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MEMORANDUM OF UNDERSTANDING

Between

MINISTRY OF RAILWAYS

And

MINISTRY OF HUMAN RESOURCE DEVELOPMENT

And

DEPARTMENT OF SCIENCE & TECHNOLOGY

(MINISTRY OF SCIENCE & TECHNOLOGY)

For

TECHNOLOGY MISSION FOR INDIAN RAILWAYS

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NEW DELHI

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MEMORANDUM OF UNDERSTANDING

For

TECHNOLOGY MISSION FOR INDIAN RAILWAYS

This Memorandum of Understanding (MoU) for implementation of 'Technology Mission for Indian Railways' (TMIR) is entered into on this 4th day of January 2018 between –

Ministry of Railways, Government of India, New Delhi (herein after referred to as 'Indian Railways')

AND

Ministry of Human Resource Development, Government of India, New Delhi (herein after referred to as 'MHRD')

AND

Department of Science and Technology, Government of India, New Delhi (herein after referred to as 'DST')

Indian Railways, MHRD and DST are hereinafter referred to individually as "**Party**" and collectively as "**Parties**".

WHEREAS,

(A) The Ministry of Railways is responsible for the country's rail transport and is engaged in management of the affairs of the transportation of passengers and freight, by Indian Railways.

(B) The Ministry of Human Resource Development is responsible for the development of human resources. The Ministry is divided into two departments : the Department of School Education and Literacy, which deals with primary and secondary education, adult education and literacy; and the Department of Higher Education, which deals with university education, technical education, scholarship etc.

(C) Department of Science & Technology (DST) is responsible for promoting new areas of Science & Technology and to play the role of a nodal department for organising, coordinating and promoting Science & Technology activities in the country.

RECOGNIZING that cooperation and collaboration between the Parties will reinforce collaborative research, called 'Technology Mission for Indian Railways' through consortium of Parties and Industries.

DESIRING to consult on the priority areas and modalities of cooperation to work together and contribute to the overall technical development and indigenous research and its utilization for the progress of rail transport in India.

NOW, THEREFORE, the Parties hereto express their common understanding on cooperation as follows :

PROLOGUE

- Railways have been the engine of economic and technical growth and development in India. Railway's rapid advancement is not merely an area of national concern, but also poses challenges to the engineering and research community of the country.
- 'Technology Mission for Indian Railways' (TMIR) has already been set up at a cost of Rs. 300 crore on an investment sharing model for taking up identified railway projects for applied research and use on Indian Railways; as a follow-up to Budget pronouncement by Hon'ble Minister for Railways in his Railway Budget Speech 2015 to the Parliament, which was under :

  "A consortium of Ministry of Railways, Ministry of Human Resource Development, Ministry of Science & Technology and Industries on an Investment Sharing Model is being set up as part of 'Technology Mission for Indian Railways', to take up identified Railway projects for research."
- TMIR will function through the Mission Implementation & Coordination Committee (MICC), notified by the Ministry of Railways with representation from Ministry of Railways, Ministry of HRD, Department of Science & Technology and Industry. Further, MICC to TMIR will function as per the "Mission Management Manual" (MMM), as approved by the Ministry of Railways.
- The projects being undertaken through 'TMIR' would be in areas identified by the Indian Railways, looking into the immediate and future needs of the nation. Best available expertise in the country from the IITs, IISc, NITs and other academic institutions is being drawn for project formulation for specific railway requirements. Expertise available at CSIR laboratories, DRDO laboratories and ISRO is also being tapped for implementation of indigenously built technologies for use on Indian Railways. This exercise forms a major initiative, which would also help academic institutions in reorienting research towards national objectives and get introduced to newer knowledge application streams and indigenous product manufacturing.

- The indigenous technologies would successfully be developed with win-win scenario to all the consortium members. While Indian Railways would get the world class technologies, Academic & Research Institutions would get involved in numerous applied research projects which would help them in reorienting research towards national objectives. It would also help the institutions, labs & students/scholars and the industries in India to get introduced to new knowledge streams and indigenous product manufacturing; thus, leading to increased business turnover and more exports as well.
- This Technology Mission will provide forceful impetus to India's growth engine on the 'Make in India' vision track of the Hon'ble Prime Minister.

MISSION OBJECTIVES

- To strive towards achieving a sustainable R&D ecosystem for Indian Railways.
- To develop and adopt state-of-the-art design and control technologies, defined by needs related to Indian conditions. The Mission will implement projects aimed at achieving higher throughput, lower cost of transportation, safer train operation, improved environmental and energy foot-prints and improved Infrastructure & customer services.
- To encourage and initiate Research & Development activities, pertinent to Indian Railways in academic institutions & laboratories and establish convergence & synergy among them.
- To disseminate technologies through participatory approach to other (non-railway) application areas.

Article–1 PURPOSE

The purpose of this MoU is to provide a general framework to facilitate collaboration and cooperation between the Parties in 'Technology Mission for Indian Railways'.

