

Report
on
National Seminar on
Design and Other Aspects of MS Pipelines in Water Sector

22 August,2026

Organized By

Indian Water Works Association Jaipur Centre

In Association with

Department of Civil Engineering MNIT Jaipur

Theme of the Seminar

Public Health Engineering Department GOR is executing major projects under Jal Jivan Mission and also major urban water supply projects involving use of large diameter MS pipes. The Water Resources Department, Government of Rajasthan is executing massive river linking projects comprising laying and jointing of large diameter Mild Steel Pipes for transferring water from Kali Sindh and Parvati rivers to water deficit areas, particularly in eastern Rajasthan. Similarly, Rajasthan state share in Yamuna water of 1.119BCM is to be brought to the districts of Churu, Jhunjhunu and Sikar from Hathinikund. The Seminar would provide an excellent opportunity for interaction amongst Professionals, Experts, Industry Professionals, Academicians, Administrators and Field Engineers implementing large projects in drinking water/irrigation sector on the design and other aspects of M S Pipes. The Seminar may provide an excellent forum for gaining exposure to the latest developments in the drinking water and irrigation sectors, while also facilitating the meaningful exchange of knowledge, experiences and views with experts and industry veterans.

Objective of the Seminar

The objective of the Seminar is to highlight the key design aspects of M S Pipes for water supply and irrigation and selection of appropriate diameter, wall thickness, joints and installation considerations, Cathodic Protection along with suitable internal and external coating systems for effective corrosion protection thereby ensuring durability, reliability, longevity of pipelines while reducing maintenance requirements during their service life.

REPORT

IWWA Jaipur center organized a National Seminar on 'Design and other aspects of MS Pipes in water sector' in association with Civil Engineering Dept of MNIT Jaipur. The seminar was attended by more than 100 engineers from PHED and Water Resource Department (Junior Engineers to Chief Engineers) GOR, MNIT faculty and Research scholars and IWWA members. The seminar was also attended by senior engineers and experts from industries. In all 15 presentations were made on variety of subjects like Design aspects, Corrosion in MS pipes, Cathodic protection, new technologies in manufacturing of MS pipes and their lining/coating, various types of coatings available and practiced with their merits and demerits, AI in water sector and also over view of JJM works in Rajasthan and bulk water transfer from Yamuna to Rajasthan and Eastern Rajasthan Canal Project with Interlinking of Parvati-Kalisindh rivers. Speakers included engineers from PHED, WRD, MNIT, Industries and subject experts. Each presentation was followed by intense question-answer session making deliberations productive.



The program started with the welcome address by shri O.P. Goyal, Chairman IWWA Jaipur center. He welcomed Distinguished Guests, Delegates, Speakers, Industry representatives, MNIT faculty, IWWA members, Research Scholars etc. He gave full account of having this National Seminar and its subject which is most relevant in present context to Rajasthan State. He also spoke on the strength of IWWA and works being carried out by IWWA. He introduced the theme of the Seminar emphasizing the importance of appropriate design as well as suitable jointing, installation practices and coating systems for M S Pipes. He also expressed confidence that the Seminar would provide ample opportunity for participants to share their experiences and technical knowledge to contribute to the durability, reliability and longevity of M S Pipelines. He urged all participants to actively participate in discussions to make the Seminar interactive and more productive.

Prof. A.B. Gupta of MNIT spoke on the topic of the seminar and its importance and relevance to the state of Rajasthan in particular. He also set the context of the seminar and spoke about the research and developments taking place in the field of water supply in MNIT Jaipur and made a special mention of R O Plants and DE fluoridation systems and wished that deliberations will benefit all sections of people.

Guest Of Honor Mr. Neeraj Mathur, Chief Engineer & Technical Member PHED spoke about the major projects being executed by PHED in Rajasthan for both rural and urban water supply where large size MS pipes are being provided carrying huge quantity of water at high pressures and an opportunity for PHED Engineers for learning and experience sharing in the Seminar. He wished that the deliberations in seminar will be of great help to PHED engineers.

