भारत सरकार Government Of India
रेल मंत्रालय Ministry Of Railways
(रेलवे बोर्ड) (Railway Board)

Minutes Of The Meeting Of
'Mission Implementation And Coordination Committee (MICC)'
To
"Technology Mission For Indian Railways (TMIR)"

Held at Railway Board, New Delhi on Thursday, 3rd September 2015

1. In terms of Railway Board's letter no. 2014/CE-I/INNOV/4, dated 18.08.2015; meeting of the 'Mission Implementation & Coordination Committee (MICC)' to the "Technology Mission For Indian Railways (TMIR)" was held on 03.09.2015 at Railway Board's office, New Delhi.

2. Following were present :

A. Members of The 'MICC' To 'Technology Mission For Indian Railways' (TMIR) :

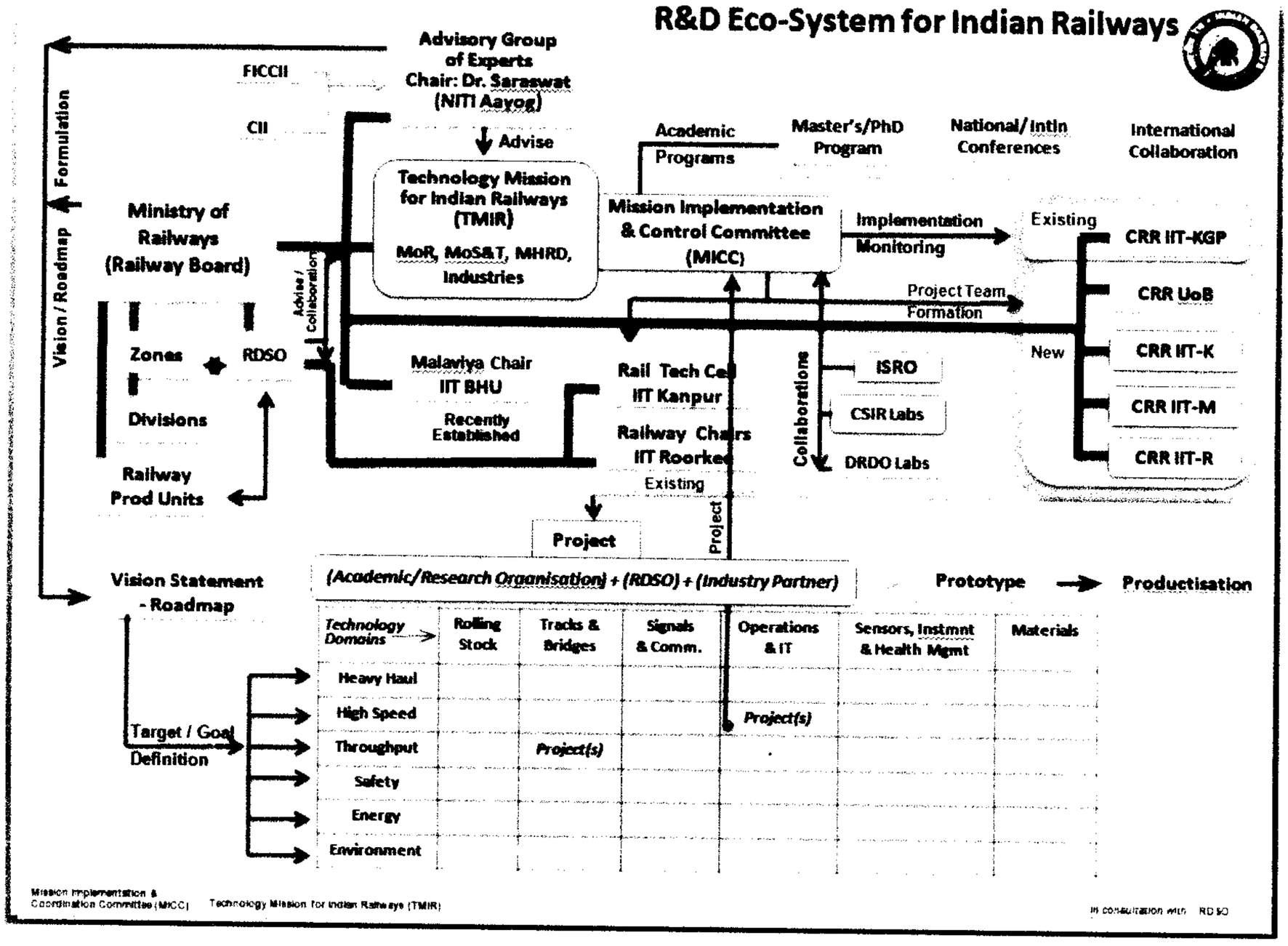
1.	Prof. N.S. Vyas, *Chairman*	*vyas.nalinaksh@gmail.com*	*9956292801*
2.	Shri Alok Kumar, *Co-Chairman and EDCE(G)/RB*	*alokalokindia@rediffmail.com*	*9910487302*
3.	Shri Nikhil Pandey, *ED/E&R/RB*	*eder@rb.railnet.gov.in*	*9910487329*
4.	Dr. Kalpana Dube, *ED/Finance/RDSO*	*edfinrdso@gmail.com*	*9794863002*
5.	Shri Vinay K. Agarwal, *ED/Research/RDSO*	*edresrdso@gmail.com*	*9794863022*
6.	Dr. Anirudh Gautam, *GM/RITES*	*gautam.anirudh@gmail.com*	*9794861064*
7.	Dr. Neeraj Sharma, *Scientist(G) & Adv./MoST*	*neerajs@nic.in*	*9810753972*
8.	Shri S.P. Goyal, *JS(D/HE), MHRD*	*spgoyal@nic.in*	*9453050000*
9.	Shri O.P. Tantia, *Industry Representative*	*tantiaom@gmail.com*	*9831008640*
10.	Dr. Sunil Sherlekar, *Industry Representative*	*sunil.d.sherlekar@gmail.com*	*9663090004*

