

No. 12/14/2017-HE&MT  
Government of India  
Ministry of Heavy Industries & Public Enterprises  
Department of Heavy Industry

Udyog Bhavan, New Delhi -110011.  
Dated the 22<sup>nd</sup> August, 2017.

**OFFICE MEMORANDUM**

Subject: Minutes of the 6<sup>th</sup> Meeting of Apex Committee held on 9<sup>th</sup> August, 2017 under the Chairmanship of Secretary, Department of Heavy Industry in connection with implementation of the Scheme on enhancement of Competitiveness in Indian Capital Goods Sector.

The undersigned is directed to forward herewith a copy of the Minutes of the 6<sup>th</sup> Meeting of Apex Committee held under the Chairmanship of Secretary, Department of Heavy Industry on 9<sup>th</sup> August, 2017 for Information.

 22/8/17

(Sanjiv Kumar Gupta)

Under Secretary to the Govt. of India

To  
(As per list attached)

**6<sup>th</sup> APEX Committee**

1.	Secretary Department of Heavy Industry Udyog Bhavan, New Delhi	In Chair
2.	AS &FA, Department of HI, Udyog Bhavan, New Delhi	Member
3.	Dy. Adviser (Industry), Niti Ayog, Yojna Bhavan, New Delhi,	Member
4.	Secretary, Department of Industrial Policy & Promotion, Udyog Bhavan, New Delhi	Member
5.	Secretary, Ministry of Micro. Small & Medium Enterprises, Udyog Bhavan, New Delhi	Member
6.	Secretary, Department of Higher Education, Ministry of HRD, Shastri Bhawan, Dr. Rajendra Prasad Road, New Delhi	Member
7.	The Secretary, Department of Science & Technology, Technology Bhavan, New Mehrauli Road, New Delhi-110016.	Co-opted Member
8.	The Secretary, Ministry of Textiles, Udyog Bhavan, New Delhi.	Co-opted Member
9.	The Secretary, Ministry of Mines Shastri Bhawan, Dr. Rajendra Prasad Road, New Delhi – 110 001	Co-opted Member
10.	The Secretary, Ministry of Steel Udyog Bhavan, New Delhi.	Co-opted Member
11.	Secretary, Department of Scientific & Industrial Research, Technology Bhavan, New Delhi -110011	Member
12.	Joint Secretary (HE & MT) Deoartment of HI, Udyog Bhavan, New Delhi	Member Secretary

13.	Director General (DG) Bureau of Indian Standards, Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002	Member
14.	Director General , Directorate General of Mines Safety, Head Office Dhanbad – 826016, Jharkhand	Member
15.	Director General, Confederation of Indian Industry, Institutional Area, Lodhi Road, New Delhi,	Member
16.	Director General , Federation of Indian Chambers of Commerce and Industry, Federation House, Tansen Marg, Mandi House, New Delhi.	Member
17.	Chairman, State Bank of India, Corporate Centre, ‘State Bank Bhavan’ Madam Cama Road, Mumbai 400021	Member
18.	Deputy Managing Director, Small Industry Development Bank of India SIDBI Tower 15, Ashok Marg , Lucknow-226001	Member
19.	Director Incharge, Central Manufacturing Technology Institute, Tumkur Road, Bangalore – 560022	Member
20.	<b>Chairman -cum-Managing Director</b> Bharat Heavy Electricals Limited (BHEL),BHEL House, Siri Fort, New Delhi-1 10 049.	Member (Co-opted)
21.	<b>Chairman -cum-Managing Director</b> Steel Authority of India Limited Corporate Office Ispat Bhawan, Lodi Road, New Delhi - 110003	Member (Co-opted)
22.	Mr Aditya Puri Managing Director ISGEC Heavy Engineering Ltd A-4, Sector 24 Noida - 201 301, U.P., India	Member (Co-opted)
23.	Rajnikant Bachkaniwala IPC, Ring Road, Majura Gate, Surat Gujarat	Member (Co-opted)

