No.- 12/1/2019-HE&MT
Ministry of Heavy Industries & Public Enterprises
Department of Heavy Industry
(HE&MT Section)

Udyog Bhawan,
New Delhi- 110011
Dated : 11th June, 2019

Subject: Minutes of the 8th Meeting of Apex Committee held on 13th and 14th May, 2019

The undersigned is directed to forward herewith a copy of Minutes of the 8th Meeting of Apex Committee held under the Chairmanship of Secretary, Department of Heavy Industry on 13th and 14th May, 2019, to review the projects under the Scheme on enhancement of Competitiveness in Indian Capital Goods Sector, for information and further necessary action.

(Sanjiv Kumar Gupta)
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To
(As per list attached)

Minutes of the 8th Apex Committee Meeting for review of projects underway as part of the Capital Goods Scheme held on May 13 and May 14, 2019 in DHI, New Delhi

The list of participants is attached.

The Joint Secretary welcomed the chair, Dr. A.R. Sihag, Secretary Department of Heavy Industry to the 8th Apex Committee Meeting. The Apex Committee met with the objective of reviewing the progress of the 26 projects approved under the Scheme for "Enhancement of Global Competitiveness of Indian Capital Goods Sector". The Chairperson welcomed the Apex Committee members and the participants to the meeting, after which there was a broad introductory discussion on the ongoing projects.

2. During this discussion the following important decisions were taken:

2.1 Marketing Plan for the new technologies and services: The Chair was informed that the technology development / acquisition projects have come to a stage when most projects have made functioning prototypes and some have even sold their first machines or were likely to do so in the near future. The Committee was pleased to learn about this progress and success. The Apex Committee members pointed out that it is now essential for the Project Implementing Agencies (PIAs) and the industry partners to market these new technologies as a first priority. CII offered to organize events and related activities through which marketing of these new technologies and services to the Indian industry can be taken up. They also offered to organize match making of these new R&D efforts with the Indian industry seeking such technologies / services. It was decided that a comprehensive plan for marketing the technologies and services may be prepared as part of this Scheme. This may also include a web portal detailing the new technologies and services available for transfer. **Action**: DHI, PIAs

2.2 <u>Commercialization of Technologies</u>: The Committee observed that since the Centres of Excellence shall be developing numerous new technologies under the CG Scheme, there is now a need to elaborate the next steps after the lock in period of two years gets over and these technologies are put on offer for purchase to Indian industry. It was felt that the process and modalities for offering these technologies for commercialization must be defined under the Scheme such that these become the standard practice. The implications for the IPRs applied for may also be taken into consideration. **Action**: DHI

2.3 <u>Industry 4.0:</u> The Apex Committee noted that the Industry 4.0 / smart manufacturing efforts shall particularly benefit the MSMEs in the form of increase in productivity and efficiency through better management of manufacturing processes. The Committee felt that the four Industry 4.0 centres under the CG Scheme must be connected better with the MSME sector. The JS (MSME) offered to share the database of the 50 lakh MSME users available with them. He also offered to circulate a booklet on the services offered by the SAMARTH Udyog/Industry 4.0 centres to MSMEs through their database. Besides the booklet, the four centres may also develop online training modules so that upscaling of outreach of their services is achieved efficiently. It was decided that they may report within 8 weeks regarding circulation of the booklet and the training modules. **Action:** DHI, all 4 SAMARTH Udyog/ I4.0 centres, M/o MSME.

2.4 <u>Delay Penalty:</u> The Committee noted that since more than 25 projects are at different stages of implementation their timely completion is important. It was felt that there is a need to ensure that project timelines are adhered to and that there are no cost overruns. In order to ensure timely completion of projects in the future, a delay penalty was proposed and discussed. It was decided that prospectively for all delays beyond 30th September 2019 (w.e.f. Oct 1, 2019), a 2% cut in the DHI grant shall be imposed as penalty for every month of delay. This measure shall apply to all

sanctioned projects with immediate effect. All PIAs were thus advised to review their timelines and compress timelines if required so that no penalty becomes applicable.
Action: DHI, PIAs

Apex Committee Review (Part –I) on May 13 2019

The Apex Committee studied the status reported in the Agenda notes for the PMRCs and the Screening Committee, project wise and then each Project Implementing Authority (PIA) was invited to present the current status. Their industry partners accompanied the PIAs.