B. Other Participants :

11.	Shri Anil Kumar, *Dir.CE(G)/RB*	*dcegrb@gmail.com*	*9717647156*
12.	Shri Amit Sharan, *Dir./E&R(ME)/RB*	*dermeenr@gmail.com*	*9717642759*
13.	Shri Rishi Gangwar, *Dir./Res./Civil/RDSO*	*drcrdso@gmail.com*	*9794863280*
14.	Shri Vineet Saini, *Scientist 'D', MoS&T*	*vineet.saini@nic.in*	*9868879275*

3. Shri Alok Kumar, Co-Chairman/TMIR extended warm welcome to the Mission Chairman, Members of the 'MICC' and all the participants of the meeting.

4. Prof. N.S. Vyas, Chairman/TMIR presented following R&D Eco System for Indian Railways through which planned integrated approach for R&D efforts of Indian Railways was illustrated. It was also recently presented to the Hon'ble MR in the meeting of CRRs. TMIR has also been mandated by Ministry of Railways for monitoring the R&D activities on IR including those of all the CRRs (Centres for Railway Research).



5. A presentation on action taken by RDSO on the issues brought out in the earlier meetings of TMIR was given by ED/Research –

5.1 Draft Mission Management Manual (MMM) has been prepared based on earlier approved document for IR's previous Mission 'TMRS' (Technology Mission for Railway Safety). It has been circulated to all the Members of MICC for the suggested improvements.

5.2 Estimate for TMIR has been sanctioned by DG/RDSO and has been sent to Board.

5.3 Action for creating an "Idea Bank" on RDSO website for the projects which may be taken up under TMIR is underway by RDSO.

5.4 Gap analysis in the current railway technological level of IR vis-à-vis best available in the world has been done by RDSO and was presented in the meeting of "Advisory Group of Experts on Make in India", held at Railway Board on 11.8.2015.

6. ED/Research also presented following 25 proposed projects as per current priorities of IR :

SL	Directorate	Project Title
1.	*EL, MP & Signal*	Driver Vision Assistance system
2.	*Tele*	Track vibration sensor and other sensors based unmanned L.C. gate warning system
3.	*Track*	Development of suitable technology to detect Rail Fracture and its communication to the driver of an approaching train and central control
4.	*MP & EL*	Defining & Implementing Noise Control Measures in Diesel & Electric Locos
5.	*EMM*	Design of Energy efficient lighting system for Indian Railway
6.	*MP*	To achieve interoperability between different makes of Distributed Power Control Systems (DPCS) for running of Heavy Haul Trains
7.	*Testing*	Developing the Testing capabilities for high speed rolling stock testing and training
8.	*Research*	Camera Vision based maintenance system
9.	*GE*	Performance Enhancement of formation for Ballasted Rail Tracks using Geo-

