

Mission Management Manual

'Technology Mission For Indian Railways' (TMIR)

- SUPPORTED BY -

Ministry of Railway

Ministry of Human Resource Development

Ministry of Science & Technology

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C O N T E N T S

Sl. No.	Particulars	Page
I)	Prologue	4
II)	Mission Objectives	4
III)	Mission Approach	4
IV)	Mission Programs	5
V)	Mission Budget	5
VI)	Funding Components	6
VII)	Mission Duration	6
VIII)	Mission Implementation and Coordination Committee	6
IX)	Mission Office	7
X)	Constitution of Project Teams	8
XI)	Agreement and Memorandum of Understanding	8
XII)	Intellectual Property	8
XIII)	Procedure for Release Of Grant	9
XIV)	Accommodation and Travel	10
XV)	Project Proposal - Preparation Submission and Approval	11
XVI)	Financial Management	11
XVII)	Project Monitoring	13
XVIII)	Honorarium to Researchers	13
XIX)	Scope and Terms of Reference for Projects	13
XX)	Epilogue	14
Annexure-1a	Agreement and Memorandum of Understanding Between 'Parties of the Consortium' (POTC)	16
1.	Introduction	16
2.	Definitions	18
3.	Scope of Agreement	18
4.	Objectives, Deliverables & Time Frame of the Project	19

Sl. No.	Particulars	Page
5.	Responsibilities of Various Parties in the Agreement	19
6.	Financial Arrangement	21
7.	Project Monitoring	21
8.	Duration of the Project	22
9.	Completion of Project	23
10.	Confidentiality	23
11.	Intellectual Property Rights (IPRs)	23
12.	Force Majeure	23
13.	Termination of the Project	23
14.	Saving Provision	24
15.	Arbitration and Jurisdiction	24
16.	Duration of the Agreement	25
17.	Modifications to the Agreement	25
18.	Seal of Parties	25
Annexure - 1b	Intellectual Property Rights for Projects under Technology Mission For Indian Railways	25
Annexure - 2a	Form T.R. 42	27
Annexure - 2b	Pre Receipt	29
Annexure- 2c	Certificate	30
Annexure - 3a	Sample Project Proposal	31
Annexure - 3b	Bio-data of the Principal investigator	36
Annexure - 3c	Endorsement from Head of Organisation	38
Annexure - 4	Salary Structure Of Project Staff	39
Annexure - 5	Project Sanction Letter format	40

I) PROLOGUE

- Railways have been the engine of economic and technical growth and development in India. Railway rapid advancement is not merely an area of national concern, but also poses challenges to the engineering and research community of the country. A **"Technology Mission for Indian Railways"** (TMIR) has been sanctioned to focus national attention and drive modern technologies of monitoring, control, communications, design, electronics and materials for Railway use. The earlier national programs on Space & Defence Research and Technology Mission for Railway Safety (TMRS) as well have not merely achieved goals, specific to the Missions; but have also provided impetus to technology endeavors in institutions all across the country.

- A Technology Mission for Indian Railways will similarly help to initiate and incubate design and development projects of significant national importance. Technology issues on Railway operations & infrastructure relate to multitude of engineering disciplines. The Mission will help in pooling the relevant engineering knowledge, expertise and resources, available in various research organizations and academic institutions in order to address these issues in an efficient manner. The Mission objective is to develop and adopt state-of-the-art design & control, technologies defined by needs related to Indian conditions.

- The Mission will formulate and implement projects aimed towards achieving higher throughput, lower per unit cost of transportation, safer train operation and improved infrastructure. It will, thus provide forceful impetus to India's growth engine on the 'Make in India' vision of the Hon'ble Prime Minister.

II) MISSION OBJECTIVES

- To strive towards achieving a sustainable R&D ecosystem for IR.

- 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 footprints 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.

III) MISSION APPROACH

- In terms of Railway Board's order no. ERB-I/2015/23/23, dated 28.04.15; Ministry of Railway have decided to set up the "Technology Mission for Indian Railways" (TMIR) as a consortium of Ministry of Railways, Ministry of Human Resource Development, Ministry of Science & Technology and Industries on an investment sharing model for taking up identified railway projects for applied research and use on

Indian Railways with Mission Office at New Delhi.

- "Technology Mission for Indian Railways" (TMIR) will also monitor the progress of Research Projects of the existing Railway Research Centre (RRC)/Kharagpur and 4 upcoming Railway Research Centers sanctioned in Railway Budge 2015-16. Thus, Railways' investment in applied research activities will be converged and fruitfully converted to technology development for actual use in railway working. Execution of various projects under 'TMIR' will be dealt in terms of procedures, to be defined in this 'Mission Management Manual' (MMM). In case, an exception is required, it will be brought to the notice of MICC.

- A consortium from amongst (i) Ministry of Railways, (ii) Ministry of Human Resource Development, (iii) Ministry of Science & Technology and (iv) Industry Partner will be formed on case to case basis for individual projects.

- The indigenous technologies would successfully be developed with win-win scenario for all the consortium members. While Indian Railway 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 & student/scholars and the industries in India to get introduced to new knowledge streams and indigenous product manufacturing; thus, leading to increased business turnover & more exports as well.

IV) MISSION PROGRAMS

- Projects will be identified by RDSO on the basis of needs to meet present and future challenges, along with due interaction with Zonal Railways, Production Units, Academic & Research institutions and industries, to meet Mission objectives of achieving higher throughput, lower per unit cost of transportation, safer train operation and improved infrastructure. Additionally, projects identified by other agencies will also be considered by MICC.

- Project team for respective projects, comprising concerned Executive Director/ Director from RDSO, representatives of academic & research institutions, having domain knowledge, and the concerned industry will be approved by the Mission Implementation and Coordination Committee (MICC).

- The progress of projects will be monitored quarterly by the Mission Implementation and Coordination Committee (MICC), as per provisions of this Mission Management Manual (MMM).

V) MISSION BUDGET

In Railway Budget 2015-16, Ministry of Railways have sanctioned 'Technology Mission for Indian Railways' at a cost of Rs. 300 crore through consortium approach in which Railways investment share would be 30%, i.e. Rs. 90 crore. In this connection, extract of the budget speech 2015 of Hon'ble MR is as 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."

VI) FUNDING COMPONENTS

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

VII) MISSION DURATION

Anticipated Mission Duration is 4 years. The Mission duration can be extended one year at a time based upon the progress of projects undertaken. Each such Extension will be decided by MICC and approved by Ministry of Railways.