3. Centre of Excellence at CMTI for Development of Shuttle less rapiers looms of 450 RPM.

3.1 CMTI presented that the industry trials at Surat for cotton and polyester yarn have been successfully completed. At present, industry trials for very fine polyester yarn are being undertaken. The Industry partners requested for further trials with some other yarns also. The industry informed that even though the mechanical design of the loom is ready, stabilization of the electrical and electronics parts of the loom are yet to be completed. They desired dobby interfacing which is being developed. However, based on mechanical designs, it is possible to commercialize the loom. It was confirmed that the technical objective of developing 450 RPM loom had been achieved. The Committee after detailed deliberation with all stakeholders decided that Phase -I of this project may be deemed to be over subject to proper closure of accounts. The industry may immediately start efforts to commercialize the looms based on present development. The industry requested for one year's time to create the supply chain for commercializing the loom.

3.2 For the development of a Programmable Logic Controller (PLC) for the loom, the technologists at CMTI requested a period of 9 months to develop the PLC. For this the industry requested that the PLC must be created with the ability to change yarns within half a day, in line with the features being presently offered by the imported looms. The Chairman asked the industry to share all the combinations of

yarns required so that in the meantime CMTI could develop the settings parameters, which will enable change over of settings in half a day.

3.3 The Apex Committee approved the start of Phase I - A wherein CMTI will design a PLC for the loom and also develop setting parameters for various yarns for ensuring setting time of half a day for each change. The Committee directed that detailed timelines and plans for this phase may be submitted by the industry and CMTI jointly based on the above decisions. **Action**: CMTI, PIAs.

4. Nano Technology Centre Project of CMTI

4.1 CMTI informed that their project completion date for this project as per the MoU is 31st March 2019. However, the expected completion date is now 30th September 2019 due to delays in civil construction. The machines and nano facilities are presently running at an alternate location. CMTI informed that so far this Centre has achieved a customer base of 250, they have completed 4000 tasks and earned revenue of Rs. 4.35 crores in 2018-19. The centre is tying up with RDSO, ISRO and other public sector entities for new projects. JS (MSME) advised them to tie up with the new technology / tool rooms/ centres of MSME to maximize impact.

4.2 The Committee advised the Centre to actively seek industry-sponsored work to make the Centre economically self-sustaining. They were directed to prepare a plan mentioning the new capabilities and to prepare a detailed and revised plan for revenue generation. The Apex Committee also advised CMTI to accelerate efforts towards early completion of the project. CMTI was advised that delay beyond 30th September 2019 would attract penalty of 2% of DHI grants. **Action**: CMTI

5. Sensor Technology Development Facility Project of CMTI

5.1 CMTI informed the Committee that the completion date for Sensor Technology Project as per MoU is 31/10/2019. However, their building will be ready only by December 2020. They informed that at the stage of proposing the project, they had

not envisaged construction of a new building. The new building was necessitated due to technical requirements of safety and performance as come out during detailing of the project. They said that the building is to be constructed through CPWD, for which the tenders are being worked out. CMTI informed that at present they are already functioning from alternate premises in CMTI and are providing services to their customers.

5.2 JS (MSME) suggested tie up with the other institutions and even consider cooperation with technology institutes in other countries like Taiwan and Singapore. DRDO informed that they are developing sensors for defense and civilian applications. The civilian application will mostly be in Indian Railways.

5.3 The Apex Committee directed for expediting completion of the project including civil construction by 30th September 2019 to avoid imposition of the delay penalty. If necessary, DHI can write to CPWD requesting them to expedite the civil construction. **Action**: CMTI

6. Common Engineering Facility Centre – Precision Metrology Lab at CMTI

6.1 CMTI informed that the completion date for the Precision Metrology Project is 2nd November 2019 as per the MoU. The project shall be completed timely. The centre has provided metrology services to 675 customers. They are presently awaiting release of 2nd year grant from Government of Karnataka. Government of Karnataka informed that the grants were not released due to Model Code of Conduct (MCC) during the election period and will be released in the first quarter of 2019-20 after MCC.