**IN ATTENDANCE**

Sl. No.	NAME/DESIGNATION/ ORGANISATION
1.	Shri Puneet Agarwal, Joint Secretary <b>Ministry of Textiles</b>
2.	Shri S. Biswas Director( <b>E,R&amp;D</b> ) <b>BHEL, New Delhi</b>
3.	Shri. A.K. Jha, General Manager (Operation) <b>SAIL</b>
4.	Representative from <b>DIPP</b>  (Mr. Zakaria Khan, Sr.D.O.)
5.	Representative of M/o <b>MSME</b>  (Mr. H.S. Bisht, Director)
6.	Representative of <b>DSIR</b>  Shri Vinay Kumar Scientist 'E' Department of Scientific & Industrial Research
7.	Shri Rajnesh Khole, Head ( <b>MED</b> ), <b>BIS</b>
8.	Ms. Seema Gupta, Director, CII
9.	Director Central Manufacturing Technology Institute ( <b>CMTI</b> ), Bangalore
10.	Shri P.Ranjan ED, <b>TIFAC,DST</b>
11.	Ms. Usha S. <b>CMTI Bangalore</b>
12.	Shri B.R. Mohanraj <b>CMTI Bangalore</b>
13.	Shri K. Niranjan Reddy Scientist 'E' <b>CMTI Bangalore</b>

14.	Shri Prakash Vinod, <b>CMTI Bangalore</b>
15.	Shri M. Balasubramanian, Deputy Director, Office of the Textile Commissioner, Ministry of <b>Textiles, Mumbai</b>
16.	Shri Anil Uppin, Managing Director, Karnataka Council for Technical Upgradation.
17.	Shri Vikrum Salunkhe, C4 I4, Pune ( <b>Kirloskar</b> )
18.	Shri Ravi Damodaran, C4 I4, Pune ( <b>Kirloskar</b> )
19.	Shri Rahul Kirloskar, C4 I4, Pune ( <b>Kirloskar</b> )
20.	Shri Asif Sumair, Mfg. Consulting (CTO), <b>TATA Consultancy Services</b>
21.	Prof. S.M. Ishtiaque Department of Textile Technology Indian Institute of Technology ( <b>IIT</b> ), <b>Kharagpur</b>
22.	Shri G.G Ray, <b>IIT Kharagapur</b>
23.	Shri Partha Saha, Professor, Department of Mechanical Engineering, <b>IIT</b> <b>Kharagpur</b>
24.	Shri S.K. Pal, Prof. Mechanical Engineering, <b>IIT Kharagpur</b>
25.	Dr. Sunil Jha, <b>IIT, Delhi</b>
26.	Prof. Pulak M. Pandey, Mechanical Engineering Department, <b>IIT Delhi.</b>

27.	Shri S.M. Ishtiaque, Professor, <b>IIT Delhi.</b>
28.	Shri B.K. Behera, Professor, <b>IIT Delhi.</b>
29.	Shri R.Rajendran, Chairman <b>Lakshmi Machine Works Ltd.</b>
30.	Shri S.Rajasekaran, <b>Lakshmi Machine Works Ltd</b>
31.	Shri C.V. Venkatesh, <b>Lakshmi Machine Works Ltd.</b>
32.	Shri S.Krishnaswamy, <b>Lakshmi Machine Works Ltd.</b>
33.	Shri K.H.Thulasi Raman, <b>IISC, Bangalore</b>
34.	Shri J.E. Diwakar, Chief Research Scientist(Rtd), Centre for Product Design & Mfg. <b>IISC,</b> Bangalore
35.	Shri Anurag Srivastava, <b>IISC, Bangalore</b>
36.	Shri B. Gurumoorthy, <b>IISC</b>
37.	Shri A. Chakrabarti, <b>IISC, Bangalore</b>
38.	Shri Ajay Parikh, <b>WIPRO</b>
39.	Shri Ravi K.R. Associate Professor, <b>PSG College of Technology</b> Coimbatore
40.	Shri E. Sreedhar Kumar Sr. Manager, <b>PSG TIFAC CORE</b> <b>PSG College of Technology, Coimbatore.</b>

