.3 of RSRC 1998, Part II)

Recommendation No. 80

From here on it should be stipulated that all primary train examination points should ensure 100 percent brake power on air braked trains, against the present stipulation of 85 percent. Brake pressure as specified by Board should be followed by ail Railways. (Para no. 4.18.1 of RSRC 1998, Part II)

Recommendation No. 81

The maintenance of coaching stock should only be under one department as in the case with locomotives and EMUS. (Para no. 4.19.2 of RSRC 1998, Part II)

Recommendation No. 83

IR management should take measures to improve the system of monitoring and investigation of SPAD cases on IR almost on the

same lines as on British Railways. (Para no. 5.5.4 of RSRC 1998, Part II)

Recommendation No. 90

Implementation of our Committee's recommendation on Mobile Train Radio Communication should be given a very high priority by IR and the usual reason of "non availability of funds should not apply to this device. (Para no. 3.2.2 of RSRC 1998, Part II)

Recommendation No. 92

Within the next one year all kerosene lit distant/warner signals on the main and trunk lines should be electrically permanent speed restriction of 10 to 15 kmph imposed for trains while negotiating unmanned gates having a high level of road traffic. We also recommend that, as with track circuiting, the Railways must upgrade level crossings, route wise, on the basis of density of rail traffic. (Para no. 4.22.4 of RSRC 1998, Part II)

Recommendation No. 93

For all major projects Involving doubling and conversion of main and trunk routes, the minimum standard of signalling should be MAUQ and preferably colour light signalling Further, a comprehensive plan be drawn up by each Zonal Railway for modifying signalling arrangements to attain uniformity of signalling on all BG trunk and main line routes within the

next five years. (Para no. 4.23.2 of RSRC 1998, Part II)

Recommendation No. 97

The annual medical tests for drivers conducted after 55 years should not be confined only to a vision test hut should also check the cardiac condition. Also, the psycho-technical cell of RDSO should undertake a fresh study to assess the impact of increase in retirement age on the performance of drivers. (Para no. 4.2.5 of RSRC 1998, Part II)

Recommendation No. 101

Recommendations for improving the infrastructure/ working environment of Workshops:

- Civil Engineering and Electrical Officers/officials responsible for maintenance of workshops be placed under the administrative control of the Workshop In- charge.
- Separate funds for repair and maintenance of workshops be communicated, which should be spent with the specific approval of the Workshop In-charge.
- Whenever possible, separate zona contracts be placed for workshops and work orders be released only with the approval of the Workshop In-charge. (Para no. 2.5.3 of RSRC 1998, Part II)

Recommendation No. 102

The present workshop procurement powers are limited and need to be enhanced as further elaborated in this para. (Para no. 4.20.19 of RSRC 1998, Part II)

Recommendation No. 103

A much higher weightage should be given for rail traffic than is provided in the existing system of calculating TVUS On all branch lines and other sections where there are only one or two pairs of trains plying, the level crossings should be demanned and if necessary, a permanent speed restriction of 10 to 15 kmph imposed for trains while negotiating unmanned gates having a high level of road traffic. We also recommend that, as with track circuiting, the Railways must upgrade level crossings, route wise, on the basis of density of rail traffic. (Para no. 3.14.4 of RSRC 1998, Part II)

Recommendation No. 108

At least 5 percent of the fire extinguishers on locomotives/coaches/brake vans should be tested at random by the custodian depot/shed in the presence of an officer and a proper record maintained of these tests. (Para no. 3.15.3 of RSRC 1998, Part II)

Recommendation No. 111

The Safety Department on IR should be made broad based and suitable officers from Traffic, Civil, Mechanical. Signal and Electrical Engineering Departments should be posted as

Safety officers at all levels. Our committee further recommends the following:

(i) The Chief Safety Officer should be given the status of PHOD and the incumbent should have worked successfully as DRM.

(ii) There should be four officers of Dy HOD rank (from departments other than that of CSO) reporting to him.

(iii) Similar pattern should be adopted on the Divisions where the DSO should invariably be in JA grade. He should have Assistant/Senior Scale officers reporting to him.

(iv) All safety officers should have a minimum tenure of three years.

(v) Each safety group should have a transport available for surprise checks.

(vi) Experience as DSO/CSO should be necessary for promotion to PHOD/ GM. (Para no. 6.8.6 & 6.8.7 of RSRC 1998, Part II)

Recommendation No. 118

There is hardly any sustained Interaction between IR and R&D Institutions of the advanced Railway systems. The Committee recommends that the links with such Institutions should be quickly established and strengthened through exchange of ideas on technical, operating issues, new technologies, etc. (Para no. 6.6 of RSRC 1998, Part II)

Recommendation No. 119

Our committee firmly believes that the first step to be initiated to restore public confidence is to make all CRS inquiries public and transparent. (Para no. 6.7.4 of RSRC 1998, Part II)

RECOMMENDATIONS IMPLEMENTED

SOURCE: MINISTRY OF RAILWAYS
(RAILWAY BOARD) SITE: https://indianrailways.gov.in/railwayboard/view_section.jsp?lang=0&id=0,1,304,366,389,400,410
CMS TEAM LAST REVIEWED ON: 05-02-2011
(THE RAILWAY SAFETY REVIEW COMMITTEE, 1998
PART I AND II: H. R. KHANNA COMMITTEE REPORT 1998 PART I AND II)

V

Recommendations Implemented

Directorate wise list of Accepted/ Partially Accepted Recommendations of Part-I & Part-II of the Report of Railway Safety Review Committee (RSRC-98) – Khanna Committee that are finally Implemented is as under:

Part-I Recommendations

Recommendation No.	Total No.	Directorate
3.1, 3.2, 3.3, 3.5, 3.6, 4.2, 4.3, 7.1, 24.1,	9	Establishment
3.7, 3.8	2	Estt. /RDSO/Safety
5.4	1	MS & Safety (A&R)
37.4	1	MS & Safety (I)
5.3, 5.5, 5.6, 5.7, 5.10, 7.9	6	Management Services
10.2, 10.3	2	Budget

7.5, 14.2, 14.1, 14.3, 16.1, 16.2, 16.4, 26.1, 29.2, 29.6, 29.8, 29.9, 31.2, 35.4, 35.5, 35.7	16	Mechanical
7.7	1	Mech., Elec., Safety
7.2	1	Mech., Elec., TT
7.3, 7.4, 7.6, 7.8, 7.10, 28.1, 28.3, 28.4, 28.5, 29.3.	10	Mechanical & Electrical
10.1	1	Mech., Elect, Signal, CE
38.1	1	Electrical
14.4, 31.1	2	TT & Mech.
17.1, 32.1, 32.2.	3	TT
25.1, 25.2, 25.3, 25.5.	4	TT, Signal, Elec., Mech., Civil
12.1, 13.2, 13.3, 15.1, 15.2, 15.4, 15.8, 15.9, 15.10, 17.2, 17.4, 17.5, 17.6, 27.1, 27.2, 27.3, 27.4, 34.5, 34.1	19	CE
34.3	1	CE & Signal
6.2, 6.3, 6.4, 11.1, 34.4.	5	Signal
27.5	1	Telecommunication
18.1, 37.1, 37.2, 37.5	4	Secretary
19.1	1	Planning
1.1, 8.1, 8.2, 8.3, 8.4, 20.1, 23.3, 23.5, 28.2, 37.3, 39.1, 39.2 ,8.5, 23.4	14	Safety
25.4	1	Safety, Mech., Elec. & Signal
2.1	1	Safety, CE, Signal, Mech. & Electrical.

36.1, 36.3	2	Traffic (Commercial)
15.6	1	Traffic (Commercial) & Mech.
9.1, 9.2	2	Stores, Mech., Elec., RDSO, CE, Signal, Tele.
9.3, 9.4, 9.5, 9.6	4	Stores
35.3	1	Health
24.2, 34.7	2	Pay Commission
23.1	1	Safety, Accounts & Traffic Commercial
Total	**120**	

PART- I Recommendations

Establishment

Recommendation No. 3.1

The posts of Chairmen of the RRBs should be filled up only by serving Railway Officers in SAG who have an outstanding record of service and impeccable integrity. (Para no. 2.5.6 (1) of RSRC 1998, Part I)

Recommendation No. 3.2

The appointment of the Chairman, RRB, should be ratified by UPSC. (Para no. 2.5.6 (ii) of RSRC 1998, Part I)

Recommendation No. 3.3

The tenure of the Chairman, RRB, should be three years instead of six years at present. (Para no. 2.5.6 (iii) of RSRC 1998, Part I)

Recommendation No. 3.5

Ad-hoc appointments to the post of Chairman, RRB, should be dispensed with, and in case of a vacancy, the Chairman of the adjoining RRB should be asked to look after temporarily. (Para no. 2.5.6 (v) of RSRC 1998, Part I)

Recommendation No. 3.6

The RRBs should work towards full computerization in their selection process to achieve complete objectivity, transparency, and speed. (Para no. 2.5.6 (vi) of RSRC 1998, Part I)

Recommendation No. 4.2

Certain changes in criteria for recruitment/promotion for certain safety category posts. (Para no. 2.7.2 of RSRC 1998, Part I)

