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

Record Notes of Discussion During Meeting of
Advisory Group of Experts
on
Upgradation of Technology and Leveraging 'Make in India' on Railways
Held on 14 July, 2015 at Rail Bhawan, New Delhi

1. In terms of letter no. 2015/CE-I/Innov./6, dated 26.06.2015; first meeting of the Advisory Group of Experts on "Upgradation of Technology and Leveraging 'Make in India' in the Railways" was held on 14.07.2015 in Railway Board's office.

2. Following were present :

A. Railway Board

1. Shri A.K. Mittal
   Chairman Railway Board
2. Shri V.K. Gupta
   Member Engineering
3. Smt. R. Ravikumar
   Financial Commissioner/Railways
4. Shri Navin Tandon
   Member Electrical
5. Shri Hemant Kumar
   Member Mechanical
6. Shri Pradeep Kumar
   Member Staff, Railway Board

B. Advisory Group of Experts

1. Dr. V. K. Saraswat
   Chairman Designate and Member/NITI Aayog
2. Shri P. K. Srivastava
   Director General, RDSO
3. Shri N. S. Vyas
   Chairman, Technology Mission for Indian Railways
4. Dr. N. K. Gupta
   Ex. DD/ISRO
5. Prof. Prem Vrat
   Pro-Chancellor ITMU and Former Dir./IITR
6. Dr. S. K. Salwan
   Chairman, Armament Research Board
7. Shri Tilak Raj Seth
   Representative of CII
8. Shri Tuhin Chatterji
   Director/CII
9. Shri Nalin Jain
   Representative of FICCI
10. Shri Alok Kumar
    ***Convenor** and EDCE(G), Railway Board*
11. Dr. Madhukar Sinha
    ***Co-Convener** and ED(Innov.), Railway Board*

3. EDCE(G) as Convenor welcomed all the attendees to the first meeting of the Advisory Group of Experts on Upgradation of Technology and Leveraging 'Make in India' on Railways, especially Dr. V.K. Saraswat, Member NITI Aayog who had consented to chair the Advisory Group. He particularly welcomed the Chairman and Members of the Railway Board who had decided to have an introductory meeting with the Advisory Expert Group.

4. Chairman, Railway Board introduced the Group to the focus areas and priorities of Indian Railways. He hoped that the Group would be able to make practical suggestions and present viable options for Indian Railways in light of some issues as stated below :

   a. While India had one of the oldest Railway systems in the world, it had not been able to maintain the technology for the system at the frontiers of knowledge in the field. Many countries which started railways after India, had more advanced technology today. World over, high speed routes were in excess of 25000 kms with speed potential of more than 300 kmph, heavy haul trains were running with more than 20,000 tons and conventional routes had achieved speeds upto 200 kmph. Indian Railways had lagged behind in these performance parameters.

   b. Accident prevention was another area of attention where there had been some improvement, but much is still needed to be done. Towards this end, Indian Railways needed more modern fail-safe systems.

   c. Upgradation of Technology was the need of the hour. Technology, if imported, would need to be as per local needs and requirements. The efforts in this regard would have to be to develop own advanced technology through hybridisation and assimilate the same for subsequent manufacturing in India. The Advisory Group was requested to give its considered views for adoption on Indian Railways.

   d. RDSO was responsible for R&D for purposes of the Railway. While they had performed well on standardisation front, they needed to do much more on R&D. IR had already collaborated with many institutes for Chairs, Research Centres etc. for various projects. It was to be hoped that these collaborative efforts would be taken forward by RDSO.

5. Member Mechanical complimented the Advisory Group on their willingness to take up an onerous but important task for the sake of Indian Railways. He further mentioned the following :

   a. Dr. Saraswat had familiarisation visit to ICF where he was shown various facilities by MM last week. Similar visits would also be organised to other Production Units for the Advisory Group for understanding capabilities of IR.

   b. RDSO had made pioneering efforts in the field of diesel locomotives. Indian Railways were world leaders in the technology of common rail direct ignition system. He invited the Advisory Group to suggest similar areas in which, with the help of directed research, the IR would be able to reach higher levels of technological sophistication.

   c. Advisory Group would require to keep in mind there was an expectation that IR would be a financially viable organisation with latest and modern technology for increased throughput.

6. Member Staff made the following comments :

   a. Technology should not be selected for technology sakes. It was important to set organisational goals first and then the technology necessary for them should be identified and deployed. Acquisition of the chosen technology would be from the options of indigenous development, import, hybridisation, etc.

   b. 'Make in India' was need of the hour and efforts should be that whatever was being imported might be manufactured indigenously.