41.	Dinesh Vedpahale, Head Cluster Program, <b>ACMA, Pune</b>
42.	Ms. Vinnie Mehta, DG, <b>ACMA, Pune</b>
43.	Shri D. Sawhney, <b>AIA/Rockwell</b>
44.	Shri Anup Wadhwa, <b>AIA</b>
45.	Shri Manjunath G Bedre, <b>TAGMA</b>
46.	Shri Dhirender Kapoor, Manager-Projects, <b>KORUS Engineering Solutions Pvt. Ltd.</b>
47.	Shri. H.G. Agarwal, Managing Director, <b>KORUS Engineering Solutions Pvt. Ltd.</b>
48.	Shri S.P. Sharma, <b>KORUS, Engineering Solutions Pvt.Ltd.</b>
49.	Shri S.K. Chetal, <b>KORUS, Engineering Solutions Pvt.Ltd.</b>
50.	Shri Manish K. Singh, Chief Automation, <b>TATA STEEL</b>
51.	Shri Purnendu Sinha, Tech. Leader, IOT Analytic, <b>TATA SONS, GTIO</b>
52.	Shri Ravi Kumar, AGM <b>Ramkrishna Forgings Ltd.</b> <b>Jamshedpur</b>
53.	Dr. S. Ganguly, CEO, <b>GITA</b>
54.	Shri Samrat Ghatak, <b>GITA New Delhi</b>

55.	Shri Sadanand D. Kumbarwadi, <b>Belgaun Foundry Cluster</b>
56.	Ms. A. Hemalatha, CEO, <b>Ampere Vehicles Pvt. Ltd. Coimbatore</b>
57.	Shri Sandeep Vank, <b>Pelican Rotoflex Pvt. Ltd.</b>
58.	Shri Sachin Kumar, <b>TMMA (I)</b>
59.	Shri Pulkit-Arya, Manager, <b>Paramount Group</b>
60.	Shri Ravi Bhushan Arora, <b>Perfect Engineering Corporation,</b> Ahmedabad
61.	Shri Pragnesh Thakkar, <b>Perfect Engineering Corporation,</b> Ahmedabad
62.	Shri A.K. Ananad, Director, The Institute of Indian Foundry- men ( <b>FDF Coimbatore</b> )
63.	Dr. Nithyanandan Devaraaj, Member, <b>Foundries Development Foundation,</b> <b>Coimbatore</b>
64.	Shri C.R. Swaminathan, President, <b>Foundries Development Foundation,</b> <b>Coimbatore</b>
65.	Shri Ravi Raghavan, MD & CEO, <b>Bharat Fritz Werner Ltd.</b> Bangalore
66.	Shri C.G.V.Prasad. Joint GM-Marketing, <b>Bharat Fritz Werner Ltd.</b> Bangalore



67.	Shri S.K. Agarwal, GM-P&C, <b>Mishra Dhatu Nigam Ltd., Hyderabad</b>
68.	Shri D. Giri, AGM (Tech. & SP) <b>Mishra Dhatu Nigam Ltd., Hyderabad</b>

**Minutes of the Sixth Apex Committee meeting held on 09-08-2017 at 10.00 AM in Room No.172A, Udyog Bhawan, New Delhi.**

Sixth meeting of the Apex Committee for implementation of the Scheme for Enhancement of Competiveness in the Indian Capital Goods Sector was held on 09/08/2017 under the chairmanship of Shri Girish Shankar, Secretary, Heavy Industry. List of participants is enclosed.

2. Twenty proposals including 9 for Common Infrastructure Services Facility Centre , 4 for Centre of Excellence Component of the Scheme and 5 for Technology Acquisition Fund Programme of the Scheme, as listed below, along with the Screening Committee recommendations were presented before the Apex Committee:-

1. CEFC proposal on Industry 4.0 by SLK CSR foundation, Kirloskar group and others
2. CEFC proposal on Industry 4.0 by M/s. Automation Association of India and IIT Delhi
3. CEFC proposal on Industry 4.0 by Indian Institute of Science, Bangalore
4. CEFC proposal on industry 4.0 by CMTI Bangalore
5. CoE Proposal from IIT- Delhi
6. CoE Proposal from IIT- Kharagpur
7. TAFP proposal Printing Machines- M/s. Pelican Rotoflex Private Limited
8. CoE proposal to design, develop and fabricate five cubic meter hydraulic excavator by M/s. HEC Ltd. with the support of ISM Dhanbad
9. CEFC Proposal for skill development of design engineers by M/s Korus Engineering Solutions Pvt. Ltd.
10. CEFC proposal for modernization of Precision Metrology Laboratory by CMTI Bangalore
11. CoE Proposal from IISc-Bangalore with Wipro 3D for design and development of 3 D Printing technologies, systems and materials.
12. Proposals of funding under Enhancement of Competitiveness in the Indian Capital Goods Sector for two on-going plan projects of CMTI, , earlier approved by DIPP, i.e. Nano Manufacturing Technology Centre(NMTC) and Sensor Technology Development Facility (STDF) with enhanced budget
13. TAFP proposal for Manufacturing of High End Complex Made to Order Valves for Power Plants- M/s. Hawa Valves (India)
14. TAFP proposal for Development & Manufacture of High End Multi process Turn Mill Centres in India-M/s. Bharat Frit Werner Limited
15. TAFP proposal for Material parameter Development for Additive Manufacturing of metal components for Earthmoving & Other Sectors- M/s. Wipro enterprises Private Limited, Bangalore
16. TAFP proposal for Tungsten Powder & tungsten Carbide- M/s. Mishra Dhatu Nigam Limited (MIDHANI)
17. CEFC Proposal on Metal 3D printing by PSG-TIFAC Core, Coimbatore
18. CEFC proposal for foundry by Belgaum Foundry Cluster
19. CEFC proposal on foundries by M/s. Foundries Development Foundation, Coimbatore
20. Request from Tool and Gauge Manufacturers' Association, India (TAGMA).

