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 RDSO, Lucknow on Thursday, 24th November, 2016

1. In terms of Railway Board's letter no. 2016/CE-I/INNOV/2/TMIR, dated 15.11.16; part meeting of the 'Mission Implementation & Coordination Committee (MICC)' to the "Technology Mission for Indian Railways (TMIR)" was held on 24.11.2016 at RDSO, Lucknow.

2. Following officials 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 C.E./NR*	alokalokindia@rediffmail.com	9910487302
(3)	Dr. Kalpana Dube, *ED/Finance/RDSO*	edfinrdso@gmail.com	9794863002
(4)	Shri Vinay K. Agarwal, *ED/Research/RDSO*	edresrdso@gmail.com	9794863022
(5)	Dr. Anirudh Gautam, *GGM/RITES*	gautam.anirudh@gmail.com	9794863148

B.	Other Participants :		
(6)	Shri J.S. Sondhi, *Addl. DG/RDSO*	adg@rdso.railnet.gov.in	9794863302
(7)	Shri Brijesh Kumar, *ED/GE/RDSO*	sredgerdso@gmail.com	9794863003
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(23)	Shri S.N. Ram, *Jt.Dir./Signal/RDSO*	dsig1rdso@gmail.com	9794863311

3. Shri V.K. Agarwal, Executive Director/Research/RDSO extended a warm welcome to the Mission Chairman, Co-Chairman, Members of the 'MICC' and all the participants of the meeting. He briefed about updated progress by MICC on TMIR activities.

4. Shri Alok Kumar, Co-Chairman/TMIR informed about the purpose of organising meeting of TMIR at RDSO, Lucknow. He mentioned that issue of respective shares of funding by MHRD and MoST (DST) to the TMIR projects has also been resolved.

(i) It was clarified that DST, vide their letter no. DST/TMC/MOR/2016-17, dated 17.10.16, have agreed to commit an amount of Rs.75 crores to consider the proposals earmarked by MICC/TMIR. Thus, the commitment of DST for their share of funding against the TMIR projects is on record.

(ii) Similarly, MHRD vide their OM no. F.2-6/2015-TEL, dated 08/10 November, 2016 have mentioned that the finalized proposals of TMIR will be funded 50% by MHRD. Thus, it also confirms the commitment of MHRD for their share of funding (requested share was 25% of the project cost) in TMIR projects.

(iii) The above status will also be put up to Board in reference to earlier endorsement of CRB, so that funding status and sharing by the MHRD and DST is kept on record and MICC goes ahead as per the approved provisions of MMM for sanctioning and execution of various projects in the specified time frame.

5. Prof. N.S. Vyas, Chairman/TMIR requested to move forward with the projects initiated by RDSO. He stressed that the projects to be taken by RDSO should have due R&D component; so that same could be considered by TMIR. Regarding funding, he informed that MoST has promised that it would not go through another round of review after a project has been approved by MICC.

6. Shri J.S. Sondhi, ADG/RDSO mentioned about the need to set up necessary infrastructure for TMIR at RDSO. He stressed that projects to enhance safety be taken under TMIR, on priority. Research should be focussed on development of robust track, carriage, wagon, bridges & man power training. He opined that Heavy Haul (heavy axle load) & Semi High Speed also need to be prime areas for TMIR projects.

7. Template of TMIR projects as per its approved Mission Management Manual was discussed with all the participants and it was advised that projects should be formulated by all the concerned Directorates of RDSO accordingly.

8. List of the 25 identified projects, already submitted to TMIR alongwith few new proposals was deliberated & decisions were taken as under, based on inputs from the concerned EDs of RDSO –

(i) <u>Projects already Approved by MICC</u> –

(1) **New Apparatus for Year Around Navigation (NAYAN) –** IIT/Kanpur, IIT/Kharagpur, IIT/Madras, SAMEER/Kolkata. (Research Directorate) :

<u>Status</u> : *Sanction letter to be issued and fund to be released, as already approved by MICC. Possibility of taking up a competent Industry Partner needs to be explored for enhanced effectiveness and speedy implementation of Project.*