VIII) MISSION IMPLEMENTATION AND COORDINATION COMMITTEE

(i) Mission Implementation and Coordination Committee (MICC) will be the principal executive body of the Mission (TMIR). It will have the following:

Constitution :

1.	Prof. N.S. Vyas, *IIT Kanpur & former VC/RTU*	Chairman
2.	Shri Alok Kumar, *Chief Admin. Officer/Const./N.R.*	Co-Chairman
3.	Executive Director/Research, *RDSO*	Member
4.	Executive Director/Finance, *RDSO*	Member
5.	Executive Director/E&R, *Railway Board*	Member
6.	Dr. Anirudh Gautam, *ED/SRESTHA/RDSO*	Member
7.	Nominee *of DST*	Member
8.	Nominee *of Ministry of HRD*	Member
9.	Shri O.P. Tantia, *MD, BESCO Ltd., Kolkata*	Industry Representative
10.	Dr. S.D. Sherlekar *: Former Head/Embedded Systems/TCS*	Industry Representative

(ii) **Tasks** of Mission Implementation & Coordination Committee include –

- The Committee will formulate the Mission Management Manual for functioning of TMIR & its approval from Ministry of Railways.
- Review of provisions in the Manual whenever & wherever necessary and making amendments in the Manual accordingly.
- The Committee will constitute domain specific Sub-Committees for various fields of Railways working and also for monitoring the progress of technology projects.
- Projects Team Constitution.
- Approval of "Detailed Project Proposals" including 'Detailed Cost Estimate' for each project. Approval of MICC would be sufficient for project sanction and its implementation.

- Obtaining funds from Ministries (MoR, MHRD, MoST) & Industry partners.
- Budget Allocation to each identified project & authorisation for the related expenditure.
- Periodic Project Monitoring, including review of its scope & modification of approach.
- Short closure of any project, if felt necessary at any stage, can be approved by the MICC and communicated to the concerned Ministries.
- Seeking Government's advice (MoR/MHRD/MoST) on issues of policy.
- Other specific items, as decided during deliberations of MICC towards meeting the TMIR objectives.

IX) MISSION OFFICE

- TMIR and its Mission Implementation and Co-ordination Committee (MICC) will have a Mission Office in New Delhi.
- Funding to all the projects will be done by the participating consortium partners to the respective institutes/ laboratory with the approval of Mission Chairman / Co-Chairman.
- Projects will be executed & implemented in accordance with the prevalent norms and procedures of the individual academic/research institutions, including outsourcing of developmental activities.
- Collaboration with foreign institutes / agencies is permissible on obtaining due approval from the Competent Authority of the individual institution, to which the project has been awarded.
- Budgetary allocation for the administrative and overhead expenses of TMIR and its MICC will be done through a project entitled "Mission Implementation and Coordination (MICo)". This project will be operated by the Mission Chairman, in consultation with the Co-Chairman, in accordance with the procedures of the parent organisation of the Chairman (currently at IIT/Kanpur).
- In addition, a camp office of the Mission will be opened at RDSO Lucknow, with Executive Director/Research as its Coordinator. He will communicate every quarter the expected fund requirements and expenditure for Camp office to the Mission Chairman. For this purpose, a bank account will also be opened at RDSO/Lucknow in the name of the TMIR Camp Office to manage & coordinate activities at its RDSO Camp Office.
- The **Nodal Directorate** for functioning of the 'Technology Mission for Indian Railways' (TMIR) and its 'Mission Implementation and Co-ordination Committee' (MICC) will be **Efficiency & Research Directorate** of Railway Board. Therefore, all related works/issues including Parliament questions, RTI cases, their execution, fund

provision & other formalities shall be dealt with by the Nodal Directorate.

X) CONSTITUTION OF PROJECT TEAMS

- **Project Teams** will be approved by the Mission Implementation and Coordination Committee (MICC) for all the projects under the Mission.

- Each Project Team will necessarily **comprise** of : Faculty Member / Principal Research Engineer of the identified Academic institution and Concerned Executive Director / Director from RDSO

- These two (or more) members will identify other members of the research and development team from other Academic & Research institutions, Zonal Railways/ PUs/ PSUs, if and as necessary.

- These two (or more) Members will also suggest possible Industry Partner in team to the Mission Implementation and Coordination Committee.

- For selection of industrial partner for various projects, the "Expression of Interest" will be called for through TMIR website, which will be developed and maintained by the MICo Project. All interested industries will be called for to submit their willingness and credentials on the prescribed form, as approved by MICC, for judging their potential for the project. Screening of applications will be done by the Project team members who would submit their recommendations to MICC for selection of industry partner for the particular project.

- In case of inadequate/unsuitable response through "Expression of Interest" through TMIR website, if necessary, the project team members will suggest the probable industry partners after screening of the same for selection by MICC.

- It will be possible to incorporate an industry partner at any stage during the execution of the project, if felt necessary. The project team members can make such a recommendation to the MICC, for approval.

- Mission Implementation and Coordination Committee (MICC) will appoint a **Principal Investigator** for the project from within the project team members.

XI) AGREEMENT AND MEMORANDUM OF UNDERSTANDING (MoU)

The project team will be bound by the Agreement and Memorandum of Understanding (MoU) signed between -

(i) Academia/ Research Organization

(ii) Ministry of Railways

(iii) Industry

The above member institutions/organisations will be known as the **'Parties of the Consortium' (POTC)** for the specific individual project.

XII) INTELLECTUAL PROPERTY

All intellectual property created during the course of the research and development work in a project will be governed by the document on 'Intellectual Property Rights' for Projects under "Technology Mission For Indian Railways" – (Annexure-1a)

This document shall also form part of the Agreement and MoU between POTC.

XIII) PROCEDURE FOR RELEASE OF GRANT FOR RESEARCH PROJECT

Funds would be provided for the Mission (TMIR) in accordance with Para VI 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 :

1. 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 for the research activities that would follow in that year.

2. i) The requirement of funds for the first year will be processed by Mission Chairman / Co-Chairman (TMIR) on the basis of abstract cost estimates, already submitted to MICC alongwith the sanction letter or the Agreement/MoU (between the Members of the specific project team) with specific approval of MICC.

   ii) Meanwhile, the Principal Investigator (PI) of each project team will prepare and submit the detailed project proposal including cost estimation and requirements of funds for the entire period of the project, as prescribed in Para XV below to the MICC for approval.

   iii) The Mission Chairman / Co-Chairman would consolidate the requirement of funds for the concerned financial year for all the approved projects and send the requisition for release of funds from the respective Ministry/Industry through TR-42 (Annexure-2a) Form, supported by approval of MICC or the sanction letter.