3. The Chairman welcomed all and stated that the present scheme proved to be a success as proposals have been received in overwhelming numbers. Chairman requested all to achieve the breakeven/complete the project by November 2019, by the time scheme comes to an end. Request for CEFC proposals was found to be quite substantial. It was noted by the Committee that not much progress has been made under the Test and Construction Testing centre under the scheme. The available fund position under the scheme, as follows, was brought to the notice of the committee.

Scheme Component	Original scheme allotment (in Rs crore)	Commitment made thus far for DHI grant(in Rs crore)
COE	250	88.58
CEFC	48.96	84.85
IIIF	125	125
TAFP	50	16.46
Test Center	100	0
Total	573.96	314.89
UAY+IMPRINT		10.69
total		325.58

4. The recommendation of spreading awareness and setting up Experience and Demonstration centers for Industry 4.0, given by Group of Secretaries on Industry, was also noted by the committee. It was discussed that the CEFCs/centers for I 4.0 should have a unique identity for spreading awareness and branding. Different possible names for such centers were discussed. One of the names that found acceptability was SAMARTH (Smart & Advanced Manufacturing and Rapid Transformation Hubs) Udyog. It was emphasised that these centers should have resource sharing, common platform of Industry 4.0 and network each other's resources so that the utilization of resources is maximised. Chairman desired that common conditions for all Industry 4.0 projects should include :

- ❖ Awareness campaigns
- ❖ Master trainers to be trained
- ❖ Start-up/ incubators to be provided
- ❖ Hand-holding of SMEs to plan and implement relevant Industry 4.0 projects to be done through consultancy services on chargeable basis,
- ❖ Collaborating with neighbourhood Universities for student training/internship programmes
- ❖ Involving industry in SPV membership model for sustainability,
- ❖ Participating in a Government formed platform for Industry 4.0 on common agenda.
- ❖ To make adequate provisions for e-waste management
- ❖ Involving as many clusters of Capital Good as possible

5. Senior Development Officer, Shri Sanjay Chavre gave a brief presentation on each of the project while also presenting the recommendations of Screening Committee.

## **5.1 CEFC proposal on Industry 4.0 by SLK CSR foundation, Kirloskar group and others**

5.1.1 The proposal is to set up a demo lab of Industry 4.0 in Pune by **SLK CSR foundation, Kirloskar group & others**. The Centre will provide services relating to Industry 4.0 spread through programmes relating to awareness / de –mystification, touch & feel, skill , try out projects, consultancy for adopting projects in MSMEs and R & D. Knowledge partners like IIT Bombay, Fraunhofer and Technology services partners like Bosch, and users like ACMA, MCCA have joined together. The project cost is Rs.19.35 crore and funds sought from DHI are Rs.14.40 crore. In this project, roles of Fraunhofer and IIT-B have been defined. It would have facilities for training of trainers, smart factories knowledge sharing, pilot assessment of the projects, industry data assessment and analysis etc.

5.1.2 Apex Committee noted that the Screening committee had recommended the project subject to stipulations like forming an SPV, as the eligible institution for CEFC is an SPV only, putting in place proper mechanisms including MOUs in place to ensure arms length distance between the activities of SPV and that of M/s Kirloskar Institute, Signing separate agreements with Fraunhofer and IIT-Bombay wherein payment is linked to milestones and including as many industrial clusters, especially of CG Sector as practically possible. Plan details with respect to connected assets may be shared. In the meeting, applicants agreed to abide with all the conditions.