(2) **Design Methodology & Software Development for Railway Formation Design -** IIT/Roorkee. (GeoTech Engg. Directorate) :

Status : *Sanction letter to be issued and fund to be released, as already approved by MICC. ED/GE/RDSO requested for issuing of sanction letter early, because otherwise, as mentioned by IIT-Roorkee (PI), project may get abnormally delayed.*

(3) **Initiation Phase to 'Design of Advanced Performance Next Generation Freight bogie design' -** IIT/Kanpur, KTH/Sweden. (Wagon Directorate) :

Status : *Extensive deliberations on this project have been held amongst RDSO, IIT/Kanpur, KTH/Sweden and Lulea University/Sweden. Meeting of the concerend persons was also organized in Delhi and Kolkata on 9th and 10th November '16. Chairman/TMIR informed that there is clear commitment of funding this project by DST. Therefore, sanction letter to be issued and fund to be released, as already approved by MICC.*

(4) **Initiation Phase to 'Development of Capability for Testing of High Speed Rolling Stock' -** IIT/Kanpur, RWTH/Aachen/Germany. (Testing Directorate) :

Status : *Deliberations were held with a German University and one Firm of Spain. Chairman/TMIR informed that there is commitment of funding this project by DST as was also mentioned during meeting with them on 09.11.16. Therefore, sanction letter to be issued and fund to be released, as already approved by MICC. Also, contact with other prospective agencies is required to be made, including Korea Railroad Research Institute, who have shown interest in collaboration with RDSO in this field.*

(ii) Projects Approved In-Principle by MICC –

(5) **On-board Diagnostics & Condition Monitoring –** IIT/Kanpur, IIT/Delhi, IIT/Guwahati, IIT/Mumbai. (Research Directorate) :

Status : *This technology is quite mature worldwide; so, no point in carrying out basic R&D. There is need to choose an Industry Partner having proven experience of development and implementation. Necessary action for choosing such an Industry Partner through EOI, as per provision of MMM to be taken by IIT/Delhi by end of Dec '16 and ED/Research to submit detailed proposal as per MMM by the end of January '17 to the MICC.*

(6) **Digital Train Communication Network –** IIT/Kharagpur. (PS&EMU Directorate) :

Status : *The benefits of this project, as envisaged, are not very convincing. But, keeping in view the importance of this technology, it was decided to consider the study phase of this Project. ED/PS&EMU will submit detailed proposal as per MMM by end of December '16 and will present to MICC in its next meeting.*

(7) **MEMS based Energy Harvesters for Fire Alarm Sensors & Emergency LED lamps** – IISc./Bangalore. (Carriage Directorate) :

Status : *ED/Carriage/RDSO will submit detailed proposal as per MMM by the end of January 2017 and will also present to MICC in its next meeting alongwith Academic partner.*

(8) **Way Side Monitoring System –** IIT/Bombay, University of Illinois/USA. (Research Directorate) :

Status : *This technology is quite mature worldwide; so, no point in carrying out basic R&D. There is need to choose an Industry Partner having proven experience of development and implementation. Necessary action for choosing such an Industry Partner through EOI, as per provision of MMM to be taken by IIT/Delhi by end of Dec '16 and ED/Research to submit detailed proposal as per MMM by the end of January '17 to the MICC.*

(9) **Design and Development of In-Motion Weigh Bridge** – IIT/Kanpur. (Wagon Directorate) :

Status : *ED/Wagon presented the proposal which has been formulated using WILD platform. It was approved by MICC for execution in a definite time frame of 6 months' period. The detailed document as per MMM will be submitted to MICC by ED/Wagon within a week's time.*

(iii) Projects Under Consideration –

(10) **Experimental study of Technologies for Continuous, Automated Track Monitoring -** IISc./Bangalore. (Track-I Directorate) :

Status : *Discussions with IISc./Bengaluru have been held. But, still the basic issues of taking care of all practical problems in using the technology proposed, have not yet been sorted out. This project was, however, suggested to be deferred by ED/Track-I/RDSO*

(11) **Wireless Standard for Distributed Power Centre System** – IISc./Bangalore. (Motive Power Directorate) :