6.2 The Apex Committee noted the position and advised CMTI to submit their facility utilization plan and their annual revenue generation plan within 4 weeks. **Action**: CMTI

7. Common Engineering Facility Centre on Industry 4.0 SAMARTH Udyog at CMTI

7.1 CMTI informed that the completion date for the Industry 4.0 Project is October 25, 2019 as per MoU. The project will be delayed by a year since the industry contributions of Rs. 5.69 crores are awaited; so far only IMTMA has contributed. They informed that M/s Uttanga Technologies have agreed to contribute up to Rs.1 crore. JS (MSME) advised them to approach more industries including the MSMEs. CII advised CMTI to make a presentation to their Smart Manufacturing Council for getting industry contributions. The Committee advised CII to assist CMTI in reaching out to the industry for collaborations and contributions.

7.2 The Apex Committee advised the CMTI for timely completion of the project to avoid the monthly penalty. The Apex Committee also sought annual action/utilization plans for this facility. **Action:** CMTI, CII.

8. Common Engineering Facility Centre on Industry 4.0 SAMARTH Udyog at IISc Bangalore

8.1 IISc informed that the project completion date as per the MoU is 31.12.19, however the project is likely to be completed by March 2020 in view of the R&D delays. IISc informed that they have five industry partners in place. The Apex Committee advised for timely completion of the project. They were also advised to prepare and submit complete documentation of the work done so far and their future plans for this centre. They were further advised to prepare a marketing plan and hold events focusing on dissemination of the new technology. **Action**: IISc.

9. Centre of Excellence for additive manufacturing technology by IISc

9.1 IISc informed that the project completion date is 31.12.19 as per the MoU, by which time they expect to complete the project. However, the budget has increased due to an increase in the cost of the electron gun which is now costing Rs.4.5 crores

instead of Rs.3 crores as envisaged during drafting of the proposal. The Committee directed that the concerned DHI section to examine the same.

9.2 IISc informed that except the electron beam, all other systems are being fabricated in India including the software development. The machine will use metal powder and shall cost less than the imported machines which are in the range of Rs.6- 8 crore.

9.3 The Apex Committee advised them that since plastic powder based additive manufacturing has the largest scope, IISC should consider taking up a project for development of plastic powder additive manufacturing machines. This development should not take much effort, as most of the components are common. **Action**: IISc.

10. Common Engineering Facility Centre for Machine Tool Skill Development at HMT.

10.1 HMT informed that the project has been completed and about 600 trainees have been trained so far. The training programs are ongoing and at present they are training 120 students at the Centre.

10.2 The Apex Committee appreciated that the project has been completed timely and advised that the procedures for project closure be completed at the earliest. The Apex Committee directed that the complete documentation of the training process to be done. **Action:** HMT

11 The Technology Acquisition Fund Program for Development of Four Guide way CNC lathe by HMT

11.1 HMT informed the Committee that the project has been completed. They have applied for a patent. They have supplied four machines to the Ordinance Factory, Ishapur. They are marketing the machines to the private and public sectors.

11.2 The Apex Committee appreciated the work and advised HMT to make efforts to share the technology with wider sections of the Indian Industry. The marketing-revenue generated reports must be prepared and reported quarterly. The Apex Committee also advised that the procedures for project closure be completed at the earliest. **Action**: HMT

12. **The Technology Acquisition Fund Program for Development of Turn-mill Centre with high precision C axis**

12.1 HMT informed the Committee that the project has been completed. They have already sold one machine to a private sector company. They are also negotiating with HAL for the sale of three more machines. They are in discussion with BARC for selling machines. JS (MSME) advised that the MSME Department is setting up tool rooms that may require such machines; HMT may also contact the project authorities of these tool rooms for selling the machines.