***5.1.3 After deliberations, Apex Committee approved a grant of Rs 14.4 crore for the project, subject to observations mentioned above including forming an SPV and following the common conditions for all Industry 4.0 projects.***

## **5.2 CEFC proposal on Industry 4.0 by M/s. Automation Association of India and IIT Delhi**

5.2.1 The Proposal by IIT Delhi, and Automation association of India is to set up an Industry 4.0 technologies demonstration workshop and conduct related programmes in IIT D campuses at Delhi and Sonapat. The project envisages provision of services leading to use of Industry 4.0 by CG and auto sector units of the country like awareness, skilling, demonstrations, consultancy support, start up support, try out support and R & D. The Project will fill the gap in institutional capacity in North India on Industry 4.0 . The project cost is Rs 30.85 crore and funding sought from DHI is Rs. 19.4 crore. Industry contribution of Rs 7.4 crore (in cash) is proposed, thereby meeting the scheme requirement of 20% cash contribution by the industry. Balance project amount will have to arranged by the industry in cash/kind . The proposal will impact companies in their catchment area to adopt Industry 4.0 technologies.

5.2.2. The Screening Committee had recommended the proposal for consideration by the Apex Committee subject to the applicants confirming to minimum 20% cash contribution requirement and applicant forming an SPV, as the eligible institution for CEFC is an SPV only and including as many industrial clusters especially of CG Sector as practically possible. In the meeting, applicants agreed to abide with all the conditions.

***5.2.3 After deliberations, Apex Committee approved a grant of Rs 19.4 crore for the project, subject to observations mentioned above including forming an SPV and following the common conditions for all Industry 4.0 projects .***

### **5.3 CEFC proposal on Industry 4.0 by Indian Institute of Science, Bangalore**

5.3.1 Indian Institute of Science has proposed to set up country's first industrial R&D application development facilities in the subject of Industry 4.0. The proposed services include development and help in adoption of Industry 4.0 technologies i.e industrial internet of things, virtual realities, additive manufacturing, robotics, big data analytics, developing India specific affordable solutions and designing of demo facilities for automation and human empowerment. The proposed project cost is Rs.25.6 crores.

5.3.2 Professor Amresh Chakravorti, IISc elaborated that Industry 4.0 is required to be adopted for Indian requirements. This means that a number of modifications will have to be made to the Western version of Industry 4.0 . Also new knowledge specific to India will have to be created. The focus will be on adopting legacy machines and existing manpower. Such a facility will boost Indian confidence in the new techniques. It will also accelerate the transformation. It would develop knowledge regarding Industry 4.0 and indigenise so that it is suitable for India. It would empower industry in the MSME sector with automation tools. It would also train the trainers. Here, industry would be able to try things out in a particular area of manufacturing where it intends to be smart. IISc further informed that they have a similar centre with seed funding in aerospace.

It also informed that two more industry partners are interested in this CEFC. It would conduct awareness and training programme regarding Industry 4.0.

5.3.3 The Screening Committee has also recommended the proposal subject to 20% industry contribution or waiver of scheme condition relating to minimum 20% industry contribution by the Competent Authority and formation of an SPV. It was noted that subsequent to the Screening Committee Meeting, DHI grant requested has been reduced to Rs 22.1 crore (from the earlier proposed amount of Rs 25.6 crore). Industry contribution , which was missing earlier, has been proposed to the tune of Rs 3.5 crore. It was informed that TCS, Bosch and many PSUs have been proposed as partners. However, Industry contribution is short of minimum 20% contribution. During the discussion, IISc confirmed that they are working with stakeholders and will bring the minimum required Industry contribution.

5.3.4 Chairman shared that TIFAC is writing DPR for DST for a scheme on Integrated Cyber Physical Systems. The present proposal will have some commonalities. He proposed that DST may support this project as and when they are ready with their scheme.

5.3.5 As regards formation of SPV, it was informed by IISc that IISc has a separate society for industrial projects and for each project a separate account is being operated. It was noted that since the scheme envisages an SPV, necessary relaxation will have to be taken from the review committee.