Status : *Dr. Amrutur Bhardwaj of IISc./Bangalore visited RDSO for discussion on this project. Futher, study in Diesel Loco Shed, Krishnarajpuram has to be done for formulation of detailed Project. ED/Motive Power/RDSO will submit detailed proposal as per MMM by the end of January 2017*

(12) **Smart Asset Management for Railway Wagons -** Lulea Tech University/Sweden (Prof. Uday Kumar). (Wagon Directorate) :

Status : *This project needs to be merged with the other projects already approved by MICC under heading (i)(4) above.*

(13) **Unified ID Scheme and GIS Mapping for IR Asset Management & Route Profiling** – IIT/Kanpur. (Works Directorate) :

Status : *ED/Works/RDSO to check the details about similar ongoing projects from ED/TK(P)/Railway Board & CRIS and to submit detailed proposal for consideration of MICC as per scope of the work, further required to be done under this project.*

(14) **LTE & RF Communication based Train Control -** IIT/Kanpur. (Telecom & Signal Directorate) :

Status : *A project on study of LTE is already being undertaken with IIT/Chennai, IIT/Hyderabad and Centre of Excellence in Wireless Technology, Chennai. Also, TCAS partially takes care of RF communication based train control system. Therefore, this project was suggested as not required by RDSO.*

(15) **Design and Development of Aluminium based Coupler, Body and Other Elements** – NIT/Nagpur. (Wagon Directorate) :

Status : *The project does not figure in the current priority of RDSO. Hence, may be deferred for the time being.*

(16) **Prototype Development & Demonstration of set up for Brake Load Measurement during IOH/POH of Coaches** – IIT Kharagpur. (Carriage Directorate) :

Status : *ED/Carriage/RDSO will submit detailed project proposal as per MMM by the end of January 2017.*

(17) **Comprehensive Study of Wheel Shelling problem on LHB Coaches of IR** - IIT/Kharagpur. (Carriage Directorate) :

Status : *This is an approved project in Works Programme; but, action for contracting this project have not yet been successful. In view of the expertise available with IIT/Kharagpur, it is proposed to take up this project with them; but they should consider taking on board some domain experts, who have worked on solving similar problems. ED/Carriage/RDSO will submit detailed proposal as per MMM by the end of January 2017.*

(18) **Dynamic Response and stability of Railway vehicle : Rail Wheel Contact Forces and Suspension Dynamics** – IIT/Patna. (Testing Directorate) :

Status : *This project is part of project at SL (i)(4) above. Hence, it was suggested as not required by RDSO.*

(19) **Design & Development of "IR Standard Metro Rolling Stocks" (Standard Gauge)** - MCF/Raebareli. {PS&EMU (Nodal), Carriage and UTHS Directorates} :

Status : *Presentation was made by CDE//MCF/Raebareli which included Metro Rail Scenario in India, capabilites of MCF, cost involved (Rs. 40 crore), benefits envisaged etc. and it was well appreciated for consideration of sanction by MICC. However, MCF were requested to take further details and consent from the user Metros, Ministry of Urban Development and Railway Board; so that further investment and efforts made are sure to be utilized. Funding also needs to be tied up with user agencies, before formal approval to the Project, since TMIR is not in a position to bear the complete cost of the project.*

(20) **Preliminary study for using Empty Wagons for carrying passengers** – (Research Directorate) :

Status : *This project was proposed out of discussions in throughput Sub-Committee of the Advisory Group of Experts. It has many complicated issues and hence, this project was suggested as not required by RDSO.*

(iv) Projects as suggested by Dr. V.K. Saraswat, Member, NITI Aayog –

(21) **Gas Turbine based Propulsion** – GTRE-DRDO Lab. (Engine Development Directorate)

Status : *Currently, ED Dte. of RDSO is working only on a 1 MW shunting loco project, due to fund constraints. However, there is need to consider main line loco also, which will be of real use in the field. GTRE/Bangalore has informed that it will not be possible to use Kavery engine for locomotive propulsion. Chairman/TMIR suggested that this project should be discussed by ED/ED/RDSO with Dr. N.K. Gupta, Member/Advisory Group of Experts and to be formulated accordingly for further consideration of MICC.*