Article–2 AREAS OF COOPERATION

2.1 Without prejudice to the possibility of each Party to collaborate with other entities or parties in the same or similar fields covered by this MoU, the cooperation and collaboration between the Parties will be in areas which constitute common interest to the Parties and will take place within the scope and limits of their respective constitutional instruments, mandates, policies and priorities.

2.2 Major Areas of Cooperation and Technology Development for Indian Railways have presently been identified alongwith respective design capabilities, manufacturing and maintenance practices for various assets, as under :

(i) Throughput Enhancement

(ii) Heavy Haul Technologies

(iii) High Speed Technologies

(iv) Safety with Improved Asset Maintenance and Reliability

(v) Energy Systems

(vi) Environmental Technologies

(vii) Urban Railway Systems

Detailed projects in above areas would be formulated by Ministry of Railways and these identified areas would be added/improved upon dynamically from time to time, as per needs & priorities of Railways.

Article–3 METHOD OF COOPERATION

3.1 Consultation and Sharing Information : Within the limits established by their respective disclosure policies, the Parties intend to :

a. Consult each other and exchange views on matters and activities of mutual interest.

b. Share information for the purpose of working together in order to contribute to Indian Railways through 'Technology Mission for Indian Railways'

3.2 Facilitating the Co-financing of Projects : The Parties, thus intend to work together to facilitate the co-financing of 'Technology Mission for Indian Railways' by investment sharing for identified railway projects for applied research.

(i) For 'TMIR' projects (total cost of Mission as Rs. 300 crore), following Funding Components will be made –

❖ *Ministry of Railways*	*30%*	*Rs. 90 Crore*
❖ *Ministry of Human Resource Development*	*25%*	*Rs. 75 Crore*
❖ *Department of Science & Technology*	*25%*	*Rs. 75 Crore*
❖ *Industry*	*20%*	*Rs. 60 Crore*

(ii) 'TMIR' in its present form is planned to be implemented in consortium mode in a period of further 3 years. This would require funding from MHRD and DST to the tune of Rs. 75 crore each, over a period of 3 years. MHRD and DST would make their specified funding of Rs. 75 crore (Rs. 35

crore for 2017-2018; Rs. 25 crore for 2018-2019 and Rs. 15 crore for 2019-2020) available for implementation of 'TMIR' projects. Ministry of Railways would also arrange its specified share in its budget of each year.

(iii) Funding of each project has been planned in the ratio of 30:25:25:20 by Ministry of Railways, MHRD, DST and Industry respectively. However, in case, in a particular project, no industry partner is associated; the funding on this account will be shared by DST and Ministry of Railways and revised funding ratio would be 43.5%, 25%, and 31.5% respectively by Ministry of Railways, MHRD and DST.

(iv) Accordingly, the revised fund share from the three Consortium Ministries (Ministry of Railways, MHRD & DST) against the total planned cost of 'TMIR' for Rs. 300 crore will be worked out and deposited by them to the 'TMIR account' during the third year 2019-2020.

In the eventuality of no industry partner in a particular project, the revised ratio of funding will also be applicable for various other purposes, such as surrender of savings, sharing of IPR, revenues etc.

3.3 **Developing New and Innovative Financing Instruments :** To further increase the financing, the Parties intend to encourage the development of adapted financing tools and instruments in accordance with their respective mandates, policies and procedures.

3.4 **Joint Programmes :** The Parties may, through this MoU, decide to act jointly in the implementation of 'Technology Mission for Indian Railways' through research projects or any activity in the areas of common interest. The arrangements will, in each project case, define the modalities of participation, roles and responsibilities of each Party, including their respective contributions to the costs, i.e. investment sharing of research projects or activity to be undertaken, subject to the Parties' respective policies and procedures.

3.5 **Procedure for Release of Grant for Research Project :** Funds would be provided for the Mission (TMIR) in accordance with Para 3.2 above and will be released by (i) Ministry of Railways, (ii) Ministry of Human Resource Development, (iii) Ministry of Science & Technology and (iv) the participating industry as per following procedure :

(i) Demand for release of yearly fund from funding agencies will be processed at the beginning of each financial year and funding agencies will release funds accordingly at the beginning of each year.

(ii) Yearly requirement of funds will be accessed by MICC of TMIR on the basis of abstract cost estimates of various projects, sanctioned by MICC.

(iii) The Mission Chairman / Co-Chairman would send the requisition for

release of funds from the respective Ministry/Industry.

(iv) Receipt of funds will be duly acknowledged by MICC.

(v) Funds obtained from funding agencies will be deposited with the **Master Account of TMIR**, to be maintained in the office of Director General, RDSO (Ministry of Railways), Lucknow.

(vi) In case of MHRD, each project after being sanctioned by MICC to TMIR will be sent to MHRD for processing through their IMPRINT programme and funds would be released as provided for under the IMPRINT guidelines, to the concerned Principal Investigators.