12.2 The Apex Committee advised HMT that they should market the machine both to the public and the private sectors. The Apex Committee appreciated the project and advised that the procedures for project closure be completed at the earliest. **Action**: HMT

13. Tumkur Machine Tool Park (TMTP)

13.1 The Government of Karnataka informed the Committee that 85% of the civil work has been completed and the remaining would be completed by September 30th 2019 along with the electrical work. So far 11 plots have been allotted to machine tool companies comprising about 30 acres. They propose to allot 50% of the space by September 30, 2019. The IMTMA requested for space in the park for a CMTI Common Engineering and Test Centre as this shall really enhance the infrastructure facilities at the Park, besides facilitating machine tool manufacturing.

13.2 While noting the progress, the Apex Committee advised the park authorities to step up marketing efforts so that the entire space is allotted to the machine tool sector at the earliest. **Action**: TMTP PIA

14. Centre of Excellence in Advance Manufacturing Technology at IIT Kharagpur

14.1 IIT (Kgp) briefly provided details of the 9 sub projects within the project. These are manufacturing technologies that include metrological and mechanical engineering. The completion dates range between 3-5 years. They have received one installment and requested for release of second installment. Their training calendar has not been finalized, however the proposed start of the first training on July 1 2019. This training will be on the CNC machine for MSMEs. The focus will be on legacy machines to convert them into smart CNC machines. IIT Kharagpur informed that two of their industrial partners had dropped out on the last moment.

14.2 The Apex Committee directed that there is a need to review the project completion schedules for all the sub-projects in detail; a schedule of 5 years is far too long. It was thus directed that the JS would hold a detailed review of the project including the timelines at the earliest possible. **Action**: DHI, IIT Kgp

Apex Committee Minutes (Part II) May 14 2019

15. Common Engineering Facility Centre for tools and dies industry at Chakan by TAGMA

15.1 TAGMA informed that the project completion date was 14.1.17 as per the MoU. They reported a delay due to late completion of their building that is now likely to be completed by June 30, 2019. This has resulted due to a lack of industry contribution. However, they are now finalizing a MoU with NTTF, Bangalore and will revise the DPR in the next three months. They will start their training program in August 2019.

15.2 TAGMA informed that under this project complex tools, which are presently being imported, will be made at the proposed facility. TAGMA informed that the auto industries in and around Pune are their major customers, although the medical and pharma sectors also have need for making use of these tools and dies. JS (MSME) suggested that they might tie up with tool room at Aurangabad to get customers.

15.3 Apex Committee advised TAGMA to complete the project timely to avoid penalties. **Action**: TAGMA

16. Centre of Excellence for development of 11 advanced technologies for machine tools at IIT Madras.

16.1 The IIT Madras PIA informed that their project completion date as per MoU was March 31, 2019, however they expect that the project may be completed by December 31, 2019. It was reported that technology development is complete for three machines namely the orbital motion abrasive cutting, the direct drive abrasive cutting and five axes multi-tasking machine Centre. They further informed that technology development is almost complete in respect of the hydro static system for machine tools, automation of grinding process intelligence, low cost machine tending robot, electric drives for machine tools, thermal compensation strategy for CNC lathe, multi station robotic grinder and the polisher and ultra-precision micro machining Centre. Technology development is delayed for the Five Axes Universal machine Centre, which will be completed by December 2019.

16.2 The Committee was informed that the products for which technology development has been completed, the commercialization process has already started; the results of the machine testing by AMTTF are however awaited.

16.3 The Chairman advised that the marketing efforts for all these products/technologies developed must start and should be hastened. Further, if these products belong to the category of technology denial then there would not be a problem in marketing the same.

16.4 TTFAC reported that they proposed tie up with CODESIA for marketing of the products in Coimbatore. The industry partners also informed that they will participate in an exhibition in the June 2019 in Coimbatore. IIT (M) reported that a website has been prepared on which all technologies are displayed. Further, IIT proposed the inauguration of the space where all the technologies will be displayed.

16.5 The BHEL suggested that prospective buyers should be associated at the development stage itself. They also suggested that a technology certification based system for marketing of the products may be started. The representative from the office of PSA also offered to provide marketing help through their AGNI initiative.