3. Pre-Receipt (duly signed on revenue stamp of Rs.1) will be sent alongwith Form TR-42 as request for release of the sanctioned funds. (Annexure 2b)

4. Receipt of funds will be duly acknowledged alongwith a Certificate regarding utilization of grant for the purpose for which it is sanctioned. (Annexure 2c)

5. Funds obtained from funding agencies will be deposited with the **Master Account,** as described in Para-XVI below and duly acknowledged.

6. Funds in respective project accounts will be released on the request of Principal Investigator of each project, for release of sanctioned amount. The fund in each project would be utilized by the participants of consortium (POTC) for project work as per detailed project proposal and estimate approved by the MICC. For this purpose the funds/payments

would be released by the Principal Investigator as and when required to different Members of POTC for onward utilization in Research activities of the project.

7. 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 after collecting the same from all POTC Members and submitted to the Mission Chairman / Co-Chairman. The Mission Chairman / Co-Chairman would obtain approval of MICC before forwarding the consolidated utilization certificate of funds to each of the respective funding agencies.

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

Funding of each project has been planned in the ratio of 30:25:25:20 by Ministry of Railways, MHRD, MoST and Industry respectively. However, in case, in a particular project, no industry partner is associated; the funding on this account will be shared equally by MHRD, MoST and Ministry of Railways. In such eventuality, for the particular project, this ratio of funding will also be applicable for various purposes, such as surrender of savings, sharing of IPR, revenues etc.

XIV) ACCOMMODATION AND TRAVEL

1. Accommodation : Rest House/Guest House accommodation will be provided, as per availability by IITs / Other Academic & Research Institutions / RDSO / Ministry of Railways / Participating Industry to Mission personnel visiting their premises. Suitable hotel accommodation would also be permissible in terms of entitlement and norms of Govt. of India / Academic & Research Institute. These expenses will be charged to the Mission (individual project or Mission/Camp Office fund, as applicable).

2. i) All travels of Academic/Research institutions will be governed by the existing rules of respective institutes.

   ii) In case of Railway officials, the following will apply :

   a) Inland air travels for various purposes, as become necessitated would be permissible in terms of entitlement and norms of Railways. Such travel would be approved by competent Railway authority. The expenditure to this effect would be chargeable to the TMIR (individual project or Mission/Camp Office fund, as applicable).

   b) Road/Taxi travel, wherever necessary and applicable would be permissible as the case may be. The expenditure to this effect would also be chargeable to the TMIR (individual project or Mission/Camp Office fund, as applicable).

   c) Rail travel of Railway officials would be permitted as per their entitlement and will not be charged to TMIR.

iii) Ministry of Railways (including RDSO) will issue passes/authority for travel to non-Railway personnel associated with project work related to TMIR only in a situation where personnel have to travel in non-passenger vehicles like Guard's Van, Locomotives, Oscillograph cars etc. Issue of such pass/authority would be on the recommendation and as felt necessary, by respective PIs and concerned Executive Director of RDSO. Train travel by other than railway personnel associated with the project on passenger coaches would be by purchase of tickets as per norms of respective Academia/Research institutions.

iv) Foreign Travel of participating team members in the Project to attend conferences, present papers, study foreign technology/ establishments etc. for which provisions, including funds, have been made in the Project shall be undertaken with the approval of Mission Chairman only. "No Objection Certificate (NOC)", as necessary from competent authority of the respective Institute/Ministry will be further obtained by the individual before undertaking the travel.

XV) PROJECT PROPOSAL – PREPARATION, SUBMISSION AND APPROVAL

The Project Team will prepare and submit the Detailed Project Proposal containing, interalia, following Technical & Financial details of the projects to the Mission Implementation and Coordination Committee (MICC) for approval :

1. Justification of the Project, including Cost Benefit Analysis
2. Key Objectives (to be listed in form of points, starting from most important)
3. Current Status of Technology involved in Project
4. Methodology of execution of Project
5. Requirements for execution of the Project
6. Project Team
7. Reasons, in brief, for choosing specific Academic/Research Institute(s) and Industry Partner(s)
8. Time Schedule for execution of the Project
9. Distribution of work between various participating agencies
10. Budget/Cost Estimate with supporting documents, wherever possible
11. Deliverables (to be listed in the form of points, starting from most important)
12. Proliferation of Technology developed over Indian Railways
13. Any other Information/Remarks

A detailed **template** of a proposal is given in *Annexure*-3.

XVI) FINANCIAL MANAGEMENT

1. Fund will be received in a Master Bank Account, as decided by the MICC of TMIR.

2. Allocation of funds for individual project teams will be made on the

recommendation of the Mission Implementation and Coordination Committee.

3. After approval/sanction of the project proposal, the Principal Investigator (PI) will submit a request for release of the sanctioned amount to each Party of the Consortium alongwith separate Pre-receipts (*Annexure* 2b) from each Party. Each Party of the Consortium will officially communicate to about their 'pay to' mode for grant.

4. Each Project in the Mission will have a separate bank account and will be called "TMIR /Department Name/".

5. The individual project under the TMIR will be deemed to commence from the date on which the first financial sanction is issued by MICC for the project.

   Each participating agency will submit annually an Audited Statement of Expenditure and Audited Utilization Certificate to Fund releasing agency, (Mission Camp Office) at the end of each financial year, not later than 31st May.

6. The Principal Investigator will collect the Audited Annual Utilization Certificates and Statement of Accounts from all the parties of the consortium for the project and submit a consolidated document to the MICC through Mission Chairman/Co-Chairman at the end of every financial year, consolidating the overall expenditure & utilization of funds.

7. Consolidated expenditure and utilization of funds for each project, duly audited for all projects under TMIR shall be forwarded by the Mission Chairman/Co-Chairman to each funding agency at the end of each financial year.

8. Salary of a regular employee of any Party of the Consortium will not be charged to the project.

9. (a) In case of Academic & Research Institutions, employment and salary structure for project employees will be as per prevailing norms in these institutions and will be chargeable to the project.

   (b) In case of Railways, if work-charged posts are created as per norms of Railways for the project, the expenditure on account of such work-charged post will be charged to the project.

   (c) If need be, additional manpower requirement may be met by Railways/Academia/ Research Institute/ Industry by deployment of manpower from them or by sub-contracting the work by them, chargeable to TMIR (individual project or Mission/Camp Office fund, as applicable).

10. Each Party of the Consortium for the project, viz. MHRD, MoST / 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 equipments 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. 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.

11. Equipment procured under various projects of TMIR will be the property of MICC and will be transferred to Railways or elsewhere with the approval of MICC.

12. Disposal of remaining facilities, if any, created under various projects will be decided by MICC on completion of the projects or the 'Technology Mission For Indian Railways' (TMIR).