7. Chairman-designate of the Advisory Group, Dr. V.K. Saraswat recounted the importance and emphasis laid by Hon'ble MR on how to improve technology levels on Indian Railways. He made a few introductory remarks on his understanding of the issues before the Advisory Group :

   a. Railway should function as a profit making entity to provide services to the society and technology had to be the vehicle for this endeavour.

   b. The approach had to be a combination of 'Design in India' as well as 'Make in India'. The insistence on proven technology was being used to choose only obsolete technology.

   c. In accordance with the GoI policy, Indian Railways should also attempt to have at least a 15 to 20% R&D component in every programme.

   d. The IR should start with upgradation of technology before moving onto introduction of new technology. International collaborations might be necessary to mitigate risks of development and to leapfrog intermediate stages of development. In South Korea, the Korean Railway Research Institute had used international collaborations to validate domestically evolved High Speed Rail standards.

   e. Indian Railways needed to introduce IT enabled services on Railways in a graded and graduated manner so as to extend to all systems. Where collaborations for new technology were needed, the terms of collaboration should be in favour of the Indian Railways.

   f. Railways had successfully done technology development projects through Technology Missions earlier. The new Technology Mission for Indian Railways (TMIR) would be well-advised to suggest adoption of new technology for development through a consortium approach with the association of Railways, Academia, Research organisations and the industries.

   g. There might be a need to look at RDSO being expanded into a Railway Research Institute.

   h. There would be a requirement of effective Business Process Re-engineering as well as acceptance and management of change.

   i. The Group would gain from a presentation by the Operations side regarding technology challenges that operations face.

8. He thanked the Chairman and Members of the Railway Board for their guidance to the Advisory Group. On departure of the Chairman and Members of the Railway Board, the Advisory Group initiated its own deliberations.

9. The main points of deliberations were as below :

   a. The terms of reference had to be adequately addressed.

   b. Upgradation of technology through imports and effective transfer of technology would need to be considered as a viable option.

   c. Indian strength areas like service excellence should be used to create core competence in Design and Technology solutions.

   d. Consortium approach should also include the private sector. Association of Industry and support to Industry is key to implement 'Make in India' concept. IPR issues and

guaranteed return to Private Sectors involved in Design and Development need to be ensured for Indigenous developments. Such concerns can be addressed through incentives, assurance of business, subsidisation, micro financing or Govt. investment under operation of Private Sectors (VoCo Model) etc.

e. The Advisory Group should interact with workforce on Railways. It would also examine the benchmarking exercise carried out by the RDSO regarding the technology currently available in various spheres with Indian Railways and the state of the art of world technology and the gaps therein. In this regard, a base line needs to be drawn for requirements of technology to achieve 'End Goals' of Indian Railway, e.g. speed, capacity, safety, unit cost per km etc.

f. All R&D works should be done in the Mission Mode leading to output of products within a fixed time frame for implementation.

g. Concept of a unified research ecosystem needs to be nurtured for proper coordination of all research centres, research chairs and other proven organisations like RDSO, DRDO, CSIR etc. for final delivery of technology on IR through 'TMIR'.

h. Culture of chasing technology should not be allowed to take roots in the Indian Railways. This would also curb import of technology for developmental works which would be essential for success of the 'Make in India' initiative. In this regard the ISRO/DRDO model might be used for all projects on anvil.

i. The Group decided it would also focus on areas like Semi High Speed, Heavy Haul, improvements to Safety and Passenger Amenities for 'Make in India' on Indian Railways.

10. It was decided that the next meeting of the Advisory Group will be held on a mutually convenient date after a fortnight, say on 30th July, 2015.

(No. 2015/CE-I/Innov./6, New Delhi, dated 21.07.2015)

(आलोक कुमार) 21/07/15

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Distribution for information and necessary action :

1. Chairman and all the Members of the Advisory Group of Experts.
2. The General Managers, All Zonal Railways.
3. Director Generals – RDSO/Lucknow and NAIR/Vadodara.

Copy to :

- PS/MR and PS/MoSR for kind information of Hon'ble MR and MoSR please.
- EDPG/MR and Adv.(PG)/MoSR.
- PSO/Sr.PPS to CRB, ME, MM, ML, MT, FC, MS and Secretary for kind information of CRB, ME, MM, ML, MT, FC, MS and Secretary please.
- Dr. Madhukar Sinha, ED/Innovation, MoSR and Co-Convenor of 'Advisory Group'.