16.6 In conclusion, the Apex Committee advised that the project may be completed as soon as possible and multi-pronged efforts for marketing may be properly planned and accelerated. **Action:** IIT M, Industry Partners

17. Centre of Excellence for development of three welding technologies at PSG College of Technology, Coimbatore

17.1 PSG informed that their project completion date as per the MoU is June 30, 2019. However, they are likely to complete the project by December 30, 2019. They informed that three technologies have already been developed and the marketing of the products namely welding electrodes has already started through an industry partner. They requested approval for induction of a new industry partner. The Apex Committee advised that the same would be examined separately as per procedure.

17.2 PSG informed that they would participate at the Coimbatore Exhibition in June 2019. Their brochures and videos for this purpose are ready. They reported that their new product has the advantage of reduced cost and the availability of indigenous after sales services. The Apex Committee advised PSG to accelerate the marketing of products and commercialization of the technologies developed. Efforts should be made to avoid delay penalties. **Action**: PSG, DHI

18. Common Engineering Facility Centre for Textile Engineering at Bardoli Surat by Science Engineering and Technological Upliftment Foundation (SETU)

18.1 SETU informed that their project was to be completed by 15th April, 2018 as per MoU, however due to building construction delays linked to delays in the Government of Gujarat share contribution, their project may now be completed by 31st August, 2019. The PIA reported that one machine has been installed at an alternate location from where services are being provided to the customers. Purchase of other machines is in advanced stages of completion. The purchase timelines would match the building completion. They are presently challenged by the lack of industry contribution. They informed that they are making extensive efforts for industry contributions. They have also signed a number of MOUs to expand their service network. They proposed the inauguration of the project on October 2, 2019.

18.2 The Apex Committee noted that the project is extremely delayed. There is a need to complete the project as soon as possible to avoid penalties. **Action:** SETU

19. Centre of Excellence for Development of 6-inch Submersible Pump by SiTARC.

19.1 SiTARC informed that their project completion date as per the MoU was 1st January 2018. However, they now expect to complete the project in June 2019. They reported that 95% of their work is over. The first lot of 25 pump sets is under manufacture by the industry partners. This technology development has provided them the capability to participate in a tender for 2 lakh pump sets for the International Solar Alliance. They hoped that even if 10% of the tender value is awarded to them, there is a likelihood that they will break even. They proposed an inauguration of the project by DHI in June 2019.

19.2 The Apex Committee advised them to accelerate their efforts for marketing the product and also for the early commercializing of the technologies. They were also advised that the procedures for project closure be taken up and completed at the earliest. **Action:** SiTARC

20. Common Engineering Facility Centre for Steel Technology Skill Development at HEC Ranchi by Pratham Foundation.

20.1 Pratham Foundation informed that their project completion date as per the MoU is November 2019. However, the expected date of completion is now December 2019. They informed that 5 training programmes have already been completed with the help of the Russian trainers. Four more are expected to be completed by November 2019. HEC explained that due to a change in implementing agency there was a gap of six months in conducting training programmes. The Chairman advised them to hasten the scheduling of future trainings, since each training program is independent of others. JS (MSME) advised HEC to tie up with the MSME tool room in Jamshedpur.

20.2 The Apex Committee advised Pratham Foundation to complete their training programmes in time to avoid delay penalty. The PRMC may also be conducted at an early date. **Action:** HEC Pratham

21. Technology Acquisition Funding Program for heavy duty specialized power cables by Allied Engineering Pvt. Ltd. (AEW)

21.1 AEW informed that their project completion date as per the MoU was September 30, 2018. They have now completed the project. All the machines have been procured installed and are running. They said that they have already generated revenue of about Rs. 4 crores by selling power cables to the auto sector. They have registered with BHEL. They expect fiscal year revenues of Rs. 30 crores. They suggested measures for product standardization to promote the sector.

21.2 The Apex Committee advised AEW to accelerate marketing of the products and commercialization of the technology development. They were also advised that the procedures for project closure be taken up and completed at the earliest. **Action**: AEW

22. Technology Acquisition Funding Program for robotic laser cladding for hydro turbines by IPM Pvt. Ltd.

22.1 IPM informed that their project completion date as per the MoU was December 28 2018. However, they will now be able to complete the project by 30th September 2019. The delay resulted due to a technology upgrade between making the proposal and procuring the equipment. They reported that they were able to renegotiate and get the upgraded technology at the same cost.