Recommendation No. 4.3

In case there is shortfall in promotions through LDCE, the unfilled quota will be added to direct recruitment quota. (Para no. 2.7.3 of RSRC 1998, Part I)

Recommendation No. 7.1

The uniform of the drivers should be upgraded which will help to instill in them a sense of pride. (Para no. 2.14.2 of RSRC 1998, Part I)

Recommendation No. 24.1

Supervisors in scale Rs 6500-10500/- who exercise establishment powers should have most of the disciplinary powers which are at present with Junior Scale Officers. (Para no. 3.4.2(i) of RSRC 1998, Part I)

Estt. /RDSO/Safety

Recommendation No. 3.7

There should be immediate upgrading and revalidation of the psychological tests, and this should be a periodic feature. A competent external professional agency should be asked to do it within the next six months. (Para no. 2.6.3 (1) of RSRC 1998, Part I)

Recommendation No. 3.8

The Railways should, in the next three years, switch to a computer-based test package for both psycho-test administration and evaluation. In this connection, we would suggest that a multi-disciplinary team of Railway Officers should visit the psycho-testing centers of advanced Railway systems such as SNCF, France and Virgin Railway Company, UK. (Para no. 2.6.3 (ii) of RSRC 1998, Part I)

MS & Safety (A&R)

Recommendation No. 5.4

When any staff belonging to a safety category becomes overdue for refresher training, he should be taken off duty until such time as he completes the training. (Para no. 2.9.6(1) of RSRC 1998, Part I)

MS & Safety (I)

Recommendation No. 37.4

All posts of DSOs should be in JA grade so that they can interact with colleagues in the best

possible manner. (Para no. 3.21.2(iv) of RSRC 1998, Part I)

Management Services

Recommendation No. 5.3

Successful completion of training course should be linked to promotion/increment. (Para no. 2.9.6 of RSRC 1998, Part I)

Recommendation No. 5.5

Attributes required for a trainer should be carefully observed during the training courses and noted in the trainee's personal record to facilitate future selection as trainers. (Para no. 2.9.6(ii) of RSRC 1998, Part I)

Recommendation No. 5.6

The training courses for officers and supervisors should contain a capsule on "how to conduct accident enquiries". (Para no. 2.9.7(1) of RSRC 1998, Part I)

Recommendation No. 5.7

Yoga and meditation lessons should be imparted to trainees in all the training institutions. (Para no. 2.9.7(ii) of RSRC 1998, Part I)

Recommendation No. 5.10

Competency-based training and certification should be introduced, in stages, in work-centers such as TXR Depots, Sick lines, ROH Depots, Workshops, Flash Butt Welding Plants etc. Only those possessing certificates of competency should be allowed to work on the identified

safety critical assemblies. (Para no. 2.9.9 of RSRC 1998, Part I)

Recommendation No. 7.9

Special 'A' grade drivers having requisite qualifications should be eligible to appear in the Limited Departmental Competitive Examinations for AME/AEE just like motormen. (Para no. 2.14.10 of RSRC 1998, Part I)

Budget

Recommendation No. 10.2

In the interest of Railway safety, the Central Government should provide a one-time grant to the Railways so that the arrears in the renewal of track, bridges, rolling stock and signalling gear are wiped out within the time frame specified by this Committee (Para no. 2.18.3 of RSRC 1998, Part I)

Recommendation No. 10.3

Projects which are financially and operationally not justified but are taken up for other reasons should be fully financed outside the Railway Budget and should be exempt from the payment of dividends. (Para no. 2.18.3 of RSRC 1998, Part II)

Mechanical

Recommendation No. 7.5

Action should be initiated forthwith so that within next one year IR has 16 simulators. (Para no. 2.14.6 of RSRC 1998, Part I)

Recommendation No. 14.2

CRT wagons should be withdrawn from commercial use. (Para no. 2.19.1 of RSRC 1998, Part I)

Recommendation No. 14.1

The Overaged coaches should be phased out in five years. (Para no. 2.18.14 of RSRC 1998, Part I)

Recommendation No. 14.3

Considering the condition of the BOX fleet and their unreliable performance, the Committee recommends that their codal life be reduced to 25 years. (Para no. 2.19.3 of RSRC 1998, Part I)

Recommendation No. 16.1

Adequate and standard maintenance facilities should be provided at all coaching depots on the highest priority. (Para no. 2.21.5(a)(i) of RSRC 1998, Part I)

Recommendation No. 16.2

A task force should be appointed to identify the shortcomings in the coaching depots, work out the investment required and produce a time-bound plan within a period of six months. (Para no. 2.21.5(a)(ii) of RSRC 1998, Part I)

Recommendation No. 16.4

Railway management should immediately work towards upgrading the facilities at all major freight train examination points. Railways must identify the shortcomings and draw up a time bound plan for upgradation within six months. (Para no. 2.21.5(b) of RSRC 1998, Part I)

Recommendation No. 26.1

Mechanical Directorate should clearly spell out those defects which have serious implications on safety, and if any rolling stock is rejected by the NTXR on account of such a defect, there should be no authority at any level on the Railway to permit turning out of that rolling stock from the workshops without rectification. In the event of rolling stock being rejected on account of non-availability of material, the concerned stores officers should put up an explanation for the failure to the administration. (Para no. 3.6.3 of RSRC 1998, Part I)

Recommendation No. 29.2

All new coaches must be fitted with bogie-mounted brakes, and retrofitment on existing fleet should be completed in five years. (Para no. 3.11.3(i) of RSRC 1998, Part I)

Recommendation No. 29.6

Railways should introduce ferritic stainless steel on the open wagons to reduce corrosion. (Para no. 3.11.4(ii) of RSRC 1998, Part I)

Recommendation No. 29.8

Composite brake blocks which are non-pilferable and can last from ROH to ROI should be inducted on priority. (Para no. 3.11.4(v) of RSRC 1998, Part I)

Recommendation No. 29.9

The Railways must examine the feasibility of having bogle mounted brakes on wagons which

will reduce brake nagging and associated problems. (Para no. 3.11.4(v) of RSRC 1998, Part I)

Recommendation No. 31.2

The arrangement of fitting pressure gauges with "Quick Coupling" arrangement in Brake Vans should be implemented within one year. No train should be allowed to operate without this provision. (Para no. 3.14.1 of RSRC 1998, Part I)

Recommendation No. 35.4

Production of 140 tonne cranes should be given high priority and the Railways should aim to provide 140 tonne cranes in all the ARTs within the next five years, if necessary by resorting to imports. (Para no. 3.19.6 of RSRC 1998, Part I)

Recommendation No. 35.5

For repair and replacement of parts of equipment in the ARTS, special powers should be delegated to the divisions to procure parts either directly from the original equipment manufacturer or from an approved agency on rate contract upto Rs.1 lakh per quarter. A special imprest of Rs.25,000/- may also be sanctioned to the officer in-charge of ART for minor repairs of equipment in the relief train. (Para no. 3.19.7 of RSRC 1998, Part I)

Recommendation No. 35.7

In major stations and Railway yards, road vehicles equipped with jacks, hydraulic rerailing equipment etc., should be provided for tackling

the minor derailments quickly. (Para no. 3.19.9 of RSRC 1998, Part I)

Mech., Elec., Safety

Recommendation No. 7.7

The approach adopted by Southern Railway for dealing with 'C category drivers may be adopted countrywide. (Para no. 2.14.8 of RSRC 1998, Part I)

Mech., Elec., TT

Recommendation No. 7.2

Running Rooms should be provided with the amenities. (Para no. 2.14.3 of RSRC 1998, Part I)

Mechanical & Electrical

Recommendation No. 7.3

Any driver's overdue refresher training should be treated as being without a licence to drive and taken off driving duties. Such a driver should also be deprived of any allowance concerning driving until he joins the refresher course. (Para no. 2.14.4 of RSRC 1998, Part I)

Recommendation No. 7.4

It is necessary that apart from the conventional methods of lecturing to the trainees, interactive training with personal computers should be introduced on lines similar to that available in some of the advanced railway systems such as in the Drivers' Training Centre, Fulda in Germany. (Para no. 2.5.3 of RSRC 1998, Part I)

Recommendation No. 7.6

One of the trips during road learning should be in the night hours between 2000 hrs and 0600 hrs as the experience of driving at night is altogether different from daytime driving. (Para no. 2.14.7 of RSRC 1998, Part I)

Recommendation No. 7.8

It is important to make the LI accountable in case it is found that the driver's grading was not done appropriately. (Para no. 2.14.9 of RSRC 1998, Part I)

Recommendation No. 7.10

A register to record driver's observations during his run must be maintained in all lobbies and this information should be conveyed to Traction/Power Controller under exchange of private numbers. The Power/Traction Controller should in tum convey these observations to their respective counterparts of the concerned departments under clear acknowledgement. The observations of the driver as conveyed by the Power/Traction Controller to the respective counter parts of the concerned department should be faithfully recorded in the register dedicated for this purpose. Follow-up action taken should be recorded within 24 hours which should be monitored by the Divisional officers as well as Divisional Safety Officer. The information regarding action taken on the reported defect should be conveyed back to the lobby for information of the driver so that he has

confidence that action has been taken on his observation. Disciplinary action should be initiated against the concerned supervisors in case the same defect resurfaces within the next 72 hours (Para no. 2.14.11 of RSRC 1998, Part I)