XVII) PROJECT MONITORING

- The MICC will carry out periodic technical and financial reviews and monitoring of the projects. The review will be done on quarterly basis in a year at an appropriate location. The intimation for the meetings as well as the dispatch of necessary agenda papers and progress report will be coordinated by Mission Chairman/Co-Chairman.

- MICC will have the right to terminate/close the project at any stage, if it is satisfied that (i) The money released has not been properly utilized, or (ii) Appropriate progress on the project is not being made, or (iii) The project is not being carried out as per the terms and conditions and/or as per the nature and scope of work, as defined in the approved project proposal or (iv) The project has lost its relevance in emerging scenario. However, the short closure of a project will be done with advise to the three Ministries, viz. MoR, MoST and MHRD.

- MICC will also monitor the progress of research projects of CRRs and other such collaboration of Railways at an interval of six months. Such review will preferably be combined with the review of the Program Advisory Committee of the respective CRRs, RDCMC of NID/Ahmedabad, CCC of Malaviya Chair at IIT(BHU). (Provision for such monitoring by MICC shall be incorporated in the MOU of the respective CRRs, RDC, Chair etc. to avoid any confusion/ conflict later)

XVIII) HONORARIUM TO RESEARCHERS

Payment of honorarium to faculty members in Academic institutions and permanent Scientists in Research institutions will not be admissible.

XIX) SCOPE AND TERMS OF REFERENCE FOR PROJECTS

- The following are included in the **scope of projects** to be undertaken, through the Mission (TMIR) :

  i. Literature survey, study of existing methodologies

  ii. Modeling and the analysis

  iii. Development of solutions relevant to the project

  iv. Validating solutions through carefully chosen experiments

  v. Design and prototype development of -

- Instrumentation electronics
- Analysis software
- Systems including hardware and software for networking Data acquisition and data analysis
- Embedded systems, wherever applicable

vi. Technology demonstration in actual working conditions of the prototype system(s).

vii. Transfer of Technology in the form of detailed design documents to Indian Railways.

viii. Proposed road map for Proliferation of the product/technology on Indian Railways

- Mass production and deployment is not included in the scope of the projects.
- The following **assumptions** are made :

i. For each project, the detailed specifications, expectations and the time schedule shall be evolved in consultation with Indian Railways.

ii. The history and necessary data for analyzing the root cause will be provided by Indian Railways.

iii. Details on the existing solutions, if any, from other suppliers within the country and outside the country would be provided by Indian Railways.

iv. Any physical mechanical work involved in integrating solution, like assembly of the wheels, sensor mounting on tracks, bridges, harness preparation etc. and field trials will be facilitated and done by Indian Railways to the extent of available facilities and manpower.

XX EPILOGUE

- Indian Railways are backbone to the country's economy and an integral part of our social fabric. It is one of the largest rail networks in the world with a total of 1,15,000 track kilometers. Indian Railways run 20,000 trains and carry 23 million passengers and three million tons of freight every day.
- Unlike developed countries, Indian Railways operate under vastly challenging circumstances of overcrowding; low cost of travel, longer trains, etc. The challenges posed in terms of technology development and implementations are also thus, greater and varied and unique in nature. These challenges also provide enormous opportunities for utilisation of available human and technical resources for development of safer and economical Railway network.

- India competes with nations of the world in Space, Nuclear and Software Technologies. It is important that Railway's mammoth technical network be energized through research and development, in order to spur widespread infrastructure and economic development.

This Technology Mission has envisioned such a roadmap.

(Alok Kumar)
Co-Chairman
CAO/Const./NR

(Prof. N.S. Vyas)
Chairman
IIT/Kanpur

(Vikas Arya)
Member
ED/E&R/RB

(Anirudh Gautam)
Member
ED/SRESTHA

(S.K. Singh)
Member
ED/Res./RDSO

(Kalpana Dube)
Member
ED/Fin./RDSO

(O.P. Tantia)
Industry Representative

(S.D. Sherlekar)
Industry Representative

ANNEXURE – 1a

THE AGREEMENT AND MEMORANDUM OF UNDERSTANDING (MoU)

BETWEEN

'PARTIES OF THE CONSORTIUM (POTC)'

FOR THE PROJECT ON

" _____ **"**

UNDER

TECHNOLOGY MISSION FOR INDIAN RAILWAYS (TMIR)

1. INTRODUCTION

This Agreement made and entered into on _____ day of _____, 2015 amongst following parties :

1.1 (i) President of India acting through Director, _____ *(Academic Institution)* (Ministry of Human Resource Development, Government of India, New Delhi).

(hereinafter called _____, which expression shall, unless excluded by or repugnant to the context, be deemed to include his successors in office and assigns of the first part).

(ii) President of India acting through Director, _____ *(Research Institution)* (Ministry of Science and Technology, Government of India, New Delhi).

(hereinafter called_____, which expression shall, unless excluded by or repugnant to the context, be deemed to include his successors in office and assigns of the second part).

1.2 President of India acting through Director General, Research Designs and Standards Organisation (RDSO), Lucknow, a subordinate office under Ministry of Railways, Rail Bhawan, New Delhi - 110 001.

(hereinafter called RDSO, which expression shall, unless excluded by or repugnant to the context, be deemed to include his successors in office and assigns of the third part).

1.3 M/s _____, having its registered office at _____.

(An Industrial Company/Companies incorporated under Indian Companies Act, 1956, hereinafter called as _____, which expression shall, unless excluded by or repugnant to the context, be deemed to include its administrator, executors, liquidator, successors in interest and permitted assigns of the fourth part).

1.4 WHEREAS, the Consortium of Academic Institutions / Research Institutions, RDSO (Indian Railways) & Industry has undertaken a scheme named "Technology Mission for Indian Railways" hereinafter referred to as 'TMIR'; having its office at New Delhi ; to be jointly funded by Ministry of Human Resource Development (MHRD), Ministry of Science & Technology, Ministry of Railway (MoR) and the Industry partner for its activities in connection with research & development and upgradation of technology with respect to projects prioritised by Indian Railways.

1.5 WHERAS, parties of consortium listed above from 1.1 to 1.3 desire to associate for the project titled _____ for Railway's purpose being one of the projects under 'TMIR'.

1.6 WHEREAS, Academic Institutions (Ministry of Human Resource Development) agree under "Technology Mission For Indian Railway" (TMIR) for 25% funding for the 'Project' '_____' and agree to provide research and technical inputs towards meeting the objectives/deliverables of the project.

1.7 WHEREAS, Research Institutions (Ministry of Science and Technology) agree under "Technology Mission For Indian Railway" (TMIR) for 25% funding for the 'Project' '_____' and agree to provide research and technical inputs towards meeting the objectives/deliverables of the project.