***5.3.5 After deliberations and noting the priority of such services for the country, Apex Committee approved a grant of Rs 20.48 crore (80% of Rs 25.6 crore project cost), subject to remaining Rs 5.12 crore for the project be contributed by Industry partners of IISc for this project, may work within existing SPV but under different head and separate account relaxation***

***of the SPV Condition by the Review Committee & observations mentioned above including following the common conditions for all Industry 4.0 projects.***

#### **5.4 CEFC proposal on industry 4.0 by CMTI Bangalore**

5.4.1 It is proposed to create a full-fledged smart factory for demonstration and experience of Industry 4.0 techniques. The factory is proposed to be set up in CMTI with focus on machine tools, aerospace and automobile sectors. CMTI informed that it is first full-fledged Industry 4.0 facility of the country. The services proposed include live workshop for demonstration, trials, training, experience of learning, testing and validation of Industry 4.0 products, customization and roll out for MSMEs and for research and development. CMTI informed that they would help find solutions for MSME and conduct R&D for legacy machines and find automation solutions. It would also help in finding solutions for smart process control, machine help management system. The total project cost of Rs.29.70 crores is proposed out of DHI grants.

5.4.2 The Apex Committee noted that the Screening Committee had recommended the proposal for approval by the Apex Committee subject to 20% industry contribution or waiver of scheme condition relating to minimum 20% industry contribution by the Competent Authority, forming an SPV, maintaining an arm's length distance between CMTI and the CEFC & increasing industry linkages.

5.4.3 Chairman enquired about the possibilities of getting contribution from the industry in the proposal. He stated that if industry finds value in this project then it would approach CMTI. He also suggested CMTI to get involved with industry. CMTI informed that they are in touch with a number of Industry. CMTI assured participation from industry. Representatives from Karnataka Government assured that they would facilitate CMTI to connect with the industry. It was also noted that IMTMA has proposed to support CMTI for conducting training programmes jointly in the proposed facility. The need for proactive approach by CMTI in reaching out to get industry partners and contributions was felt and conveyed to them. CMTI was advised to get at least 20% industry contribution in cash / *kind*. CMTI was asked to increase their revenue generation figures, since the investment in the factory has a substantial potential of revenue generation. CMTI was asked to explore the membership model to explore industry linkages.

5.4.4 CMTI expressed difficulties in formation of an SPV. Chairman suggested that DST may support this project as and when they are ready with their ICPS scheme. Chairman stated that there should be no duplication of work of IISc with CMTI, instead they should work on complementary agenda and output of IISc should be used as input in CMTI factory.

***5.4.5. The Apex Committee thoroughly evaluated the proposal based on inputs by the members and the Screening Committee. In view of the impact of proposal on MSME adopting next generation of technologies i.e. Industry 4.0 being a priority, Committee approved a grant of Rs 23.76 crore (80% of the proposed project cost of Rs 29.70 crore) subject to 20% industry contribution, & relaxation of the SPV Condition and for in kind contribution of industry by the Review Committee & observations mentioned above including following the common conditions for all Industry 4.0 projects .***

## 5.5. CoE Proposal from IIT- Delhi

5.5.1 IIT Delhi had submitted 8 proposals on Textile Machinery with a Project Cost of Rs 31.65 crore and DHI envisaged grant being Rs 25.24 crore . The proposals are for product development – mostly import substitutes and next level of product technologies with specified Industry partners as per the brief below:

**5.5.1.a Development of multiple doffer flat carding system for production of medical application (Industry Partner: M/S. Perfect Engineering Corporation )** Objective of the project is to develop the machine to produce cotton roll as continuous process to fulfill the growing need of surgical cotton in domestic and international market. Total outlay of the project is Rs.5.1271cr. with envisaged DHI support of Rs 4.0813 cr.

**5.5.1.b Development of roller carding machine for manufacturing of nonwovens (M/S. Perfect Engineering Corporation)** Objective of the Project is to develop a roller carding machine, which is presently not manufactured in India, for processing long staple synthetic fibers with a view to manufacturing of nonwovens. The Project has a total outlay of Rs.4.0995 crore with envisaged DHI support of Rs.3.2737 crore.

**5.5.1.c Development of a system for yarn fault characterization and tension control on yarn winding machine (Premier Evolve Pvt. Ltd.)** At present faults are just counted and higher the faults cheaper the cost of the fabric. Industry today use Evenness tester that is a mass based tool to detect fault but still it just gives the number. The technology proposed to be developed will be able to detect the fault by measuring the change in diameter by 3D digital image processing. Total outlay of the Project is Rs.3.1207cr. with envisaged DHI support of Rs. 2.4864cr.