Recommendation No. 28.1

Provision of an emergency button suitably located in the driver's cab should be made which, when pressed, will:

(i) cut off power of the loco.
(ii) put on the flasher lights.
(iii) set off an emergency siren.
(iv) shoot flares in the sky and
(v) send an SOS signal on the mobile train radio, if available. (Para no. 3.10.2 of RSRC 1998, Part I)

Recommendation No. 28.3

Considering the critical importance of the audio-visual warning device in emergencies involving passenger distress and generation of wheel flats, Railways must, without further delay, ensure that the system of through wiring in the coaches to activate this device is restored. (Para no. 3.10.4 of RSRC 1998, Part I)

Recommendation No. 28.4

It is imperative that all locomotives, without exception, are provided with reliable speed recorders with digital memory. Micro-processor-based speed recorders should be developed which not only record speed, distance, and time, but also activities like brake application, throttle

position, use of whistle, etc. (Para no. 3.10.5 of RSRC 1998, Part I)

Recommendation No. 28.5

Air driers should be fitted on all existing and new diesel/electric locomotives. (Para no. 3.10.6 of RSRC 1998, Part I)

Recommendation No. 29.3

Fitment of air springs should be statutory for EMU stock and this should be completed in five years. The Railways should also examine the possibility of fitting them on other coaching stock. (Para no. 3.11.3(iii) of RSRC 1998, Part I)

Mech., Elect, Signal, CE

Recommendation No. 10.1

Pulling up the backlog in arrears in renewal of track, bridges, rolling stock and signalling gear should be the prime focus of the Railways. At all times there should be a time-bound plan to clear the arrears as also the fresh accurals. (Para no. 2.18.2 of RSRC 1998, Part I)

Electrical

Recommendation No. 38.1

The definition of fire in Metro Railway's Accident Manual be revised so as to include smoke emission. (Para no. 3.22.2 of RSRC 1998, Part I)

TT & Mech.

Recommendation No. 14.4

The CRTS (till withdrawn) and four-wheeler tank wagons which are derailment-prone should preferably be utilized only on single line routes to avoid the possibility of major disasters. (Para no. 2.19.5 of RSRC 1998, Part I)

Recommendation No. 31.1

Railway Board should immediately issue uniform guidelines for freight train examination that should be jointly endorsed by the Mechanical and Traffic Directorates of the Railway Board. (Para no. 3.13.1 of RSRC 1998, Part I)

TT

Recommendation No. 17.1

On routes where mechanized maintenance has been introduced, adequate blocks - preferably of the duration of 4 hours - should be given. During these blocks several departments should co-ordinate and take up works concerning OHE, signalling, etc., besides track maintenance. (Para no. 2.22.3 of RSRC 1998, Part I)

Recommendation No. 32.1

The concept of closed circuit rakes should be extended to new circuits. (Para no. 3.15.1 of RSRC 1998, Part I)

Recommendation No. 32.2

The discipline of logging of the Kms run thereby ensuring timely examination, is not being maintained. This discipline needs to be enforced. (Para no. 3.15.1 of RSRC 1998, Part I)

TT, Signal, Elec., Mech., Civil

Recommendation No. 25.1

Supervisors For the guidance of the inspecting officials, detailed check-lists for various types of inspections need to be made out. (Para no. 3.5.1(i) of RSRC 1998, Part I)

Recommendation No. 25.2

Every item contained in the check list is required to be covered after a specified period by designated levels and record maintained of each item. Subsequent inspections should target rectification of shortcomings noticed earlier, maintaining necessary records. (Para no. 3.5.1(ii) of RSRC 1998, Part I)

Recommendation No. 25.3

Apart from these detailed inspections, other field visits of the inspecting officials should be focused on random check of some items out of the checklist, in addition to action taken on previously noticed shortcomings. (Para no. 3.5.1(iii) of RSRC 1998, Part I)

Recommendation No. 25.5

The number of inspections to be conducted by an individual should be inversely proportionate

to his position in the hierarchy. (Para no. 3.5.2 of RSRC 1998, Part I)

CE

Recommendation No. 12.1

Railways should pull up all arrears of track renewal in a timespan of seven years. (Para no. 2.18.6 of RSRC 1998, Part I)

Recommendation No. 13.2

The rehabilitation/rebuilding of distressed bridges should be accorded a high priority on par with track renewals. (Para no. 2.18.11 of RSRC 1998, Part I)

Recommendation No. 13.3

The rehabilitation of "distressed" bridges should be completed in a time span of 5 years along with fresh accruals. (Para no. 2.18.11 of RSRC 1998, Part I)

Recommendation No. 15.1

A group headed by a senior administrative grade IR officer of impeccable credentials should take over inspection and certification of quality of rails. (Para no. 2.20.2 of RSRC 1998, Part I)

Recommendation No. 15.2

A The Working Group set up by Railways to revise manual for USFD testing of rails/welds, supported by eminent outside experts, should complete its work in six months, including development of new procedures and prototype equipment which should not necessitate traffic blocks. (Para no. 2.20.6(i) of RSRC 1998, Part I)

Recommendation No. 15.4

The "need based" concept of USFD testing of rails/welds should be implemented straightaway as a parallel action to the development of new equipment/procedures. (Para no. 2.20.6(iii) of RSRC 1998, Part I)

Recommendation No. 15.8

Railways should set up a Welding School close to RDSO, Lucknow, along the lines of German Railways. This institution should cover all aspects such as training, licencing staff, testing equipment, technology transfer, etc. (Para no. 2.5.3 of RSRC 1998, Part I)

Recommendation No. 15.9

A Record should be kept of all fracture gaps and cuts in LWR along with rail temperature. From this the maximum stress occuring in the LWR should be computed and appropriate action taken. (Para no. 2.20.9(i) of RSRC 1998, Part I)

Recommendation No. 15.10

A Record of behaviour of LWRs should be maintained along the same lines as for bridges, with checks at several levels with necessary certification. (Para no. 2.20.9(ii) of RSRC 1998, Part I)

Recommendation No. 17.2

Preventive maintenance facilities for track machines be set up within the next 3 years. (Para no. 2.5.3 of RSRC 1998, Part I)

Recommendation No. 17.4

IR should introduce cyclic maintenance and periodical renewal of elastic fastening system of concrete sleeper to reduce the problems being faced in maintenance of LWR. (Para no. 2.22.6 of RSRC 1998, Part I)

Recommendation No. 17.5

Railways should make a precise assessment of the ballast shortage and plan to clear the same in 5 years along with yearly accrual; immediately raise or partially screen stretches of track with contaminated ballast to provide a clean top layer as an interim measure pending final attention; introduce a system of track gangs providing cross drains in alternate cribs filled with clean ballast along with cess cutting to prevent water logging; and develop major sources of hard ballast and curtail procurement of soft stone in the next 5 years. (Para no. 2.23.5 of RSRC 1998, Part I)

Recommendation No. 17.6

IR to make an assessment of the total hopper wagon requirement and ensure that required numbers are provided to the Zonal Railways in the next three years. (Para no. 2.23.6 of RSRC 1998, Part I)

Recommendation No. 27.1

UIC specifications universally used by developed countries for rails should be adopted by IR. (Para no. 3.7.2 of RSRC 1998, Part I)

Recommendation No. 27.2

Lubrication of gauge-face should be done on curves, points and crossings, weak track, track work sites, and on bad formations, as these are locations where wheel-mounting derailments occur. (Para no. 3.8.1(1) of RSRC 1998, Part I)

Recommendation No. 27.3

Regular periodic measurement of toe-load of the fastening should be taken up systematically so that bad stretches requiring out-of-turn attention can be quickly identified and rectified. (Para no. 3.8.1(ii) of RSRC 1998, Part I)

Recommendation No. 27.4

IR should procure laser-based track recording cars that will measure track geometry with precision and accuracy at reasonably high speeds. (Para no. 3.8.1(iii) of RSRC 1998, Part I)

Recommendation No. 34.5

The Railways should immediately take in hand the issue of providing the basic prescribed infrastructure at unmanned level crossings. (Para no. 3.18.7 of RSRC 1998, Part I)

Recommendation No. 34.1

At all non-interlocked manned level crossings on double/multiple lines still having gate leaves, coupled lifting barriers operated from a central location with a suitable locking device should be provided within the next one year. (Para no. 3.18.2 of RSRC 1998, Part I)

CE & Signal

Recommendation No. 34.3

The Railways should identify and upgrade such gates where there is heavy train as well as road traffic through inter-locking. The only complete solution is a road over/under bridge. In view of very large expenditure involved this is only possible if a cess is levied on road users through sale of road vehicles/fuel as was recommended sometime back by Railway Administration. (Para no. 3.18.5 of RSRC 1998, Part I)

Signal

Recommendation No. 6.2

A suitable Train Protection and Warning System should be adopted with the features. (Para no. 2.12.1 of RSRC 1998, Part I)