1.8 WHEREAS, RDSO (Ministry of Railways) agree under Technology Mission For Indian Railways" (TMIR) for 30% funding for the 'Project' '_____' and agree to formulate objectives and deliverables for the project towards meeting the requirements of Indian Railways and agree to associate with consortium members during research & developmental activities for the project for meeting the objectives/ deliverables of the project.

1.9 WHEREAS, M/s_____ are industrial company presently engaged in the development and production of _____, agree under "Technology Mission For Indian Railways" (TMIR) for 20% funding for the project '_____' and agree to provide developmental/ manufacturing support towards meeting the objectives / deliverables of the project.

NOW THEREFORE, in consideration of the premises and mutual covenants hereinafter contained, the parties hereto agree as follows :

2. DEFINITIONS

Unless otherwise stated, for the purpose of this Agreement:

2.1 The term 'Project' will mean '_____

_____'.

2.2 The term 'MICC' will mean the Mission Implementation and Coordination Committee, the apex body entrusted with the total responsibility of the Project execution.

2.3 The term 'POTC' will mean the 'Parties of the Consortium', namely, Academic/Research Institute on behalf of the Ministry of Human Resource Development, MoST, RDSO representing the Ministry of Railways and the particular Industry participating and contributing its share in the funding & execution of the Project.

2.4 The term 'Product' will mean item(s)/technology(s)/process(s) as per specifications being progressively developed and finalised by 'TMIR' during the working on the project by the participants of consortium listed from Clause 1.1 to 1.4 above for the Project.

2.5 The term 'Commercial Production' will mean the production of the product for commercial sale.

2.6 The term 'Commercial Sale' will mean invoiced sale of the product after Commencement of Production.

2.7 The term 'Start of Commercial Sale' will mean the first invoiced sale of the 'Product'.

2.8 The term 'Know-how Documentation' will mean Details of Technical Specifications of the 'Product', Drawings & Designs of the 'Product', Raw Materials, Consumables, Technology of the 'Product', Design Details Required for Prototype; Tools/Jigs/Fixtures/Dies, Source Codes of Software, Any Other Design & Development Details for Development & Manufacturing of 'Product'; Test Procedures for 'Product', Brochures, Literature & Users' instructions and related documentation required for use of the product.

3. SCOPE OF AGREEMENT

The Annexure, if any, to this agreement form part of the Agreement/MoU between the parties. The terms contained in the Agreement and Annexures shall be binding on the parties. The Agreement together with the Annexures, gives details of the responsibilities and obligations of all the parties to this Agreement, including, terms and conditions, financial arrangements, modalities of collaboration, intellectual property rights, monitoring mechanism of the project etc. pertaining to the following project "_____".

4. OBJECTIVES, DELIVERABLES & TIME FRAME OF THE PROJECT

4.1 Objectives of the Project :

The project "_____" to achieve the following objectives : _____ *(As given in the approved **Detailed Project Proposal** along with modifications, if any)*

4.2 Deliverables of the Project :

The project "_____" has deliverables as given in Annexure-I. _____ *(As given in the approved **Detailed Project Proposal** alongwith modifications, if any)*

4.3 Time Frame of the Project :

The project "_____" has time frame as given in Annexure-II. _____ (*As given in the approved **Detailed Project Proposal** alongwith modifications, if any*).

5. RESPONSIBILITIES OF VARIOUS PARTIES IN THIS AGREEMENT

5.1 Responsibilities of Mission Chairman and Co-Chairman :

(a) As the Mission Chairman and Co-Chairman; responsible for initiation, progress and monitoring of Project towards meeting the objectives and deliverables in the prescribed time frame as given in Clause 4 above.

(b) To ensure setting up of 'TMIR' establishment and provide resources for its intended working.

(c) To frame 'Mission Management Manual' containing rules, regulations and working instructions for 'TMIR'.

(d) To arrange fund from the 'consortium participants' as per Clause 6.

(e) To disburse the necessary funds to the project participants as per requirements from time to time in terms of recommendations of MICC of TMIR.

(f) To take up any other aspects and actions connected with the initiation, progress and completion of the project.

(g) To form and finalise project team, *in consultation with RDSO.*

(h) To process and obtain patents with joint ownership by the 'Parties of the Consortium' (POTC), on chargeable basis to 'TMIR' fund.

(i) Application of the technology in development of Products. Assist in preparation of the Schedule of Technical Requirements (STR) for Service Trials of the Product.

5.2 Responsibilities of Research/Academic Institution (IITs, CSIR Labs etc.) :

(a) To participate in the Research and Development activity towards meeting the deliverables of each project.

(b) To provide available technical support for development of prototypes/items and provide support in conducting lab tests/field trials etc. for validation programs.

(c) To participate in preparing and completing all the detailed specifications for protection of Intellectual Property Rights and providing assistance to academic institutions and research labs in obtaining Patents, wherever applicable.

5.3 Responsibilities of RDSO :

(a) To participate in the Research and Development activity towards meeting the deliverables of each project.

(b) To provide available technical support for development of prototypes/items and provide support in conducting lab tests/field trials etc. for validation programs.

(c) To participate in preparing and completing all the detailed specifications for protection of Intellectual Property Rights and providing assistance to academic institutions and research labs in obtaining of Patents wherever applicable.

(d) To advise in formulation of project objectives, deliverables and time frame.

(e) To assist MICC and work in project team for expediting issues related to progress of the project, coordination with relevant Govt. Departments/ Organizations / National Laboratories / Institutions and other concerned agencies.

(f) To provide all assistance for field trials of 'Product' and clearance through RDSO as per stipulated acceptance protocol of the Indian Railways.

(g) To take up any other aspects and actions connected with the project.

5.4 Responsibilities of _____ *(Industry)* **:**

(a) To provide the necessary infrastructure, manpower, services, building, utilities & the supporting equipment etc. needed for design & development, manufacturing and testing of 'Product'.

(b) ____(nos.) prototypes of the 'Product' as per specifications progressively formulated shall be developed, engineered, tested and subjected to extensive field trials to meet the objectives and deliverables of the project.

(c) To prepare and finalise the know-how documentation, including complete design, documentation, materials specification,

manufacturing technology of prototypes of 'Product' in association with parties from 1.1 to 1.4 and submit to MICC for onward transfer of technology to RDSO.

(d) To provide funds for the 'Project' as per Clause 6 of this Agreement/MoU.

(e) To remain closely and regularly in touch with TMIR, for any change in the specifications for incorporating suitably in the "Product".

(f) To receive from TMIR the grant for the product and to utilise the same for meeting the cost of the portion of work for the project as being done by the industry.