SL	Directorate	Project Title
		synthetics Reinforcement- Development of design methodology
10.	*Wagon*	Design of advanced performance next generation track friendly freight bogies as well as to augment in house capability of RDSO for optimization and numerical analysis of freight bogie designs
11.	*Wagon*	Development of electronic in motion weighbridge suitable for measurement of Wagons upto 140t (Axle load 35t max.)
12.	*Tele*	Development of communication system in tunnels.
13.	*EMM*	Standardization of power supply arrangement at Indian Railway Station premises
14.	*GE*	Land Slide Monitoring System, using Satellite Imagery
15.	*Wagon*	Development of material selection repository and digital guide for Freight car applications on Indian Railways.
16.	*Wagon*	Development of optimized design and production protocol for a hollow 25t axle, suitable for 'K' class Cartridge Taper Roller Bearing (CTRB), along with augmentation of house capability of RDSO for optimization of axle.
17.	*Track*	On-line Non-Destructive Measurement of Residual Stresses in Rails
18.	*Track*	Development of suitable system for Non destructive testing of Rails and Rail welds with improved reliability and speed
19.	*Testing*	Complete instrumentation of two newly built coaches for various field trials conducted by Testing Directorate.
20.	*Tele*	Development of LTE based broadband Emergency communication System
21.	*Tele*	Study of LTE for deployment over Indian Railways
22.	*Carriage*	Comprehensive study for wheel shelling of LHB coaches of IR
23.	*GE*	Effect of Seismic Forces on Railway Embankment and its Remedy
24.	*GE*	Design of Railway Embankment on Soil Prone to Liquefaction
25.	*EMS*	Energy Efficiency improvement solutions for Indian Railways

7. The Important points, as deliberated by the MICC were as under :

7.1. Proposal of RDSO for merging the existing Professorial Chairs at IIT/Roorkee and Railway Technology Cell at IIT/Kanpur alongwith CRRs (Centres for Railway Research) with 'TMIR' was discussed in the meeting and it was agreed to, as it will reduce multiplicity of agencies for undertaking railway research work for Indian Railways.

7.2. RDSO were advised to formulate detailed project proposals with scope, deliverables, cost, final product, associated academic/research institutions, having domain knowledge and the possible participating industries for each individual project. The project team should then present these detailed project proposals to the MICC in its next meetings. The MICC, with due co-option of competent experts, if required, would carry out a detailed technical scrutiny of each project and accord approval for going ahead to the approved projects and fund would accordingly be released by MICC from TMIR.

7.3. Need to select High Priority Projects : Research projects of priority areas, already identified by RDSO for high impact / high outcome, yielding maximum benefit in shortest time (Low Hanging Fruit) need to be worked out and subjected to a rigorous review and validation for being considered in the first phase of TMIR.

7.4. Funding Issue relating to other Ministries / Agencies : The modality of sanction and release of funds from MHRD and MoST also needs to be worked out in coordination with these Ministries. It is important for the funding agencies to look upon their contribution as an investment and not as an expense.

7.5. Focus on real value research outcomes and its implementation road map to be clearly spelt out during the initial project approval stage by MICC to remove the barriers for technology implementation in the field, which often arise later.

7.6. Research outcome of existing ripe & important railway projects needs to be fleshed out and incorporated in fresh research proposals for best outcomes. This will avoid duplicity, expedite the learning curve and may lead to faster results.

7.7. "Re-inventing the wheel" approach to be scrupulously avoided, as some technology may be commercially available worldwide at reasonable cost, which could be of use to Indian Railways.

7.8. The MICC must also deliberate on deciding the areas of R&D and projects. Interaction of MICC with various stakeholders may be beneficial, e.g. it may be deliberated if composites are an alternative to aluminum for wagon manufacturing.

7.9. MICC would look for foreign collaborators (universities or industry) when it is decided that such help is required. Such collaboration would, however, be for specific tasks in specific projects and be on terms and as per agenda of MICC and Indian Railways.

7.10. A list of referees, meaning domain experts for each vertical, as portrayed in the Eco-environment matrix presented by the Chairman/TMIR needs to be developed alongwith a RAMS benchmark.

7.11. The projects that are proposed to DST directly and under their consideration for some time need also to be subjected to above process through MICC.

8. All the Members of MICC were requested to study the draft document of Mission Management Manual (MMM) and suggest improvement so that after approval, it could be utilised for proper functioning of TMIR.

9. Next meeting of MICC will be held on 24th September, 2015 at Delhi to deliberate on 'MMM' and finalise the same.

(No. 2015/CE-I/Innov./3/TMIR, New Delhi, Dated 10.09.2015)

(आलोक कुमार) 10/9/15

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Distribution :

- Director General, RDSO, Lucknow
- Dr. V.K. Saraswat, Chairman Designate of the Advisory Group of Experts for 'Make In India' on IR
- Chairman and all the Members of MICC to 'TMIR' (Technology Mission For Indian Railways)

Copy to :

- EDPG/MR and PS/MR for kind information of Hon'ble MR please.
- Adv.PG/MSR, PS/MSR and ED/Innovation/MSR for kind information of Hon'ble MSR please.
- PSO/Sr.PPS to CRB, ME, FC, MM, ML, MT, MS and Secretary for kind information of CRB, ME, FC, MM, ML, MT, MS and Secretary please.
- The Secretary, Ministry of Science & Technology and Secretary, Ministry of HRD, New Delhi for information please.