Recommendation No. 6.3

Development of a Balise-based TPWS having the features as enunciated in para 2.12.1 should be taken up immediately by Indian Railways (Para no. 2.12.4 & Para 2.12.5 of RSRC 1998, Part I)

Recommendation No. 6.4

Complete station track circuiting should be done according to the priorities and time frame. (Para no. 2.13.1 of RSRC 1998, Part I)

Recommendation No. 11.1

Over aged signalling gear should be replaced (Para no. 2.18.4 of RSRC 1998, Part I)

Recommendation No. 34.4

In the first stage the Railways should install the TAWD at 100 manned gates not provided with telephone within the next one year. (Para no. 3.18.6 of RSRC 1998, Part I)

Telecommunication

Recommendation No. 27.5

Reliable communication should be available between the engineering worksite and the station staff on either side of the work spot. (Para no. 3.8.1(iv) of RSRC 1998, Part I)

Secretary

Recommendation No. 18.1

On The Ministry of Railways should, as a mark of respect to the dead and Injured in various train accidents, announce an immediate and complete moratorium on all types of celebratory and ceremonial functions for, at least, the next three years and dedicate this period whole-heartedly and completely to improving safety on the Railways. (Para no. 2.24.1 of RSRC 1998, Part I)

Recommendation No. 37.1

The Railways must ensure that only officers with an outstanding record of service are posted to the Safety department for a tenure of at least two years. (Para no. 3.21.2(i) of RSRC 1998, Part I)

Recommendation No. 37.2

Each safety officer must be supported by very good calibre officers/inspectors of other

departments for a 2-year tenure. (Para no. 3.21.2(ii) of RSRC 1998, Part I)

Recommendation No. 37.5

Only those officers in the Traffic Department who have worked a minimum of 2 years as DSO will be considered for posting as Chief Operations Manager. (Para no. 3.21.2(v) of RSRC 1998, Part I)

Planning

Recommendation No. 19.1

Railways should immediately engage a management Consultant of international repute who should study the issue of departmentalism and other managerial issues in depth along with a panel of carefully selected railwaymen. (Para no. 2.25.3 and 2.25.4 of RSRC 1998, Part I)

Safety

Recommendation No. 1.1

Implementation of accepted recommendations of Railway Accident Committees should be regularly reviewed and monitored at various levels once in two months. (Para no. 2.2.1 & 2.2.2 of RSRC 1998, Part I)

Recommendation No. 8.1

The Railway management should immediately correct all distortions in compilation of accident and other safety related statistics. No comparison need be made with past statistics as the two sets of figures would be incompatible. (Para no. 2.15.8(1) of RSRC 1998, Part I)

Recommendation No. 8.2

It should also be made clear to officials down the line that an act of suppression of any accident or asset failure will be viewed to be as grave an offence as being responsible for causing an accident. (Para no. 2.15.8(ii) of RSRC 1998, Part I)

Recommendation No. 8.3

A Gazette Notification bringing out recommendations mentioned in Para Nos. 2.15.8(1) and 2.15.8(ii) should be brought out to publicize these instructions. (Para no. 2.15.8 (iii) of RSRC 1998, Part I)

Recommendation No. 8.4

The concerned Station Master must issue, as per rules, an all concerned written message regarding accident within 12 hours. Otherwise, it will be considered as a failure on his part. (Para no. 2.15.8(iv) of RSRC 1998, Part I)

Recommendation No. 20.1

Railways should immediately make out a comprehensive corporate safety plan which will, interalia, clearly state the safety policy/objectives and strategies for achieving them; unambiguously enunciate the basic tenets and requirements of safety; prioritize the safety related works and indicate the timeframe as also investments proposed; and set benchmarks for safety achievements. (Para no. 2.26.4 of RSRC 1998, Part I)

Recommendation No. 23.3

Each correction slip should be issued, after incorporation, in a replacement page instead of the untidy, book-marker type correction slips currently in vogue. (Para no. 3.3.4(ii) of RSRC 1998, Part I)

Recommendation No. 23.5

Railways should immediately work towards ensuring uniformity in the types of authority and procedural forms issued in day-to-day train working. (Para no. 3.3.5 of RSRC 1998, Part I)

Recommendation No. 28.2

Flasher lights on locomotive should be much more prominent as compared to the existing one. (Para no. 3.10.3 of RSRC 1998, Part I)

Recommendation No. 37.3

Each department at Headquarters/division must organize safety as a subject to be dealt with intra-departmentally with safety department working as catalyst. (Para no. 3.21.2(iii) of RSRC 1998, Part I)

Recommendation No. 39.1

Railways should report accidents and compile statistics in strict accordance with the instructions given in the Manual of Statistical Instructions. The tendency to introduce changes in the methods of statistical compilation should be resisted. (Para no. 4.6 of RSRC 1998, Part I)

Recommendation No. 39.2

At the earliest, a computerized database of accidents should be maintained by individual Zonal Railways in a universal format, which can be accessed by the Railway Board to update its own database using the recently installed RAILNET. The format should be designed by the Railway Board. (Para no. 4.8 of RSRC 1998, Part I)

Recommendation No. 8.5

Within one hour of occurrence of the accident the Control Office should record the details in a standard format, preferably on computer which is networked with Headquarters and Railway Board. The system should be such that deletion of an entry is not possible. (Para no. 2.15.8(v) of RSRC 1998, Part I)

Recommendation No. 23.4

A comprehensive Accident Manual applicable to the Indian Railways should be framed. This should include all aspects of Disaster Management. (Para no. 3.3.4(iii) of RSRC 1998, Part I)

Safety, Mech., Elec. & Signal

Recommendation No. 25.4

Periodically, each department should undertake special Safety Audits which should be conducted by a special team reporting to the PHOD/DRM. (Para no. 3.5.1(iv) of RSRC 1998, Part I)

Safety, CE, Signal, Mech. & Electrical.

Recommendation No. 2.1

Decisions on safety projects should cover the items completely in all aspects like funding, time schedules, actions, accountability, etc. over several years. (Para no. 2.3.1 of RSRC 1998, Part I)

Traffic (Commercial)

Recommendation No. 36.1

The jurisdiction clause of the RCT Act should be suitably amended so that the applicant can file the case with any RCT Bench. (Para no. 3.20.2 of RSRC 1998, Part I)

Recommendation No. 36.3

The Committee endorse the recommendation made by the "Group on Railway Safety" that in case of death, compensation should be paid irrespective of whether the bonafide authority to travel has been produced or not. (Para no. 3.20.4 of RSRC 1998, Part I)

Traffic (Commercial) & Mech.

Recommendation No. 15.6

To overcome a number of rail/weld fractures caused by over-loading wagons and hammer blow due to wheel flats, action should be taken (Para no. 2.20.7 of RSRC 1998, Part I)

Stores, Mech., Elec., RDSO, CE, Signal, Tele.

Recommendation No. 9.1

RDSO should be assigned the task of preparing a comprehensive list of safety items within the next three months to be used by all Zonal Railways and Production Units. (Para no. 2.16.2 of RSRC 1998, Part I)

Recommendation No. 9.2

RDSO should be entrusted with the task of drawing up a region-wise vendor list for safety items. This approved list should indicate the production capacity of the firms so that adequate number of vendors are approved. RDSO should also develop a system of getting feed-back from the consumers and rate the vendors periodically for retention in the list. For this purpose, proper identification marks of the manufacturer should be legibly embossed on components. (Para no. 2.16.5 of RSRC 1998, Part I)

Stores

Recommendation No. 9.3

The Railways should take recourse to rate contracts for fast-moving components and authorize officers in charge of the depots to operate them. (Para no. 2.16.6 of RSRC 1998, Part I)

Recommendation No. 9.4

Items specified in the Safety List should get overriding priority in procurement. Nonstock

items declared necessary for safety by the concerned PHOD should also get similar over-riding priority. (Para no. 2.16.7 of RSRC 1998, Part I)

Recommendation No. 9.5

Since the cost of safety spares forms only a fraction of the total budget for spares, availability of funds certificate should not be required. The concerned PHOD will, however, ensure that total budget is not exceeded. (Para no. 2.16.7 of RSRC 1998, Part I)

Recommendation No. 9.6

A reputed Management Consultancy agency of international repute should be assigned the task of simplifying the procurement procedures on IR and studying the options of changing over to a system of long-term contracts. (Para no. 2.16.8 & 2.17.3 of RSRC 1998, Part I)

Health

Recommendation No. 35.3

Every Railway health unit should be provided with a road ambulance and a driver. (Para no. 3.19.5 of RSRC 1998, Part I)

Pay Commission

Recommendation No. 24.2

Because of their position in the hierarchy and nature of their duties involving supervision of senior ranking Class III employees, the posts of the Lis and Tis should only be in the two highest supervisory grades viz. Rs.6500-10500/- and Rs.