(22) **Methyl based Fuel Technology for Engine –** (Engine Development Directorate) :

Status : *This project will be formulated by ED/ED/RDSO in consultation with IIT-Kanpur and Dr. Anirudh Gautam (RITES) by the end of January 2017. However, detailed discussions will be held by the team in December 2016.*

(v) Projects suggested by Member Engineering –

(23) **Measurement of stresses in rail for enhancing surveillance of track and to minimize the deployment of manpower in patrolling of Track in extreme harsh weathers round the clock -** (Track-I Directorate) :

Status : *No workable solution to the problem has yet been found. Chairman/TMIR advised to approach Dr. K. Ramesh of IIT/Chennai for taking up this Project. Outcome to be intimated by end of Dec.'16. The project needs to be formulated accordingly by ED/Track-I/RDSO for consideration of MICC*

(24) **Improvement in Life of Track Fittings and Reducing Life Cycle Cost of Components, e.g. Rubber Pads –** (Track-II Directorate) :

Status : *RDSO is already working on this concept. The project needs to be formulated by ED/Track-II/RDSO as per MMM for consideration of MICC.*

(25) **Improved methodology, especially to avoid Subsidence of Track during Operation, for Construction of LHS/RUBs in the Track under Traffic Block for Elimination of Un-manned Level Crossing –** {B&S (Nodal) and GE Directorates} :

Status : *ED/B&S mentioned that in consultation with GE Directorate, suitable Guidelines will be issued within the next 3 months based on experience of Zonal Railways in construction and maintenance of LHS/RUDs in the track under traffic block. Hence, RDSO suggested that there is no need to take up a separate project.*

(26) **Optimum Solution for Improvement in the Formation with Locally Available Materials –** (GeoTech Engg. Directorate) :

Status : *This project needs to be taken up. ED/GE/RDSO will formulate project proposal as per MMM and submit to the MICC by the end of January 2017.*

(vi) Further New Projects as Suggested by RDSO –

(27) **Development and implementation of SATCOM & SATNAV based system for IR –** (Signal Directorate) :

Status : *This project is being done by ISRO, in assocation with RDSO and MoU between RDSO & SAC has already been signed. Funding to the project is by ISRO. It was decided that since the funding is not involved, the project need not be taken up under TMIR. Moreover, RDSO should make use of the technology and if required, further projects should be formulated for consideration under TMIR. However, progress of the project of RDSO-ISRO may be intimated to MICC on quarterly basis.*

(28) **Creation of Infrastructural Facilities at RDSO for TMIR –** (Works Directorate) :

Status : *ED/Works made brief prensentation on creating infrastructure facilities for TMIR at RDSO at an approx. cost of Rs. 7.5 crore. It was suggested that such*

a work should first be proposed under Works Programme for augmentation of various infrastructural facilities to be in RDSO campus with due justification and detailed drawings etc. However, ED/Works was further advised to formulate detailed project proposal as per MMM and if it fits in the domain of TMIR; it should be submitted to MICC by the end of January 2017.

9. ADG and all the EDs of RDSO were requested and explained the approach towards projects to be taken up under TMIR. The projects are required to be formulated by the concerned Directorates of RDSO in association with the Academic / Research Institutions; so that while scrutinizing the proposals by MICC, these could be properly appreciated and sanction may be accorded without any delay. The concerned EDs will have to take the lead role in their respective project areas and regular interaction for timely progress of projects will be required by them with their concerned Academic / Research / Industry Consortium Partners and project presentation by them to the MICC should be jointly, i.e. by both Project Investigators (RDSO Directorate & Academic/Research institutions).

10. The meeting concluded with Vote of Thanks to the Chair.

(No. 2016/CE-I/Innov./2/TMIR, New Delhi, Dated 05.12.2016)

05/12/16

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Distribution :

- Director General, RDSO, Lucknow
- Chairman and all the Members of MICC to 'TMIR' (Technology Mission For Indian Railways)
- All the participants of the meeting.

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