**5.5.1.d Design and development of 3d weaving machines for production of 3d solid, 3d spacer, 3d honeycomb and 3d profiled structures (Industry Partner M/S. Arvind Mill )** Principal objective of the project is to develop 3D weaving machines to produce some established 3D constructions etc. that are not built in India. The total project outlay is Rs. 3.6 cr. with envisaged DHI support of Rs. 2.88 cr.

**5.5.1.e Design and development of computer controlled minimization of electrical energy loss in induction motor drives during acceleration- deceleration an variable load operation for applications in textile industries (Industry Partner M/S Lakshmi Machine Works Limited)** Objective of the Project is to design a real-time computer controlled induction motor drive control strategy to reduce net electric energy loss in the drive under varying load torque and during Acceleration-Deceleration, by optimization of core and copper losses to produce net loss minimization in the induction motor drive. The total outlay of the project is Rs.3.5353 cr. with envisaged DHI support of Rs.2.8282cr.(79.9%).

**5.5.1.f Design and development of induction motor for individual spindle drive at ring frame and minimization of electrical energy loss during variable load operation (Industry Partner M/S Lakshmi Machine Works Limited)** Objective of the proposal is minimize energy loss in ring frames. The total Project cost is Rs. 2.9841cr with envisaged DHI support of Rs. 2.3483 cr.

**5.5.1.g Design and development of robot for sliver can transfer from one machine to designated machine (Industry Partner M/S Lakshmi Machine Works Limited)** Objective of the project is to automate the can transfer process in the textile industry. Case of first time use in Textile Machinery sector. The total cost of the project is Rs. 4.6433 cr. with envisaged DHI support of is Rs. 3.7146 cr.

**5.5.1.h Design and development of an integrated fabric inspection machine for automatic identification, analysis and feedback system for textile fabric defects by digital image processing technology (Industry Partner: M/s Paramount)** The machine proposed to be developed will reduce the export rejection as it will eliminate the defects that were left undetected by manual inspection methods. Total outlay of the Project is Rs.4.54 cr. with envisaged DHI support of Rs. 3.632 cr.

5.5.2 The Apex Committee noted the recommendations of the Screening committee that all the proposals for development of technologies in the field of Textile Machinery from IIT-Delhi with Industry Partners and have been recommended for consideration of Apex Committee, for a total grant of Rs 25.25 crores ( 80% of Rs 31.65 Crores). However, it was informed by IIT-Delhi that M/s Lakshmi Machine Works Ltd. has some reservations in respect of IPR Sharing and they will confirm the same.

5.5.3 Now, M/s Lakshmi Machine Works Ltd. has informed that they want to go ahead only with the robo can project. Apex Committee noted the request of M/s LMW and therefore the other two projects, with M/s Lakshmi as partner, were not considered for evaluation by the Apex Committee.

5.5.4 Secretary, Textiles proposed that IIT-Delhi should plan for the changes in technology likely to take place in the next ten years and it should be competitive otherwise industry may not buy these machines. When the machines are fully developed, these should be comparable with the updated products available abroad. Secretary, Textiles also suggested that the machine should be developed for all segments starting from cotton to garmenting.

5.5.5 Responding to the suggestions of the Secretary Textiles, IIT-Delhi agreed with them and stated that they have taken these factors into account already and they have also included some additional features in the proposed machines, which are not available in the imported machines. IIT-Delhi further informed that these projects have emanated from the industry and are required by the Textile Industry in India.

5.5.6. JS Textiles mentioned that they have also received similar proposals from IIT-Delhi like in respect of 3D woven, for grants, which are at various stages of consideration. Representative of IIT Delhi clarified that though they are similar sounding proposal, they are mutually exclusive technologies in the same domain. It was therefore decided to share proposal data between the DHI and MoT to ensure that there is no duplicity.

5.5.7 The Apex Committee observed that this will be first CoE on Textiles Engineering in an Institute like IIT. Such institutional capacities are needed in all the Textile clusters, if we have to meet the targets set in CG Policy and also in the proposed Textile Policy.