(g) To submit to MICC of TMIR, the periodic technical and financial progress reports, audited statements of expenditure/utilization certificates etc. in the prescribed format of TMIR.

(h) To undertake adequate steps to the satisfaction of the Government to prevent air, water and soil pollution. Such anti-pollution measures taken must conform to the effluent and emission standards prescribed from time to time by the Statutory Pollution Control Authorities. Also, to undertake adequate industrial safety measures, as provided in the Factories Act to the satisfaction of the State Govt. in which the factory is located.

(i) To abide by other Terms and Conditions of TMIR, as set out from time to time.

(j) After successful development of prototype and on completion of the project, the participating industry will also have to apply to RDSO through the prevalent procedure of 'Vendor Approval' for its inclusion in the approved list of vendors for the product.

6. FINANCIAL ARRANGEMENT

(a) For meeting the expenditure on the 'Project', the parties concerned shall provide the following finances :

(i)	Ministry Of Railways through RDSO *(30% of Project Cost)*	Rs. _____ lac.
(ii)	MHRD (25% of *Project Cost)*	Rs. _____ lac.
(iii)	MoST (25% of *Project Cost)*	Rs. _____ lac.
(iv)	_____ *(Industry) (20% of Project Cost)* Rs	Rs. _____ lac.
	Total	**Rs. _____ lac.**

(b) Utilization of funds mentioned in Clause 6(a) will be as follows and in the same proportion for all the consortium partners, as mentioned therein :

SL	Major Heads Of Expenditure	**Annual Plan For Expenditure** (Rs. lacs)			
		I Year	**II Year**	**III Year**	**Total**
1.	Equipment / Instruments / Prototypes				
2.	Material, Fabrication, Treatment, Testing				
3.	Human Resources				
4.	Travel				
5.	Contingencies				
6.	Institute Overheads (on Industry component)				
GRAND TOTAL					

(c) (i) MHRD, MoST, Ministry of Railways & Industry will provide financial contribution directly to TMIR Bank Account. MICC will transfer the approved fund for the project to the Institute, associated as POTC.

(ii) Further release of funds for the activities of the project shall be done by the Research institute, as regulated and instructed by MICC from time to time.

(iii) Actual utilisation of fund for the project will be assessed by MICC on final completion of the project. Excess expenditure, if any against the project will be released by MICC to the Research Institute from TMIR account and accountal will be made for the consortium participants in the ratio mentioned in Clause 6(a). Similarly, balance amount, if any on final completion of the project, will also be refunded to the TMIR account by the nodal Research Institute.

7. PROJECT MONITORING

The MICC will be responsible for periodic technical and financial reviews and monitoring of the project. The composition of this Committee will be intimated to all parties to this Agreement. The Committee will meet to review the progress of the project not less than twice a year, at an appropriate location. The intimation for the meetings as well as the dispatch of necessary agenda papers and progress report will be coordinated by Mission Chairman and Co-Chairman.

8. DURATION OF THE PROJECT

The project is to be completed in a time period not more than a period as per Clause 4.3 from the date on which the first financial sanction is issued by MICC for the project. The need for its extension, if essential, will be reviewed by the MICC. However, it would be the endeavor of all parties to this Agreement to complete the project within the stipulated period.

9. COMPLETION OF PROJECT

The project shall be considered to have been successfully completed when the deliverables of the project are completed, as deemed by MICC.

10. CONFIDENTIALITY

_____ *(Industry)* undertake on their behalf and on behalf of their sub-contractors/employees to maintain strict confidentiality of the project including, but without limitation to, the R&D work and know-how generated and prevent disclosure thereof, for any purpose, other than in accordance with this Agreement. Other members of the consortium in turn, will also ensure confidentiality as required for the project. The provisions of this clause will outlive the duration of this Agreement.

11. INTELLECTUAL PROPERTY RIGHTS (IPRs)

The Parties of the Consortium agree to abide by the Intellectual Property Rights as approved by the Ministry of Human Resource Development, MoST and the Ministry of Railways. Till such approvals are obtained, all rights are vested in MICC.

The collection of IPR revenues, design loan charges/royalty/other fee charges on the commercial production and disbursement among the POTC will be carried out by the MICC, through a 'Special Purpose Vehicle', created for the purpose, on chargeable basis out of revenue generated as above.

12. FORCE MAJEURE

No party shall be held responsible for non-fulfillment of their respective obligations under this Agreement due to the exigency of one or more of the force majeure events such as, but not limited to, Acts of God, war, flood, earthquakes, strike, lockouts, epidemics, riots, civil commotion etc. provided on the occurrence and cessation of any such events, the party affected thereby shall give a notice in writing to the other party immediately after but not later than one month of such occurrence and cessation. The period between the occurrence and cessation of such event will be excluded while calculating the period during which the party has to perform his obligations under this Agreement. If the force majeure conditions continue beyond six months, the parties shall then mutually decide about the future course of action.

13. TERMINATION OF THE PROJECT

(a) MICC will have the right to terminate/close the project at any stage, if it is satisfied that :

- The money released have not been properly utilized, or
- Appropriate progress on the project is not being made, or
- The project is not being carried out as per the terms and conditions and/or as per the nature and scope of work as defined in the approved project proposal.

(b) Research Institute will have the right to recover from _____*(Industry)* at any time, the money disbursed by Research Institute from "TMIR Fund – Project (_____)" alongwith interest, if _____*(Industry)* abandons the project on their own without approval of TMIR or if the project is terminated as above.

(c) If the project is abandoned for any techno-economic and reasons other than the above, based on the recommendations of the MICC, the industry shall pay back all unspent TMIR grants released for the project and interest accrued thereon and/or any amounts recoverable by way of disposal of assets procured out of TMIR funds.

14. SAVING PROVISION

_____*(Industry)* agree to disclose and provide to TMIR through Academic/Research Institute, Ministry of Human Resource Development, MoST, Govt. of India or its authorized representative or agency, such disclosure, the know-how, the related process and the intellectual property rights to use and practice the same for the purpose of experimentation and/or further research and/or development thereof, with the right to manufacture, sell and vend the 'Product(s)' in such manner as the Government of India may, in its judgment decide, for "Government purposes", or otherwise in public interest.

15. ARBITRATION AND JURISDICTION

In the event of any dispute or difference between the Parties hereto, such dispute or difference shall be resolved amicably by mutual consent or through the good offices of empowered agencies of the Government. If such resolution is not possible, then, the unresolved dispute or difference shall be referred to arbitration of an arbitrator to be nominated by Secretary, Department of Legal Affairs ("Law Secretary") in terms of Office Memorandum No. 55/3/1/75-CF, dated the 19th December, 1975 issued by the Cabinet Secretariat (Department of Cabinet Affairs), as modified from time to time. The Arbitration and Conciliation Act, 1996 (26 of 96) shall not be applicable to the arbitration under this Clause. The award of the Arbitrator shall be binding upon the parties to the dispute. Provided, however, any party aggrieved by such award may make a further reference for setting aside or revision of the award to Law Secretary whose decision shall bind the parties finally and conclusively.