7450-11500/-. (Para no. 3.4.2(ii) of RSRC 1998, Part I)

Recommendation No. 34.7

The grade of the gatemen (of Engineering and Traffic) should be raised to that of keyman. Further, the medical category for gatemen should be revised from A3 to B1 to improve availability. (Para no. 3.18.9 of RSRC 1998, Part I)

Safety, Accounts & Traffic Commercial

Recommendation No. 23.1

Railways General Rules 1978, as also other manuals should be revised and updated as necessary. (Para no. 3.3.3 of RSRC 1998, Part I)

Recommendation Accepted but 'Not Implementable'

36.2	**1**	**Traffic Commercial**
Total	**1**	

Recommendation No. 36.2

Even one Member of the Tribunal should be fully authorized to decide claims in accident cases, irrespective of the amount involved. (Para no. 3.20.3 of RSRC 1998, Part II)

Part-II Recommendations

Recommendation No.	Total	Directorate
14, 37, 40, 41	4	Management Services
109	1	M.S & T.C
111.	1	Secretary

107	1	MS, Mech. & Elec.
27, 33, 43, 48	4	Establishment
44	1	IR
29	1	E&R
115, 116, 117	3	E&R / RDSO
97	1	Health / RDSO
50	1	TT & Safety(A&R)
70	1	TT
71	1	TT, Mech. & Electrical
3, 63	2	Traffic Commercial
79	1	Traffic Commercial & Mechanical
72, 73, 74, 80	4	Mechanical
98, 99, 100, 101, 102	5	Mechanical (PU)
31	1	Mech., Elec., CE, Signal, Tele, MS, Stores
24	1	Mech., Elec., CE, Signal, Tele, MS, Safety, TC, Health, Security etc.
21, 30	2	Mech., Elec., CE, Signal, Tele
69, 75, 76, 77, 78, 87, 94, 95, 96, 108	10	Mech. & Elec.
15	1	Mech., Elec., CE, Signal, Tele, RE, Works
12	1	Mech., Elec., CE, Signal, Tele, Budget, Accounts etc.
16, 25, 26, 83, 112, 119, 120., 127, 128	9	Safety
23	1	Safety & Signal
42, 118	2	Safety & RDSO

6, 8, 10	3	Works
7, 18	2	Works, Finance (B), R.E
9	1	Planning, Mech., Elec., CE, Signal, Tele, RE, Finance (B), Works
5	1	Planning
65	1	CE, Elec, Signal
1	1	Planning & Works
64	1	CE & Track
82, 84, 91, 92, 93	5	Signal
61	1	CE & Signal
58	1	CE & Mech.
59	1	CE & Tele
51, 52, 56, 60, 62, 66, 67, 68, 103, 104, 105	11	C.E
106	1	C.E & Safety
11, 19	2	Finance (Budget)
39	1	Finance (Budget) & MS
13, 17	2	Finance (Exp.)
53	1	Stores & CE
124	1	Secretary
Total	**97**	

Management Services

Recommendation No. 14

So specialized has the job of Project Appraisal become that before any railwayman is given such an assignment, he should be made to undergo an intensive training programme on the subject of Project preparation and appraisal in the RSC Vadodara, which should immediately design such a specialized training capsule. (Para no. 2.12.10 of RSRC 1998, Part II)

Recommendation No. 37

Selection of trainers should be based on their aptitude for training as judged by their CRs, where this aspect should be specially commented upon, and interview by 3 HODS The trainers should be trained at an appropriate training center and should have a minimum tenure of three years. (Para no. 3.11.4 of RSRC 1998, Part II)

Recommendation No. 40

A suitable meditation package must be made an integral part of the Refresher Courses in all Zonal Training Schools of IR. (Para no. 3.12.5 of RSRC 1998, Part II)

Recommendation No. 41

The initial and refresher training capsules for asst. drivers and drivers be reviewed in their entirety, so that greater emphasis is placed on practical training and the use of the latest training aids such as simulators and interactive computers. (Para no. 5.2.7 of RSRC 1998, Part II)

M.S & T.C

Recommendation No. 109

The ticket checking staff should be imparted training in Fire Fighting, First Aid and Cardio Pulmonary Resuscitation (CPR) during their initial training at the time of recruitment and thereafter every three years Their duty lists should necessarily incorporate such functions. (Para no. 3.15.4 of RSRC 1998, Part II)

Secretary

Recommendation No. 111

The Safety Department on IR should be made broad based and suitable officers from Traffic, Civil, Mechanical. Signal and Electrical Engineering Departments should be posted as Safety officers at all levels. Our committee further recommends the following:

(i) The Chief Safety Officer should be given the status of PHOD, and the incumbent should have worked successfully as DRM.

(ii) There should be four officers of Dy HOD rank (from departments other than that of CSO) reporting to him.

(iii) Similar pattern should be adopted on the Divisions where the DSO should invariably be in JA grade. He should have Assistant/Senior Scale officers reporting to him.

(iv) All safety officers should have a minimum tenure of three years.

(v) Each safety group should have a transport available for surprise checks.

(vi) Experience as DSO/CSO should be necessary for promotion to PHOD/ GM. (Para no. 6.8.6 & 6.8.7 of RSRC 1998, Part II)

MS, Mech. & Elec.

Recommendation No. 107

The initial and periodic refresher training courses for running staff and AC attendants should have a programme on firefighting/use of fire extinguishers. (Para no. 3.15.3 of RSRC 1998, Part II)

Establishment

Recommendation No. 27

On IR a welfare organization already exists and there are institutions which provide cultural, recreational, sports and welfare facilities. Such organizations, among other things, should also focus on the benefits of regular exercise, adequate rest, and balanced diet. (Para no. 5.4.5 of RSRC 1998, Part II)

Recommendation No. 33

For all selections conducted by the RRBs, the minimum pass marks should be 50 per cent for the general candidates and 45 per cent for the reserved category candidates. (Para no. 3.6.1 of RSRC 1998, Part II)

Recommendation No. 43

Optical Mark Reader (OMR) equipment should be installed without further delay in the headquarters offices of all Zonal Railways so that psychological test answer sheets are evaluated promptly, preferably on the same day that the exam is conducted. (Para no. 3.8.4 of RSRC 1998, Part II)

Recommendation No. 48

The orders regarding lateral induction of gangmen up to 35 years of age into other departments should be withdrawn. (Para no. 4.2.3 of RSRC 1998, Part II)

IR

Recommendation No. 44

Our committee believes that there should be an upper limit on the number of branches that a union can set up. Our recommendation in this regard would be that each recognized union be allowed a maximum of one branch for 5000 men on a division. (Para no. 7.6.6 of RSRC 1998, Part II)

E&R

Recommendation No. 29

Our committee is of the view that for putting in place an effective system of accountability, the first prerequisite is intellectual honesty to ensure that all distortions in the reporting of accidents, asset failures and other related statistics are corrected. We recommend that at least for the next two years there should be no targets prescribed for accidents and asset failures. Instead, the corporate emphasis should be on ensuring that all failures are faithfully reported and actions to prevent recurrence crystallized and followed up. (Para no. 7.7.10 of RSRC 1998, Part II)

E&R / RDSO

Recommendation No. 115

RDSO should play the role of facilitator by seeking the active collaboration of Industry, Institutes of technology and other specialist agencies for developing technologies. (Para no. 6.4 of RSRC 1998, Part II)

Recommendation No. 116

Henceforth ROSO should concentrate on identifying the new technologies that can most suitably be adopted by IR and thereafter associate manufacturers and technical institutions in developing and upgrading these technologies in a time-bound programme. (Para no. 6.4 of RSRC 1998, Part II)

Recommendation No. 117

There is hardly (Para no. 6.5 of RSRC 1998, Part II)

Health / RDSO

Recommendation No. 97

The annual medical tests for drivers conducted after 55 years should not be confined only to a vision test hut should also check the cardiac condition. Also, the psycho-technical cell of RDSO should undertake a fresh study to assess the impact of increase in retirement age on the performance of drivers. (Para no. 4.2.5 of RSRC 1998, Part II)

TT & Safety(A&R)

Recommendation No. 50

The recent circular restricting recourse to temporary single line working should be withdrawn as this will have an adverse impact on grant of maintenance blocks on high-density sections. It may, however, be specified that whenever temporary single line working is introduced an officer must be specially nominated to monitor compliance with the rules. (Para no. 3.17.2 of RSRC 1998, Part II)

TT

Recommendation No. 70

4-wheeler tank wagons should be worked only in closed circuits, which will ensure better maintenance and better monitoring of the fleet. We would also reiterate our earlier recommendation that 4-wheeler tank wagons should be utilized only on single line routes to avoid the possibility of major disasters. (Para no. 3.16.5 of RSRC 1998, Part II)

TT, Mech. & Electrical

Recommendation No. 71

IR needs to devise procedures to specify and ensure adequate power of locomotives vis-a-vis train attached loads. (Para no. 4.4.4(e) of RSRC 1998, Part II)

Traffic Commercial

Recommendation No. 3

IR should be vested with the power to close a Line/facility if the State Government is not willing to bear the recurring loss on its maintenance and operation. (Para no. 2.7.2 of RSRC 1998, Part II)

Recommendation No. 63

In this period of transition, IR should seriously consider closing down some of the uneconomic branch lines on MG/NG on safety considerations, especially those lines where traffic is negligible, and which require substantial inputs for keeping them operational; preventive maintenance and condition-based renewal must be taken up systematically on the remaining MG lines for safety. (Para no. 4.9.2 of RSRC 1998, Part II)

Traffic Commercial & Mechanical

Recommendation No. 79

IR management should have adequate number of in motion weighbridges on each Railway for monitoring overloading of wagons. The focus on sheer increase in number of weighbridges cannot solve the problem of overloading IR should focus on: (a) installing weighbridges selectively on routes where traffic most susceptible to overloading moves and (b) making the available weighbridges work properly. (Para no. 4.17.3 of RSRC 1998, Part II)

Mechanical

Recommendation No. 72

Recommendations to improve the functioning of the distributor valves:

(a) Certain critical rubber and other small components in the distributor valve have been identified as vulnerable to failure primarily on account of their poor quality. As the cost of these components forms hardly 5% of the total cost of the distributor valve, we recommend that RDSO should identify these critical components and the manufacturers advised to import these as a kit from their principals, viz., M/s. Knorr Bremse/Sab Wabco.