Guest Of Honor Mr. Bhuvan Bhaskar, Chief Engineer & Additional Secretary, Water Resource Department GOR spoke about the works being carried out by WRD in the state and pointed out that so far WRD was known for constructing Dams and canals only. However, now major river linking projects and transfer of Yamuna water from Hathini kund to Churu district will require large scale use of MS Pipes in very large diameters. He highlighted the long term benefits of laying M S Pipes over high-level canals quoting the examples of Upper High-Level Canal (Mahi) Project and the Pipal khunt High Level Canal Project which resulted in substantial reduction in execution period. He therefore opined that today's seminar is likely to be of great use for WRD engineers and wished it a great success.

Dr. N.P. Padhy, Director, MNIT Jaipur was the Chief Guest but he could not join physically as he had to leave for an urgent meeting in Delhi in the morning. However, he joined the inaugural session virtually online and he addressed the participants. He emphasized the need to look into the energy security in the country. He emphasized the need to improve M S Pipe designs so that they can successfully carry saline water to green hydrogen plants. He wished that deliberations in the Seminar will be made available to concerned government agencies so that their application in the field could be considered.

Dr. Himanshu Arora of Civil Engineering Department MNIT proposed Vote of Thanks to all guests, participants and speakers.

Technical Session I

Mr. Agam Mathur, Retired Chief Engineer, PHED spoke about Design aspects of MS Pipes. He explained at length provisions/requirements in BIS standards, AWWA standards, various guidelines for designing of thickness of MS pipes, effect of various loadings, corrosion allowance etc. He explained various design parameters, primarily AWWA Manual M11 and IS-3589, which govern the design of M S Pipes. He also explained the design examples of the Baisapur and Indore Water Supply Projects.

This was followed by a presentation by Dr. Rohidas Bhoi, Department of Chemical Engineering, MNIT Jaipur. He explained about the phenomenon of corrosion in iron products in general and MS pipes in particular. He pointed out the huge losses country is incurring on account of corrosion and need for its prevention and control through various means. He also explained various forms of corrosion and methods of its protection and the use of corrosion allowance in the thickness design of M S Pipes.



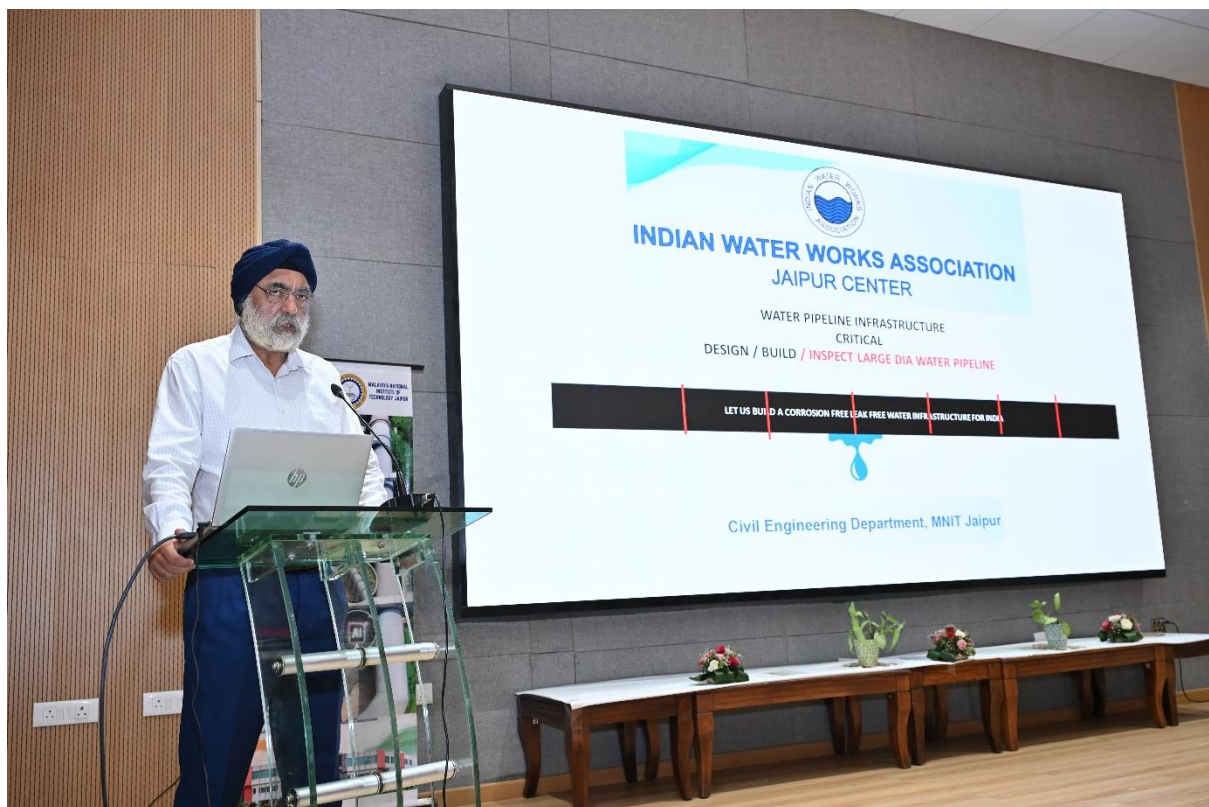
This was followed by a presentation by Mr. Kirit Panchal, SARK EPC Projects Pvt Ltd, CP Specialist AMPP_CP4 on Cathodic Protection of MS Pipes. He gave an overview of Cathodic Protection, why CP is needed and various codes, standards, guidelines and certifications applicable in the field of Cathodic Protection. He pointed out that as per NACE report of 2016, estimated loss of approx Rs.6.14 Lac Crores occurred to India due to corrosion which amounted to 4.2% of national GDP. He spoke about the process of corrosion, its protection and the limitations. He mentioned that corrosion in MS pipes results in loss of material, failure of pipe lines, down time due to system failure, adverse environmental effect, cost of rebuilding of assets and loss of trust of people. He presented a detailed methodology about assessment of requirement of Cathodic protection (CP) on MS pipes, how to approach the problem and various components of CP. He also pointed out the issue of existence of EHT power lines crossing or running parallel to pipe line alignments and their adverse effects on MS Pipelines and special consideration required to be made to address this problem in CP design. He explained about detailed methodology of the process, as well as the specific procedures required to mitigate AC, DC, and HDVC interferences. He made reference to various standards/criteria/guidelines applicable for CP like NACE SP-0169, ISO: 15589-1:2015, API RP 651 etc. He also spoke about Modern Cathodic Protection approach by simulation.