(vii) The accounts of 'TMIR' will be audited and funding agencies provided the audited accounts of previous year, before release for subsequent years are approved.

(viii) Funds to the respective project accounts will be released by MICC on the request of Principal Investigator of each project. The project funds/ payments would further be released by the Principal Investigator as and when required by different participants of consortium (POTC) for onward utilization in Research activities of the project.

(ix) At the end of each financial year, a Technical Progress Report (TPR) alongwith Statement of Utilization of Funds would be compiled by each Principal Investigator and submitted to the Mission Chairman / Co-Chairman. The MICC would forward the consolidated utilization certificate of funds to each of the funding agencies.

(x) On completion of project(s) and/or Mission, additional grants, if required, shall be released by the funding agencies. Also, if there is saving, the same shall be surrendered with the funding agencies in the same proportion as the funds were provided.

3.6 Support from all the Consortium Partners : Each Party of the Consortium for the project, viz. MHRD, DST, Railways and Industry would provide without any charges the necessary support of both existing infrastructure/facilities and manpower for fitment, testing, trials and utilization of specialized equipment, as available with them; which will be identified for the various projects either for validating the analytical studies or for qualification of the technology demonstrator solutions.

Since manpower and infrastructure available with funding agencies are run though schemes which have their own rules for determining use fee etc., the funding partners may waive off service fee or allow use of facilities. However, if any major equipment is required to be procured or testing facilities are to be developed for the specific purpose of research activity of the project, the same will be charged to the project with the approval of MICC.

Article–4 CONFIDENTIALITY

4.1 Notwithstanding anything to the contrary in this MoU, the Parties agree that for the duration and after the termination of this MoU, they will keep in confidence and will not disclose to third parties any confidential information obtained hereunder by either Party from the other Party without obtaining prior written consent of the concerned Party. Further, no Party will make public statements on behalf of the other Party, nor will any Party claim to represent the other Party, except in specific cases where express consent is given in writing by the concerned Party.

4.2 This MoU may be made public by the Parties in accordance with their respective disclosure policies.

Article–5 ADMINISTRATIVE NATURE OF THE MoU

5.1 This MoU is strictly limited to expressing a desire of the Parties for mutual cooperation, and is not intended to create legal relations between the Parties or to impose any legal and/or formal obligation of any nature on either Party.

5.2 In keeping with the administrative nature of the arrangements hereunder, no provision of this MoU will be construed to interfere in any way with the independent decision making autonomy of the Parties with regard to their respective affairs and operations. In particular, nothing in this MoU is intended to run counter to or modify the terms of each Party's specific mandates or their policies, rules and procedures.

Article–6 AMENDMENT TO THE MoU

6.1 The Parties may amend the provisions herein or enter into supplementary arrangements by mutual agreement between the Parties through exchange of letters and meetings.

Article–7 ENTRY INTO FORCE, DURATION AND TERMINATION

7.1 This MoU will come into force after the approval of the concerned authorities within each Party and upon notification by each Party to the other of the MoU's approval by its concerned authorities. This MoU will remain valid for a period of four years, effective from the date of signing.

7.2 Notwithstanding Article 7.1 above, any Party is at liberty to terminate this MoU by giving three (3) months advance notice of termination to the other Party. Should the MoU be terminated by any Party, steps will be taken to ensure that termination is not prejudicial to any programme or activities implemented within the framework of this MoU.

Article–8 REVIEW

The Parties will, within two years of the entry into force hereof, review the results achieved under this MoU and consult each other with a view to deciding on possible revisions to the MoU and/or other future courses of action.

Article–9 COMMUNICATIONS

For the purpose of facilitating the implementation of this MoU, the Parties will contact each other at the addresses indicated herein below :

For Indian Railways :

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Chief Administrative Officer/Construction/Northern Railway
And Co-Chairman–TMIR,
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For Ministry of Human Resource Development :

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For Ministry of Science & Technology :

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[END OF ARTICLES]

IN WITNESS THEREOF, the authorized representatives of the Parties have hereunto set their hands upon the date first above written.

(R. Subrahmanyam)
Additional Secretary/T.E.
Ministry of Human Resource Development
On behalf of –
Ministry of Human Resource Development

(Dr. Neeraj Sharma)
Adviser/DST
Department of Science & Technology
On behalf of –
Department of Science & Technology

(Alok Kumar) 4/1/08
Co-Chairman/TMIR
And Chief Admin.Officer/Const./NR
Ministry of Railways
On behalf of –
Ministry of Railways

(Prof. N.S. Vyas)
Chairman/TMIR
Indian Institute of Technology, Kanpur

Witnessed By :

On behalf of -
Ministry of Railways : (S. K. Singh)
ED/Research/RDSO

On behalf of -
Ministry of Human Resource Development : (KUNDAN NATH)
US/IITs/MHRD

On Behalf of -
Department of Science & Technology : ( )
Sanjay Bajpai
Scientist 'G'/DST