22.2 IPM explained that the technology entails repairing hydro-turbines by depositing metal powder in precise quantities at the right place, applying lasers in the appropriate manner while handling these very large sized objects. They reported that this would be the first time that this technology is being used in India in the hydro-turbine sector. They proposed to apply for a patent and were open to transferring the technology to any Indian industry at negotiated terms.

22.3 The Apex Committee advised them to accelerate marketing of their services and commercialization of the technology so developed. They were also advised that the procedures for project closure be taken up and completed at the earliest. **Action:** IPM

23. Technology Acquisition Funding Program for Titanium casting by PTC Industries.

23.1 PTC informed that the project completion date was 31st May 2018, however, they would be able to complete the project by this month. They reported that all the hardware has been purchased, installed and put to use. The titanium

casting technology will be used by the strategic sectors like energy, power, defense, aerospace, sub-sea oil and gas, process sector, etc. PTC reported that it would take them time to build their market. They would need two years to come out of the sample order stage before they are able to get regular commercial orders.

23.2 PTC explained that they have the process and the product technology that they will be happy to transfer to other Indian industries. They informed their intent of submitting a proposal through GITA on the subject of sharing of IPRs / transfer of technology post their two years lock-in period to help define the future policy under the Scheme.

23.3 The Apex Committee advised PTC to submit a proposal for commercialization of technology to other Indian partners. They were also advised that the procedures for project closure be taken up and completed at the earliest. **Action:** PTC, GITA

24. Common Engineering Facility Centre for Industry 4.0 SAMARTH Udyog by Kirloskar C4i4.

24.1 C4i4 informed that their project completion date as per the MoU is 12th March 2020, however they may complete the project one year later. It is because they require to complete 50 factory projects as per the target set for the project. They were advised that since all other deliverables will be completed by March 2020, they should revise their plans and double the efforts to complete the project in time to avoid a delay penalty.

24.2 JS (MSME) informed that the MSMEs were not yet ready for Industry 4.0. At present, the Department of MSME has a list of 5000 companies, which are practicing lean manufacturing under MSME assistance. These companies could be the potential customers for C4i4. He advised that brochures and other publicity material should be made available, his Department would then write to these lean manufacturers for adopting Industry 4.0.

24.3 The Apex Committee advised C4i4 for the early completion of the project to avoid delay penalty. All Industry 4.0 SAMARTH Udyog projects were advised to prepare brochures and other publicity material including online training modules so that the Department of MSME could propagate them to the 5000 lean manufacturers. **Action:** C4i4, DHI, M/o MSME, all four Industry 4.0 Projects

25. Common Engineering Facility Centre for Industry 4.0 SAMARTH Udyog at IIT Delhi

25.1 IIT Delhi informed that the project completion date as per the MoU is 31st March 2020 and they are expecting to adhere to the completion date. They reported that a smart lab has been created and conducted several programs have been implemented for the 8 technology projects. They also informed that they have revised their project strategy and are using legacy machines available at IIT Delhi to convert them into smart, connected machines, so that money on purchase of smart machines is saved. They further informed that with the legacy machines converted into smart machines, they would create a modern cyber factory. They stated that the deliverables in terms of services would remain the same.

25.2 The Apex Committee advised them for the timely completion of the project, more outreach and preparation of publicity material for the MSMEs to increase their users. **Action:** Industry 4.0 SAMARTH Udyog at IIT Delhi

26. Common Engineering Facility Centre for Skill Development of Steel Plant Equipment Design and Workshop Training by Korus

26.1 Korus informed that their project completion date as per the MoU is June 30, 2019 and they will be able to complete the project depending upon realization of second installment from DHI. Korus was advised that the industry contribution be deposited at the earliest to enable the release of second installment. They expressed difficulty in depositing the funds.

26.2 Korus informed that they had already installed cranes and finalized the list of equipment most of which has been installed also. They expect that they will start the training program soon.