(b) IR had switched over to cast iron distributor valves from aluminium some years back to counter the Incessant problem of theft. While theft has been drastically reduced, we were informed that a number of manufacturers are neither cleaning the cast iron bodies nor providing them with wax coating, which is another prime cause for malfunctioning of the distributor valves. We recommend that RDSO should specify a detailed cleaning and treatment procedure for the cast iron bodles and their periodicity.

(c) We found that during POH, "must change" items in distributor valves are not renewed

in a large number of workshops, primarily on account of their non- availability Some manufacturers of air brake equipment informed our Committee that they were prepared to set up POH facilities for distributor valves In the various workshops, with a guaranteed five years warranty and an accompanying penalty clause for every failure of a distributor valve attributed to had product/workmanship Most of the Ra ways in Europe and USA do not have in-house facilities for maintenance of air brakes and they have this done by the OEMs. Since this would be a new practice for Indian Railways, a wholesole switchover may be difficult and, therefore, we recommend that one Railway may be identified for setting up such a facility for DVs fitted on coaching stock Based on the results of this project, the scheme can be considered for implementation in other workshops.

(d) Moisture, dust and rust particles (from the steel pipes) cause malfunctioning of the distributor valves While in our Part-1 report we have already recommended fitment of air driers on a war footing on the locomotives so as to ensure supply of dry air the problem of rust particles emanates from the air piping on the rolling stock. We recommend that in

coaching stock stainless steel train pipes should be provided, while for freight stock, we recommend use of seamless pipes duty treated to reduce corrosion. (Para no. 4.12.1(1) of RSRC 1998, Part II)

Recommendation No. 73

Recommendations in the context of malfunctioning of slack adjusters.

- Failures are monitored, workshop-wise as well as maker-wise, and responsibility fixed. This should be monitored at Zonal Headquarters/Railway Board level.
- All repairs are done only in workshops; (Para no. 4.12.1(2) of RSRC 1998, Part II)

Recommendation No. 74

Retrofitment of the existing stock with bogie mounted brakes should be expedited to a time frame. (Para no. 4.12.1(3) of RSRC 1998, Part II)

Recommendation No. 80

From here on it should be stipulated that all primary train examination points should ensure 100 percent brake power on air braked trains, against the present stipulation of 85 percent. Brake pressure as specified by Board should be followed by ail Railways. (Para no. 4.18.1 of RSRC 1998, Part II)

Mechanical (PU)

Recommendation No. 98

Recommendations on Workshop Audit

- RDSO's workshop audit team should include a TA grade open line officer from a different railway 10 make the reports more meaningful.
- The reports should be discussed once a year for follow up in a suitable forum convened by the Railway Board
- Their reports should also include recommendations for charges in manufacturing/repair practices. This should also be discussed in the Annual Review for acceptance. (Para no. 4.20.6 of RSRC 1998, Part II)

Recommendation No. 99

Recommendations regarding manufacturing facilities and practices with regard to springs:

- There is need to ensure that the basic infrastructure for manufacturing and repair of springs is available in all workshops where springs are attended:
- Workshop-wise failure of springs should be monitored at Railway Board level; a prerequisite should be legible markings of the manufacturer's name and date of manufacture. (Para no. 4.20.9 of RSRC 1998, Part II)

Recommendation No. 100

Recommendations regarding manufacturing facilities:

- Workshops must ensure 100% dropping of couplers, their gauging and repairs as laid down in RDSO'S Manual G-47.
- Monitoring of coupler failures workshop-wise is a must to identify workshops that need to improve Again, legible marking where the coupler was last attended to and date is a must;
- Availability of coupler spares and their quality, viz., steel castings, must improve There is need to develop additional sources as the current sources are interested in supplying only full couplers, (Para no. 2.5.3 of RSRC 1998, Part II)

Recommendation No. 101

Recommendations for improving the infrastructure/ working environment of Workshops:

- Civil Engineering and Electrical Officers/officials responsible for maintenance of workshops be placed under the administrative control of the Workshop In- charge.
- Separate funds for repair and maintenance of workshops be communicated, which should be spent with the specific approval of the Workshop In-charge.

- Whenever possible, separate zona contracts be placed for workshops and work orders be released only with the approval of the Workshop In-charge. (Para no. 4.20.15 of RSRC 1998, Part II)

Recommendation No. 102

The present workshop procurement powers are limited and need to be enhanced as further elaborated in this para. (Para no. 4.20.19 of RSRC 1998, Part II)

Mech., Elec., CE, Signal, Tele, MS, Stores

Recommendation No. 31

Rather than the current obsession with fixing responsibility only for accidents, which are really the end result of a series of failures, IR management must introduce a system of accountability on critical issues relating to discipline, training, quality of workmanship, systems failures, availability of spares and their quality, reliability of assets and uplifting of staff morale. (Para no. 7.7.12 of RSRC 1998, Part II)

Mech., Elec., CE, Signal, Tele, MS, Safety, TC, Health, Security etc.

Recommendation No. 24

A multi-disciplinary task force of senior railwaymen should study and correct the discrepancies between rulebooks, manuals and codes This exercise should be completed within

the next two years. (Para no. 3.13.8 of RSRC 1998, Part II)

Mech., Elec., CE, Signal, Tele

Recommendation No. 21

The Committee reiterates in the strongest possible terms that IR needs to improve its implementation of safety Items by planning each with physical/financial benchmarks spread over several years. (Para no. 3.1.2 of RSRC 1998, Part II)

Recommendation No. 30

"Improved maintenance of assets" has to become the motto and watchword of every railwayman The main thrust of the Railways should be on improving maintenance of assets on a war footing. Once there is a clear focus on developing a maintenance culture, then accountability will follow. (Para no. 7.7.11 of RSRC 1998, Part II)

Mech. & Elec.

Recommendation No. 69

An automatic device to switch on the locomotive flasher lights in the event of train parting should be developed on very high priority and installed on all locomotives (Para no. 3.3.3 of RSRC 1998, Part II)

Recommendation No. 75

IR should switch over to twin beam halogen headlights on all new locos and also retrofit these headlights on the existing locos. (Para no. 4.13.3 of RSRC 1998, Part II)

Recommendation No. 76

The Railway administration should ensure that the new locomotives of all types manufactured by IR are provided with the Vigilance Control Device (VCD) with necessary modification of the braking system. (Para no. 4.14.6 of RSRC 1998, Part II)

Recommendation No. 77

IR should draw up a plan for providing dynamic brakes in all locomotives within the next one year. (Para no. 4.15.1 of RSRC 1998, Part II)

Recommendation No. 78

There should be strict enforcement of Section 59 of the Railway Act by making the provision of a functioning audio-visual warning system on passenger trains to be a mandatory requirement on par with brake-power of a train. The audio-visual alarm should be tested at the starting/crew changing station and treated as a rejectable defect necessitating change of loco if not found functional. We also reiterate our recommendation in Part I concerning provision of through wiring on passenger rakes. (Para no. 4.16.3 of RSRC 1998, Part II)

Recommendation No. 87

To begin with, event recorders roughly on the lines mentioned in para 5.14 be fitted on all new locos and used not just for inquiry investigations but also for monitoring driving skills. Subsequently the question of retrofitting should

also be considered. (Para no. 5.14.4 of RSRC 1998, Part II)

Recommendation No. 94

The driving seats in the locomotives should be replaced by comfortable chairs with back rests in the shortest time possible. (Para no. 3.10.2 of RSRC 1998, Part II)

Recommendation No. 95

On all Divisions concerned officers and supervisors should be provided with mobile breathalyzer equipment for testing running staff on the footplate on a regular basis. (Para no. 3.10.3 of RSRC 1998, Part II)

Recommendation No. 96

Each Railway should try giving on contract the management of a few running rooms. The system can be extended progressively. (Para no. 3.10.4 of RSRC 1998, Part II)

Recommendation No. 108

At least 5 percent of the fire extinguishers on locomotives/coaches/brake vans should be tested at random by the custodian depot/shed in the presence of an officer and a proper record maintained of these tests. (Para no. 3.15.3 of RSRC 1998, Part II)

Mech., Elec., CE, Signal, Tele, RE, Works

Recommendation No. 15

Under no circumstances should the safety features of a project be jettisoned in the process of pruning down the costs Standards codified for

different levels of traffic must be observed. (Para no. 2.12.11 of RSRC 1998, Part II)

Mech., Elec., CE, Signal, Tele, Budget, Accounts etc.