Mr. T.S. Kathayat, C.O.O. (Pipe Business) of Welspun Corp spoke about “Emerging Technology in Large Diameter Pipe Manufacturing with Anti-corrosion Coatings for Sustainable Transportation of Water in India”. He pointed out key benefits for getting large size MS pipes manufactured in factories from quality and quality control points of view and impressed upon sourcing large diameter pipes for projects from such manufacturing works only. He pointed out that they have a total Global manufacturing capacity of around 3.1MTPA with two plants located in USA. He also gave details of manufacturing facilities, quality control procedures, factory done coating/lining etc. which are with highly advanced technology. He pointed out role of use of steel of special grade in controlling corrosion. He

also impressed upon to go for more reliable external protection of MS pipes through 3 LPE coating which, according to him is most widely used external coating on MS pipes world over.

Shri Neeraj Parashar DGM (Marketing) Jindal Saw Ltd made presentation on manufacturing of MS pipes at their works and 3 LPE coating outside the M S Pipes. He explained the QA/QC system adopted to ensure quality pipes being supplied. He also mentioned that they generally go for 3 LPE coating outside, which gives very good protection to MS pipes from corrosion. He informed that EAA adhesive is used during three-layer coating procedure as a vital tie layer to chemically bond the corrosion-resistant epoxy primer to the outer polyethylene shield. He also emphasized that user should go for factory manufactured MS pipes with inside and outside coating completed to ensure the pipeline gives a trouble free long life.

Shri Rahul Shrivastav, Senior Manager (Marketing) of Ratnamani Metals & Tubes Ltd in his presentation on manufacturing and installation of M S Pipes stated that they are normally using liquid epoxy coating as the primary corrosion-protection layer inside the pipe and 3LPE system coating on outside surface of the pipe. He also argued for using pipes manufactured and coated in regular factories for ensuring quality of material and coating both inside and outside and discourage the same locally fabricated/manufactured. He also argued heavily in favor of using 3 LPE coating on outside of pipe wherever pipe is buried underground.