26.3 The Apex Committee directed the JS to separately review the project in detail to identify the future course of action. **Action**: DHI, Korus

27. Centre of Excellence for Development of hydraulic excavators at HEC Ranchi.

27.1 HEC informed that their project completion date as per the MoU was 30th March 2019, however they expect the project to be completed this month. They proposed the inauguration of the project in June 2019 subject to the convenience of DHI. They also said that they have received the first trial order inquiry from NMDC against competition from four local manufacturers including BEML. They said that they were also expecting trial orders from Coal India who will provide them performance guarantee certificate after one year, after which they would be in a position to participate in the tenders placed by PSUs.

27.2 The Apex Committee advised them to prepare plans for marketing the products and also for commercializing the technology. They were also advised that the procedures for project closure be taken up and completed at the earliest. **Action:** HEC

28. Centre of Excellence for Automated Guided Vehicle in Textiles by IIT Delhi

28.1 IIT Delhi informed that their project completion schedule as per the MoU is 15th February 2020, by which time they complete the project. They explained that they are designing automated guided vehicles for in factory movement of process material called sliver. With the help this development, machine stoppage due to non-availability of sliver will be minimized and productivity will increase. They stated that

same technology can be made applicable to ‘in shop’ movement in the logistics sector and also for the ‘in process’ material movement in factories.

28.2 The Apex Committee advised them to timely completion of the project. **Action**: IIT D

29. Any other item with the permission of the Chair

29.1 The SBI offered to fund the commercialization of these projects and the PIA were requested to apply.

29.2 DSIR offered to fund future technology development projects, which are not within the domain of the DHI CG Scheme.

The meeting concluded with a vote of thanks to the chair.

Meeting on Apex Committee Meeting (Part I) under DHI's Scheme on "Enhancement of Competitiveness in the Indian Capital Goods Sector" in Room No. 172A Kaustubham on 13th May, 2019 at 10:30 AM Udyog Bhawan, New Delhi

S.No.	NAME/DESIGNATION S/Shri	ORGANISATION
1.	Dr. A.R Sihag, Secretary DHI	**In chair**
2.	Sukriti Likhi, JS	DHI
3.	Sudhir Garg, JS	MSME
4.	Zakir Hussain, Director	DHI
5.	A.M.Manichand D.S(Fin)	DHI
6.	Sanjay Chavre, SDO	DHI
7.	Sushil Lakra, Consultant	DHI
9.	Anurag Srivastava	IISc Bangalore
10.	S.M. Ishtiaque	IIT Delhi
11.	Dr. Nagahanumaiah	CMTI

12.	Prakash Vinod	CMTI
13.	K.Niranjan Reddy	CMTI
14.	B.R Mohanroy	CMTI
15.	B. Mahesh, Managing Director	KCTU
16.	K. Niranjan Reddy Scientist – E	CMTI
17.	B.R Mohanraj, Joint Director	CMTI
18.	K.Das Director (E, R&D)	BHEL
19.	Amita Sarkar	DDG CII
20.	SuvenduMahapatra	Director CII
21.	Usha S, Joint Director	CMTI
22.	Anil Joshi	BHEL
23.	Sanjay Singh	DST
24.	Margaret Gangte	DPIIT
25.	Sankha Deb	IIT Kharagpur

26.	S.K. Pal	IIT Kharagpur
27.	G.G. Roy	IIT Kharagpur
28.	ParthaSaha	IIT Kharagpur
29.	Vinay Adlakha, Deputy Director	MSME
30.	Dhanendra Prasad, Assistant Director	MSME
31.	Sachin Kumar	TMMA
32.	KetanSanghvi	TMMC
33.	VallabhThumar	TMMC
34.	KhushbooKumari	BIS
35.	Girish Kumar	HMT Ltd.
36.	B.M Shivshankar, PCTO	HMT
37.	Dr. H. Rajasimha	TMTP
38.	Asif Sumair, Senior Consultant	TCS
39.	Dr. Vipin C. Shukla Scientist- F	DSIR

Meeting on Apex Committee Meeting (Part II) under DHI's Scheme on "Enhancement of Competitiveness in the Indian Capital Goods Sector" in Room No. 172A Kaustubham on 14th May, 2019 at 10:30 AM Udyog Bhawan, New Delhi