Recommendation No. 12

Further Recommendations on DRF and allied matters:

(i) The problem of premature retirement of assets, particularly track, needs to be tackled on a war footing.

(ii) A reassessment of the codal life of major assets on 18. should be done by a small disciplinary team of Railway and outside experts on the basis of past performance of the asset, extent of use and other related factors.

(iii) IR must introduce a proper prioritization for the renewal of major assets based on the importance of the route, the extent of wear and tear, the extent of use, and most importantly, the performance of the art from the safety angle and the cost of maintenance.

(iv) The yearly contribution to DRF should be the first charge on the revenues of IR as rehabilitation of over aged assets is of prime importance for ensuring the safety of the system. IR should ensure that under no circumstances the depreciation provision is depressed.

(v) The funds in the DRF should be kept outside the purview of Plan Finance in order to ensure that withdrawals from the fund are not subject to the vagaries of the ways and means position of the Central Exchequer. (Para no. 2.11.5 of RSRC 1998, Part II)

Safety

Recommendation No. 16

The actual loss due to each accident must be worked out, taking into account direct and indirect losses. (Para no. 2.13.1 of RSRC 1998, Part II)

Recommendation No. 25

The 1968 circular on minimum punishments for accidents should be modified, if it cannot be dispensed with altogether. In this context, our Committee strongly recommends that at the very least, the clause relating to "signals passed at danger (SPAD)", but not causing any accident, should be deleted from the circular. (Para no. 4.3.2 of RSRC 1998, Part II)

Recommendation No. 26

IR should maintain full data of indicative accidents and selectively get them inquired into at officer's level and reviewed by DSO. (Para no. 4.3.3 of RSRC 1998, Part II)

Recommendation No. 83

IR management should take measures to improve the system of monitoring and

investigation of SPAD cases on IR almost on the same lines as on British Railways. (Para no. 5.5.4 of RSRC 1998, Part II)

Recommendation No. 112

The concept of safety audits should be introduced on IR. Details can be worked out by IR. (Para no. 6.9.11 of RSRC 1998, Part II)

Recommendation No. 119

Our committee firmly believes that the first step to be initiated to restore public confidence is to make all CRS inquiries public and transparent. (Para no. 6.7.4 of RSRC 1998, Part II)

Recommendation No. 120

Likewise, the inquiry reports of the CRS should be made available to the public immediately after finalization. (Para no. 6.7.4 of RSRC 1998, Part II)

Recommendation No. 127

Each Commissioner should be assisted by at least one Deputy Commissioner in JA Grade and two senior inspectors, care being taken to see that, to the extent possible, they have different professional backgrounds. (Para no. 6.7.10 of RSRC 1998, Part II)

Recommendation No. 128

The sanctions for the posts of Dy CRSs should be in combined J.A and Selection Grade to permit Officers in either grade to be posted and continued in the post even after promotion from

J A. to Selection Grade. (Para no. 6.7.10 of RSRC 1998, Part II)

Safety & Signal

Recommendation No. 23

Considering the importance of SWRS, an expert group of officers from Signal and Operating departments be co-opted to make out a prototype SWR that is presented in a user friendly format. (Para no. 3.13.6 of RSRC 1998, Part II)

Safety & RDSO

Recommendation No. 42

In view of the differing views on the reliability of psycho testing, in-service psycho testing of Railway staff should be dispensed with. (Para no. 3.8.3 of RSRC 1998, Part II)

Recommendation No. 118

There is hardly any sustained Interaction between IR and R&D Institutions of the advanced Railway systems. The Committee recommends that the links with such Institutions should be quickly established and strengthened through exchange of ideas on technical, operating issues, new technologies, etc. (Para no. 6.6 of RSRC 1998, Part II)

Works

Recommendation No. 6

There should be an immediate review of all New Line projects which are not project-oriented lines or lines of strategic importance. Such of

these non-remunerative lines which are nowhere near completion should be dropped without further delay. (Para no. 2.7.7 of RSRC 1998, Part II)

Recommendation No. 8

Ministry of Railways should announce an immediate freeze on further sanction of GC projects. Of the GC projects on the anvil, careful prioritization must be done entirely on the basis of financial returns taking into account the likely expenditure on replacement of assets like track/bridges/signalling etc. on condition basis in the foreseeable future and operational benefits that will accrue to the Railways. (Para no. 2.8.13 of RSRC 1998, Part II)

Recommendation No. 10

For the next five years, where no strategic considerations are involved, surveys should be done only for project-oriented lines or missing links/lines that, prima facie, are remunerative. (Para no. 2.10.1 of RSRC 1998, Part II)

Works, Finance (B), R.E

Recommendation No. 7

Projects where only token allotments have been made in two successive years should be dropped forthwith. (Para no. 2.7.8 of RSRC 1998, Part II)

Recommendation No. 18

Market horrowings should be used for investment only in viable new assets required on additional account. This principle should also be

extended to projects. The RoR should be higher than the lease charges as the outgo. The actual return should be assessed after five years of acquisition/completion. (Para no. 2.16.4 of RSRC 1998, Part II)

Planning, Mech., Elec., CE, Signal, Tele, RE, Finance (B), Works

Recommendation No. 9

Purely on grounds of enhancing the safety of the system, creation of adequate infrastructure for maintenance (both for fixed and moving assets) and line/terminal capacity must get the highest priority in the investment planning process, on par with replacement and renewal of over-aged assets. (Para no. 2.9.9 of RSRC 1998, Part II)

Planning

Recommendation No. 5

All unviable projects including New Lines should be funded from outside the Railway finances for initial costs and recurring losses till they break even. (Para no. 2.7.6(ii) of RSRC 1998, Part II)

CE, Elec, Signal

Recommendation No. 65

A detailed divisional plan for arrangements to execute scheduled work involving line blocks be made for a week in advance covering all departments and thereafter adhered to. (Para no. 4.11.2 of RSRC 1998, Part II)

Planning & Works

Recommendation No. 1

Financial justification should be the only consideration for approving and prioritizing an investment proposal. Further, only projects which yield a minimum rate of return of 20 percent, slightly more than the prevailing market rate of interest, should henceforth be undertaken. It is also necessary to arbitrate that in view of IR's financial crisis, no authority should be allowed to clear projects that do not fulfil this minimum RoR*, except where strategic lines are involved; the concerned codes should accordingly be amended. *RoR - Rate of Return (Para no. 2.3.2 of RSRC 1998, Part II)

CE & Track

Recommendation No. 64

The Railway Board should urgently approach the Supreme Court and obtain a relaxation to buy wooden sleepers for bridges as well as points/crossings for the next five years during which time adequate substitutes should be developed. (Para no. 4.10.5 of RSRC 1998, Part II)

Signal

Recommendation No. 82

IR should proceed with urgency to install digital data loggers that would not only record signal infractions but will also help in detecting

SPADS, preventive maintenance and for ascertaining the status of signals in the event of a dispute. (Para no. 5.5.2 of RSRC 1998, Part II)

Recommendation No. 84

The Delhi-Mathura project should be the touchstone for deciding on the future of train control systems on IR because, given the country's problems and the competing priorities, there is no room for costly technologies which are hard to sustain. (Para no. 5.10.7 of RSRC 1998, Part II)

Recommendation No. 91

The standard I interlocking at all stations or the BG main and trunk routes should be converted to standard Ill within the next two years excepting those where there are special reasons. (Para no. 4.21.1 of RSRC 1998, Part II)

Recommendation No. 92

Within the next one year all kerosene lit distant/warner signals on the main and trunk lines should be electrically permanent speed restriction of 10 to 15 kmph imposed for trains while negotiating unmanned gates having a high level of road traffic. We also recommend that, as with track circuiting, the Railways must upgrade level crossings, route wise, on the basis of density of rail traffic. (Para no. 4.22.4 of RSRC 1998, Part II)

Recommendation No. 93

For all major projects Involving doubling and conversion of main and trunk routes, the

minimum standard of signalling should be MAUQ and preferably colour light signalling Further, a comprehensive plan be drawn up by each Zonal Railway for modifying signalling arrangements to attain uniformity of signalling on all BG trunk and main line routes within the next five years. (Para no. 4.23.2 of RSRC 1998, Part II)

CE & Signal

Recommendation No. 61

In view of the inherent vulnerability of points and crossings, the inspection schedules should be vigorously enforced. (Para no. 4.8.2 of RSRC 1998, Part II)

CE & Mech.

Recommendation No. 58

Recommendations regarding handling of rails:

(a) Apart from inspection of the quality of rails, the proper loading of rails at Bhilai steel plant should be supervised and certified by a Railway representative.

(b) IR should preferably nominate one but not more than two ports for imported rail handling and these ports should be equipped with the necessary machinery for unloading rails.

(c) Rails coming from steel plants should be unloaded only in welding plants by overhead gantries and magnets. In the field

welded panels should be end unloaded using special rakes provided with rollers. Single rails should be unloaded in the field by ramps and ropes to prevent impact.