16. DURATION OF THE AGREEMENT

The duration of this MOU will be for a period of 14 years from the date of its signing subject to conditions laid down in the IPR approved by the Ministry of Human Resource Development and the Ministry of Railways. This period includes the time for the development of prototypes/technologies, transfer of technologies to Railways and 10 years of IPR provisions. This is further subject to the provisions of IPR Act.

17. MODIFICATIONS TO THE AGREEMENT

The agreement including its duration can be modified through mutual written consent of all the parties to this Agreement and with the approval of Mission Implementation & Coordination Committee (MICC).

Other terms and conditions of MoU shall be as per Mission Management Manual for TMIR and as amended from time to time.

18. SEAL OF PARTIES

In witness whereof the parties hereto have signed this agreement on the day, month and year mentioned hereinbefore.

Signature Signature

Signature Signature

In The Presence of ***Witnesses*** *:*

1. Name & Signature

   Occupation

2. Name & Signature

   Occupation

3. Name & Signature

   Occupation

4. Name & Signature

   Occupation

ANNEXURE – 1b

Intellectual Property Rights

For Projects Under

Technology Mission for Indian Railways

The Document is under finalisation by MICC

ANNEXURE - 2a

Form T.R. 42

(See Rule 406 of Treasury Rules)

GRANT-IN-AID BILL

Head of Account : _____

Received the sum of Rs._____ (Rupees _____only) being the grants-in-aid for the period _____ sanctioned by the Ministry of Railways, New Delhi, vide its letter no. _____ dated _____.

Purpose of grant : _____

Director/ Registrar/ Principal

INSTITUTE/ UNIVERSITY/ COLLEGE

Dated : _____

1. Authority in whose favour the crossed bank draft is to be issued : Director, _____
2. Nearest branch of the State Bank of India : _____ (Institute)
3. Complete postal address of the Institute : _____ (Institute)

Certificate To Be Given By The Grantee Institution

Research Institution agrees to be governed by the terms & conditions of the grant of Rs._____ laid down in the Ministry of Railways sanction letter no. _____ dated _____.

Director/ Registrar/ Principal

INSTITUTE/ UNIVERSITY/ COLLEGE

For Use In Ministry

To

The Accounts Officer

Pay Rs._____(Rupees _____only)

Examined

Authorized Signatory

ANNEXURE -2b

PRE- RECEIPT

Received a sum of Rs. _____ (Rupees _____ only) from the Government of India, Ministry of Railways, New Delhi, towards grant for the year _____ under Ministry's letter no. _____ _____ dated _____.

Officials from Academic/
Research Institute

ANNEXURE - 2c

CERTIFICATE

Certified that the Grant–in–Aid for Rs. _____ (Rupees _____ _____ only) sanctioned by Government of India, Ministry of Railways, New Delhi towards grant for the year _____ under Ministry's letter no. _____ dated _____ will be utilized for the purpose for which it has been sanctioned.

Officials from Academic/
Research Institute

ANNEXURE – 3a

Sample Project Proposal

Template for Project Proposals to be Submitted for TMIR

(Note: No information is to be left blank, in case, some heading(s) are not applicable, then "NA" should be written)

---

1. **Proposing Directorate/Institution/Organization/Industry:**
2. **Project Sr. No** (to be started from sr. no. 001)**:** **(to be filled in by TMIR Cell of RDSO)**
3. **Date of Submission of Proposal to Research Directorate:**
4. **Title of Project:**
5. **Approx. Cost of the Project** (in Rs. Lacs): **(Based on Item No. 21)**
6. **Execution Time** (in months)**: (From the date of approval by MICC)**
7. **a) Justification of the Project, including Cost Benefit Analysis:**

   b) Impact of the project on (Heavy Haul/High Speed/Throughput/Safety/Energy Efficiency/Cost Saving/Environment/Others):
8. **Current Status of Technology involved in Project:**
9. **Knowledge Gap:**
10. **Final Outcome of Project and Relative Impact Assessment (Category A– High Impact High Necessity, Category B –High Impact Future Necessity, Category C –All Others):**
11. **Current and to be achieved TRLs (Technology Readiness Level), if applicable:**
12. **a) Key Objectives** (to be listed in form of points, starting from most important)

    b) Key Deliverables (to be listed in form of points, starting from most important**, deliverables must meet the project objectives):**

13. Methodology of execution of Project:

a. Roadmap:

b. Procedure:

14. Requirements for execution of the Project

Sr. No.	Name of Equipment/ Description of Specialist Service	Approx. Cost	Sourcing	Procurement/ Contracting Agency

15. Project Team

a. Academic/Research Institute(s):

b. Industry Partner(s):

c. Indian Railways: _ _ _ Directorate, RDSO Lucknow

d. Details of Individual Team Members (Names along with contact details, e-mail ID, etc.):

i. Shri……., Professor/Scientist, ---

ii. Shri……., Director/----, RDSO, Lucknow,

iii. Shri……., industry

16. Bio-data of PI and Co-PIs (as per format given in Annexure 3a)**:**

17. Endorsement from Head of Institution (as per format given in Annexure 3b)**:**

18. Reasons, in brief, for choosing specific Academic/Research Institute(s) and Industry Partner(s):

19. Time Schedule for execution of the Project

Activity	Quarter Number											
	1	2	3	4	5	6	7	8	9	10	11	12

Note: Period, in months, after which Transfer of Technology, if and as applicable, will be effected, to be indicated

20. Distribution of Work Between Participating Agencies

Institution/Organisation Work	IIT	CSIR	RDSO Lucknow	INDUSTRY1	INDUSTRY2

Budget / Cost Estimate: **(in Rs. lacs) (with supporting documents, wherever possible)**

Institution/ Organisation	**IIT--**			**CSIR--**			**RDSO Lucknow**		
Item	**I Year**	**II Year**	**III Year**	**I Year**	**II Year**	**III Year**	**I Year**	**II Year**	**III Year**
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Equipment/Instruments/Prototypes									
Material, fabrication, treatment, testing									
Human Resources									
Travel									
Contingencies									
Institute Overheads (on Industry component)									
Year-wise Total									
Institutional/Organisational Total									
Grand Total									