File No.//2019 -HE&MT

S.No.	NAME/DESIGNATION	ORGANISATION
1.	Dr. A.R Sihag, Secretary DHI	In Chair
2.	Sukriti Likhi, JS	DHI
3.	Sudhir Garg, JS	MSME
4.	Zakir Hussain, Director	DHI
5.	A.M.Manichand D.S(Fin)	DHI
6.	Sanjay Chavre, SDO	DHI
7.	Sushil Lakra, Consultant	DHI
8.	V.V Deshmukh, CEO	TAGMA
9.	D.Shanmugasundaram, Vice President	TAGMA
10.	DK Sharma, President	TAGMA
11.	DR. G. Madhusudan Reddy	DMRC,DRDO, Hyderabad
12.	Dr. D. Suresh GM, CoE welding	PSG Tech. Coimbatore
13.	M.Venkatachalapathy, MD, Nouveaux, Kangeyam	PSG (Industry Partner)
14.	Mr. RajagopalThamban,Consultant, Nouveaux, Kangeyam	PSG (Industry Partner)
15.	Vipin C. Shukla, Scientist 'F'	DSIR
16.	K.Das Director (E, R&D)	BHEL
17.	NarayanomSadanandun CGM, SME&SCF, SBI	SBI
18.	Srinivasan Iyer	IDAPC, Mumbai
19.	Digendra Kumar	IIT Madras
20.	V. Radhakrishnan, Professor	IIT Madras

21.	Dr.Prasada Raju, Professor	IIT Madras
22.	Dr. Nagahanumaiah	CMTI
23.	T.P. Sridhar	Ace Designers ltd. Bangalore
24.	P.J. Mohanram	IMTMA Bangalore
25.	Srinjoy Das Head – HR	IMTMA
26.	Dhanendra Prasad Asst. Director	M/o MSME
27.	Dr. Sarika Madan Scientist 'D'	DSIR
28.	Anil Joshi GM/I/BHEL	BHEL
29.	Parmjeet Singh, Addl. Ind. Advisor (MoS)	
30.	Sudhir Kumar Advisor	NITI Aayog
31.	N. Ramesh Babu	IIT Madras
32.	Sanjay Singh	ED /DST
33.	PG Jadeja	Jyoti CNC Automation Latd.
34.	Manoj, DS	M/o Textile
35.	KhashbooKumari	BIS
36.	SuvenduMahapatra	Director CII
37.	Hetal Mehta	SETU Foundation
38.	Pankaj Kannaujiya	SETU Foundation
39.	P.H. BalajiSah	MTAB
40.	J. Sairaman	MTAB
41.	N.K Dhand	Micromatic Grinding Pvt. Ltd.
42.	Dr. M. Sundaram	PSG
43.	Dr. Krishna Vasudevan	IIT Madras
44.	SurbhiSood	IPM
45.	Rahul Sood	IPM
46.	B. R Shelly	Enarka India Pvt. Ltd
47.	K.V. Karthik	SiTarc
48.	SK Chetal	Korus design & skill Form
49.	H.G. Aggarwal	Korus design & skill Form
50.	D.N. Badodkar	RRF Dept of Atomic Energy
51.	Naveen Kr Singh	HEC
52.	M.K Saxena	HEC
53.	Shri Rana S Chakravarty, Director (Mkg of HEC)	HEC
54.	A.S. Dattana CBDO	HEC
55.	Ratika Jain CEO,	GITA
56.	Rahul Kulshrestha Ex. Officer,	GITA
57.	SamratGhatak, DD	GITA
58.	P Akash Patnaik	GITA AEW
59.	AshutoshGoel	GITA AEW
60.	S.M Ishtiaque, Professor	IIT – D

61.	Sunil Jha, Professor	IITD
62.	Sachin Agarwal	GITA - PTC
63.	SmitaAgarwal	PTC
64.	Ravi Agarwal	AIA
65.	A.Wadhwa	IAFSM
66.	D.S. Navalgundkar	C4i4
67.	Ravi Damodaran	C4i4