(d) much greater attention needs to be given to providing rolling stock of the right design and in fine fettle. Our committee is of the view that the upkeep, maintenance and movement of departmental rolling stock and trains should be given high priority; and

(e) the RDSO guidelines on handling of rails should form an integral part of the training courses for all categories of staff of the Civil Engineering department. (Para no. 2.5.3 of RSRC 1998, Part II)

CE & Tele

Recommendation No. 59

Recommendations maintenance practices improvement on in track

(a) IR should work quickly towards adopting the pattern of track maintenance established by KRC, where each gang has been provided with a mobile maintenance vehicle and has a jurisdiction of 40 kms. Complete switchover to machine maintenance should be made a mission area, to be given priority on par with any other activity connected with the track.

(b) Duties of the sectional permanent way gangs should be redefined with upgradation in technology and bundling out of certain functions on contract. Moreover, the gang tools need to be modified in the context of changes in the track structure. Use of crowbars in PRC track is supposed to be prohibited, and yet, in the absence of the right mix of tools, punning is done with the blunt ends of crowbars. Keeping in mind the new track structure and the increasing difficulties in getting adequate blocks, it is essential that easy-to-handle mechanized tools are introduced for routine track maintenance.

(c) The attire of the gangman must be redesigned so that it is not a mere uniform but also serves to provide a degree of protection at the work spot and leads to a sense of pride. For this purpose, bright coloured clothing should replace the drab Khaki, along with luminescent strips for night working.

(d) Maintenance of Permanent way today is hamstrung on account of lack of mobility of the field staff/equipment and inadequate communication facilities. These aspects need to be addressed by IR on priority. (Para no. 2.5.3 of RSRC 1998, Part II)

C.E

Recommendation No. 51

Instead of the present ad hoc spread of mechanized maintenance of track, the Railway Ministry should draw up a comprehensive Track Mechanization Plan that will target and notify the routes that will switch to complete mechanized maintenance, year-wise, and provide the commensurate inputs. (Para no. 4.2.3 of RSRC 1998, Part II)

Recommendation No. 52

The track renewal arrears along with fresh accruals should be cleared in the next seven years, with a one- time grant from the Central Government. (Para no. 4.4.1 of RSRC 1998, Part II)

Recommendation No. 56

The PWI's half yearly report in the original format should be reintroduced immediately and be maintained carefully like the record of bridges. (Para no. 4.4.4(f) of RSRC 1998, Part II)

Recommendation No. 60

Without further debate, safety tolerances should be drawn up for different speeds and categories of track. (Para no. 4.7.4 of RSRC 1998, Part II)

Recommendation No. 62

IR should provide thick webbed curved switches on the major trunk routes on priority. The programme for provision of these high-speed turnouts should strictly be progressed, route

section wise, so that immediate benefits can be obtained. (Para no. 4.8.3 of RSRC 1998, Part II)

Recommendation No. 66

The track maintenance practices, or German Railways be studied in detail for adoption on IR so as to Improve track quality and reduce costs. (Para no. 5.18.4 of RSRC 1998, Part II)

Recommendation No. 67

The process of stone blowing on British Rail be studied by a team of engineers and adopted on trial basis on an important line using both off track and on track systems. (Para no. 5.19.3 of RSRC 1998, Part II)

Recommendation No. 68

The expertise to measure rail stress in-situ be obtained urgently in the interest of safety and economy. (Para no. 5.20.3 of RSRC 1998, Part II)

Recommendation No. 103

A much higher weightage should be given for rail traffic than is provided in the existing system of calculating TVUS On all branch lines and other sections where there are only one or two pairs of trains plying, the level crossings should be demanned and if necessary, a permanent speed restriction of 10 to 15 kmph imposed for trains while negotiating unmanned gates having a high level of road traffic. We also recommend that, as with track circuiting, the Railways must upgrade level crossings, route

wise, on the basis of density of rail traffic. (Para no. 3.14.4 of RSRC 1998, Part II)

Recommendation No. 104

The Railways should immediately revise the norms for categorization of level crossing gates based on traffic handled and nature of the road so that the provision of safety aids is commensurate with the level of risk. (Para no. 3.14.5 of RSRC 1998, Part II)

Recommendation No. 105

IR should review the existing provisions relating to use of speed breakers and rumble strips, which are designed to slow down road traffic short of LCS. (Para no. 5.16.6 of RSRC 1998, Part II)

C.E & Safety

Recommendation No. 106

Recommendations to improve safety at unmanned level crossings:

(i) Poor visibility for the road user at unmanned level crossings is a major hazard. It is vital that each division of IR ab initio checks every unmanned LC gate with special emphasis on vegetation to ensure that visibility for the road user is adequate.

(ii) It is about time that IR modified the signage at LC gates which has been existing since long. Much more

prominent and instructive road signs reed to be installed at unmanned LCs.

(iii) Enforcement of traffic laws at level crossings must be stepped up and sustained through close liaison with the police authorities.

(iv) Local bodies such as the Panchayats need to be actively associated with issues relating to LC gates, in terms of education of road users as also closure of gates In India also drives on the pattern of Operation of Live Savers (OL) Involving IR, State Governments, Local authorities including Panchayats should be launched to educate the public and enforce laws at level crossings. The nodal authority for enforcing these rives should be the Union Ministry of Home so that adequate support is received from local police and other authorities. (Para no. 5.16.9 of RSRC 1998, Part II)

Finance (Budget)

Recommendation No. 11

For making adequate provision of funds in the DRF

(i) replacements required in the next three years should be worked out and provided for.

(ii) a portion of the renewal arrears, at least 10 percent should be provided for in addition so that arrears can be wiped out at least in a decade.

(iii) there should be no authority to resile from this system as a minimum.

(iv) while the above exercise is being conducted, contributions to DRF should be raised to at least s. 4500 crores per annum for the next three years against the present average contribution of about Rs. 2300 crores

(v) The funds required for replacement of rolling stock should come from DRF, which will be in addition to the above recommended amount. (Para no. 2.11.4 of RSRC 1998, Part II)

Recommendation No. 19

The Revenue Budget must be realistic and should take into account the inflationary factors and increase in workload so that procurement of material and equipment does not get affected. (Para no. 2.17.2 of RSRC 1998, Part II)

Finance (Budget) & MS

Recommendation No. 39

In tune with the National Training Policy, the Budget allocation for training should be 1.5% of the staff costs. (Para no. 3.11.4 of RSRC 1998, Part II)

Finance (Exp.)

Recommendation No. 13

It should be made mandatory for Zonal Railways to maintain proper records of the actual returns on projects costing over Rs 50 crores to be calculated on a yearly basis for at want 10 years after completion. There should be accountability of the variance from the projected RoR is excessive. (Para no. 2.12.9 of RSRC 1998, Part II)

Recommendation No. 17

The financial advice to executives should be only recommendatory in nature and the executive should have the ultimate decision-making power along with responsibility. (Para no. 2.14.3 of RSRC 1998, Part II)

Stores & CE

Recommendation No. 53

IR has to find ways and means to exclude second-rate suppliers in high value supply contracts. For safety stores intensive monitoring is needed. (Para no. 4.4.4(a) of RSRC 1998, Part II)

Secretary

Recommendation No. 124

Our committee recommends that railwaymen from other disciplines directly associated with train operations such as Mechanical, Traffic, Signal and Electrical, should also be eligible for

posting as CRS. (Para no. 6.7.7 of RSRC 1998, Part II)

Recommendation Accepted but 'Not Implementable'

121, 122 & 126	**3**	**Safety**
28	**1**	**Secretary**
Total	**4**	

Safety

Recommendation No. 121

A cause should be included in the relevant laws that no railway servant can be prosecuted without the sanction of the authority competent to appoint him or a higher authority. Further, it should be stipulated that the Commissioner of Railway Safety or any other Investigating authority who has powers of a civil court for conduct of enquiries cannot be called as witness or for examination by any court in cases which arise from Investigations done by them Finally, the report and the findings of the CRS should not be allowed to be used as evidence. (Para no. 6.7.4 of RSRC 1998, Part II)

Recommendation No. 122

The Chief Commissioner should be of the rank of Secretary to the Government of India and the Commissioners of the rank of Special Secretaries. (Para no. 6.7.5 of RSRC 1998, Part II)

Recommendation No. 126

The finalization and conclusions and recommendations of serious accident inquiry reports should be adopted after discussions in a Board consisting of at least two Commissioners, preferably with different professional backgrounds. (Para no. 6.7.9 of RSRC 1998, Part II)

Secretary

Recommendation No. 28

The surrender of the posts of Railway Advisers in Indian Embassies of advanced countries is a very retrograde step, we recommend revival of all these posts forthwith. (Para no. 5.17.2 of RSRC 1998, Part II)



भारतीय रेल परिवहन प्रबंधन संस्थान
रेल मंत्रालय, भारत सरकार
INDIAN RAILWAYS INSTITUTE OF TRANSPORT MANAGEMENT
(Hardoi By-Pass Road, PO Manak Nagar, Lucknow-226011, Uttar Pradesh)