Mr. K.B. Singh, an independent expert and free lance consultant explained in detail about his experience of poor workmanship witnessed in field in already laid pipes. He pointed out serious lapses in pipe welding in the field at joints, damage to outside coating during transportation, unloading from trucks and lowering in trenches, repairing of coating at damaged points and also at joints, improper refilling of trenches which result in reduced life of MS pipeline. He made following specific points to be critically observed during entire process of procurement, handling, L/J, inspection, commissioning etc.:

- Select Fe 410 / Fe 450 steel and optimised thickness as per IS 3589 + AWWA M11
- Prefer plant-applied 3LPE external coating + food-grade epoxy internal lining
- Rigorous surface preparation (Sa 2½) for main pipe and field joints
- Controlled handling, bedding and backfill to protect coating and ensure stability
- Proper ICCP design and commissioning
- Mandatory pre- and post-commissioning surveys (CAT + CIPS + DCVG) with holiday repair
- Full documentation of all tests, repairs and baseline survey data for lifelong integrity management



Technical Session II

Shri Sameer Kadam of M/S BLS Polymers made presentation on 3LPE coating. He explained in detail the components of 3LPE and role of each layer of coating. He submitted that 3LPE coating provides long duration protection and exceptional impact and abrasion resistance, protecting M S Pipes from physical damage during transportation, rocky soil installation, and routine operation and maintenance.

Shri Rizvan S Mann from M/S Amchem Products Ltd in his presentation spoke about use of PU coating on MS Pipes and its advantages versus 3 LPE coating. He also mentioned the quality issues in various types of coatings, and also the Electro Chemical Impedance Spectroscopy (EIS) test used to assess coating effectiveness.

Shri Rahul Dabas from M/S Seal for Life India gave a presentation on coating manufactured by them for application at field weld joints, both internal and external joints, and also for repair of coating. He explained the methods and advantages of surface preparation before coating. He also explained in detail requirement of properly applying the right coating at joints in field, which according to him are the most critical weak points for failure.

Prof Kailash Singh Department of Chemical Engineering, MNIT Jaipur, made a presentation on AI application in the water sector, explaining how machine learning enables water demand forecasting and leak detection.

Shri Krishon Mohan Jaiswal, Additional Chief Engineer WRD presented an overview of the proposed Hathini kund – Hanshiawas RWR complex in Churu District of Rajasthan system for transfer of Rajasthan' Share of water in Yamuna waters. He informed that it is proposed to lay 3 parallel MS pipelines of 3600mm each in a length of 293.5KM from Hathinikund to Hansiawas RWR of Rajasthan to transfer 1.119 BCM of water annually against its share in Yamuna waters. He pointed out that this water will be used to meet drinking water demand of people of three districts namely Churu, Jhunjhunu and Sikar, which are presently facing acute drinking water shortage. The project is reported to be under appraisal by Ministry of Jal Shakti, GOI.

Shri Vinay Chandvani, Superintending Engineer, WRD presented an overview of ERCP, which envisages transfer of surplus water from Parbati-Kali Sindh-Chambal (PKC) link to water-deficit regions of Rajasthan. MoPKC Link Project (Rajasthan Part) aims to address drinking water needs, expand irrigation coverage and create an integrated water grid across multiple regions of the state. The project envisages Safe drinking water to targeted 40% population of the state, encompassing 17 districts viz.

Jhalawar, Baran, Kota, Bundi, Tonk, Sawai Madhopur, Dausa, Karauli, Dholpur, Bharatpur, Deeg, Alwar, Khairthal-Tijara, Kotputali - Behror, Jaipur, Ajmer and Beawar of Eastern Rajasthan and en-route towns, tanks and villages as well as industrial water demand for DMIC and other industries in and around basin area. The total CCA under MoPKC Link Project is **4.98 lakh hectares**

Shri Satish Jain Superintending Engineer (Retd) PHED presented an overview of the Jal Jeevan Mission (JJM) project including its achievements and implementation constraints.

Vote of Thanks

In the end, Shri H L Chauhan Vice Chairman IWWA Jaipur Center summed up the deliberations and thanked the Chief Guest, the organising team as well as the speakers and participants for their valuable contributions in making the Seminar a success. He also thanked MNIT Jaipur for providing the venue and other logistics support for the Seminar.