Institution/Organisation	**INDUSTRY1**			**INDUSTRY2**			**Item-wise Total**
Item	**I Year**	**II Year**	**III Year**	**I Year**	**II Year**	**III Year**	
1	*11*	*12*	*13*	*14*	*15*	*16*	*17*
Equipment/Instruments/ Prototypes							
Material, fabrication, treatment, testing							
Human Resources							
Travel							

Institution/Organisation	INDUSTRY1			INDUSTRY2			Item-wise Total
Contingencies							
Institute Overheads (on Industry component)							
Year-wise Total							
Institutional/Organisational Total							
Grand Total							

21. Proliferation of Technology Developed over Indian Railways:

a. Plan of proliferation of Technology in field/manufacturing/ procurement:

b. Roadmap of Proliferation and Cost Involved: After Project Execution (Item No 19) (*this is critical as time frame for proliferation of accepted technology is a key delivery requirement)*

	Year1	Year2	Year3	Year4	Year5	Total
Quantum of Asset (s) to be covered in Proliferation						
Cost Involved						

22. Barriers/Constraints in Project Execution which can be identified:

23. Critical factors which may affect the progress of the project and which need to be monitored by MICC:

24. Any other Information/Remarks:

ANNEXURE – 3b

BIO-DATA OF THE PRINCIPAL INVESTIGATOR

(Note: Similar detailed bio data should also be filled up for Co-PI's)

---

1. Name:

2. Gender: Male/Female

3. Date of Birth:

4. Designation & Affiliation:

5. Postal Address:

6. Phone Numbers:

7. E-mail ID:

8. Qualifications *(starting from University Level)*

S.No.	Degree	Institution	Year

9. Employment Experience

S.No.	Position and Organisation	Nature of Job	Period

10. List of Publications *(strictly for the last 5 years only with complete references)*

10.1. Journal Publications (with Impact factor for each)
10.2. Conference Presentations

11. Patents filed/granted with details *(strictly for the last 5 years only with complete references)*

12. Books published /Chapters contributed *(strictly for the last 5 years only with complete references)*

13. Sponsored Research Projects *(strictly for the last 5 years only with complete references)*

S. No	Title	Sponsoring Agency	Period	Amount *(Rupees in lacs)*	Achieve ments

14. Consultancy Projects *(strictly for the last 5 years only with complete references)*

S. No	Title	Sponsoring Agency	Period	Amount *(Rupees in Lakhs)*

15. Consultancy Projects *(strictly for the last 5 years only with complete references)*

***ANNEXURE* – 3c**

ENDORSEMENT FROM HEAD OF ORGANISATION

(On official letter-head)

Project Title: "_____"

1. Affirmed that the Organisation welcomes the participation of Dr/Mr/Ms ……as the PI and Dr/Mr/Ms……as the Co-PI for the Project and that in the unforeseen and legitimate event of discontinuation by the PI, the Co-PI will assume full responsibility for completion of the Project. Information to this effect, endorsed by me, will be promptly sent to TMIR.
2. Affirmed that the equipment and basic as well as other administrative facilities as per the terms and conditions of the award of the Project, will be made available to the Investigator(s) throughout the duration of the Project
3. The Organisation shall ensure that the financial and purchase procedures are followed as per the prevailing norms of the Organisation, within the allocated budget.
4. The Organisation shall provide timely the Statement of Expenditure and the Utilisation Certificate of the Funds under the Grant as required by TMIR in the prescribed format.

(Head of Organisation) Seal/Stamp

ANNEXURE - 4

Salary Structure of Project Staff

Academic / Research Institute/Organisation
RESEARCH & DEVELOPMENT OFFICE

(A) Research Staff :

SN	Designation	Minimum Qualifications	Salary Range
1.	Consultant	Ph.D/Masters degree with significant experience and expertise in the relevant area	As per respective academic/research institution norms
2.	Senior Project Scientist	Ph.D or M.Sc./Equivalent* + 6 years exp.	
3.	Senior Project Engineer	Ph.D or M.Tech. + 4 years exp.	
4.	Project Scientist	Ph.D or M.Sc./Equivalent* + 4 years exp.	
5.	Project Engineer	M.Tech. + 2 years exp. or B. Tech. + 4 years exp.	
6.	Senior Project Associate	M.Tech. or B.Tech./M.Sc. or Equivalent* + 2 years exp.	
7.	Project Associate	B.Tech./M.Sc. or Equivalent*	

Equivalent includes MBA/MCA/PG Diploma in Management/Information Technology (of duration 2 years regular or 3 years part time)*

(B) Technical Staff :

SN	Designation	Minimum Qualifications	Salary Range
1.	Project Technician	B.Sc./Diploma Engg. + 4 years exp. or High School + ITI + 9 years exp.	As per respective academic/research institution norms
2.	Senior Project Mechanic	Diploma Engg. or High School + ITI + 5 years exp.	
3.	Senior Project Assistant	Graduate (B.Sc./B.A./B.Com. or equivalent) + 3 years exp.	
4.	Project Mechanic	High School + ITI	
5.	Project Assistant	Graduate (B.Sc./B.A./B.Com. or equivalent) or High School + 5 years exp.	

(Experience of working only in relevant field, research lab. & workshop will be considered)

(C) Assistantship To Students :

1. As Project Research Assistant (PRA) & Project Senior Research Assistant (PSRA)-

   - For PRA norms : Rs. (As per respective academic/research institution)
   - For PSRA norms : Rs. (As per respective academic/research institution)

2. Hourly rate for students engaged on part-time basis –

   - UG students : Rs. (As per respective academic/research institution norms)
   - PG students : Rs (As per respective academic/research institution norms)

Annexure – 5

IR **TECHNOLOGY MISSION FOR INDIAN RAILWAYS** **TMIR**

No. IR: TMIR: .....

Date: .....

PROJECT SANCTION LETTER

Reference is made to the project proposal submitted by Research Designs & Standards Organisation, Ministry of Railways jointly with ----- Institutions/Organiation. The sanction of the Mission Implementation & Coordination Committee (MICC), TMIR is conveyed as below:

1.	Title of the Project	:
2.	Project Member Institutions	:
3.	Principal Investigator(s)	:
4.	Co- Principal Investigator(s)	:
5.	Sanction Cost	:
6.	Duration of Project	:
7.	Deliverables	:
8.	Project Ref No.	:
9.	Overall budget	:

Breakup of budget head-wise and institution wise to be mentioned below :

You are requested to convey the acceptance of the Terms & Conditions and other guidelines as given in Mission management Manual (MMM) for projects execution.

Chairman/Co-Chairman/TMIR

To,

All institutions involved in the Project, including Railways

Copy to: DG/RDSO for kind information