**5.5.8 The Apex committee approved a grant amounting to Rs 20. 068 Crore for the COE at IIT Delhi as per the details below:**

**5.5.8.1 Multidoffer Flat Carding system: DHI Grant: Rs 4.0813 crore, Industry contribution: Rs.1.0458 crore**

**5.5.8.2 Roller Carding: DHI Grant: Rs 3.2737 crore, Industry contribution: Rs.0.8258 crore**

**5.5.8.3 Yarn Fault characterization: DHI Grant: Rs. 2.4864 crore, Industry contribution: Rs.0.6343 crore**



- 5.5.8.4**        **3 D weaving machine: DHI Grant: Rs 2.88 crore, Industry contribution: Rs.0.72 crore**
- 5.5.8.5**        **Robot for sliver can transfer: DHI Grant: Rs 3.7146 crore Industry contribution: Rs. 0.9287 crore and**
- 5.5.8.6**        **Fabric inspection machine: DHI Grant: Rs 3.632 crore Industry contribution: Rs. 0.908 crore.**

## **5.6 CoE Proposal from IIT- Kharagpur**

5.6.1 IIT Kgp has proposed nine products / process developments under their proposal as below. Total cost of 9 projects and machines involved (alongwith administrative and infrastructure expense of 3.5 crore) is Rs 75.14 crores out of which grant sought fromr DHI is Rs.60 crore. Eligible grant amount is Rs 57.312 crore ( 80% of Rs 71.64 (75.14-3.5) crores ).

**5.6.1.a Project for development of Micro- alloyed bainitic steel with high strength, toughness and fatigue resistance for auto components: (Project cost:Rs 8.58 crores plus common expenditure in Innovation Lab)** Industry partner is M/s. Ramkrishna Forgings Limited, Jamshedpur. The proposal is to develop high strength bainitic steel. At present, bainitic steel is proposed to be used in connecting rods, crankshafts etc. for the automotive sector. It has applications in other Capital Goods sectors also. Once the performance parameters are confirmed, it will be introduced in the other sectors such as Heavy Engineering, Earthmoving equipment etc.

**5.6.1.b Project for NonMetallic Inclusions (NMI) and its control, new steel product through energy efficient EAF at HEC (Project cost: Rs 5.25 crores plus common expenditure in Innovation Lab).** In respect of this Project it was stated that this is a process technology and not much research on “inclusion” as a whole has been done. At present, HEC faces a loss of Rs 2 crores every year due to rejection and 70% of rejection is due to these issues.

**5.6.1.c Project for developing Multi- sensor integrated Robotic System for hazardous jobs in manufacturing industry, particularly in steel Sector. (Project cost: Rs 2.25 crore, plus common expenditure in Innovation Lab ).**The industry partner is Tata Steel. It was agreed that this equipment would help in improving consistency and reliability of sampling and measurement besides enhancing workers’ safety.

**5.6.1.d Project for Friction Stir Welding of dissimilar materials for different structural components for light weighting aims to develop dissimilar materials welded components. (Project cost: Rs 3.83 crores plus common expenditure in Innovation Lab)** The project partner is Ampere Vehicles. Under this Project, the process will be developed which may be carried out in friction stir welding.

**5.6.1.e&f Two Projects for Exploring solutions for various technological challenges in metal additive manufacturing technology (Project cost:Rs 5.78 crores plus common expenditure in Innovation Lab) with BHEL as project partner and Selection of Raw Materials for Additive Manufacturing Applications in relation to the Design requirements and Life Cycle Analysis of Additive Manufacturing Process for different materials. (Project cost:Rs 3.78 crores) with Tata Sons and Tata Motors as the industry partners.** Both the Projects related to additive manufacturing. The Projects are about exploring solutions for various technical challenges in metal additive manufacturing technology and sharing the relevant knowhow with Indian heavy industry.

**5.6.1.g Project for Remote Monitoring and Real Time control of defects in Friction Stir Welding Process and preventive health monitoring of Friction Stir Welding machine with TCS as Industry Partner (Project cost:-Rs 7.49 crores plus common expenditure in Innovation Lab).** It would be a sensor based process helping in online inspection, correction of defects etc. The industry partner is TCS, which would help to develop Internet of Things (IoT) systems.

**5.6.1.h Project for Drone based monitoring of inaccessible industrial areas and industrial chimneys. The industry partner is Tata Steel. (Project cost:-Rs 6.45 crores).** In respect of this Project it was requested to obtain the requisite approvals from other ministries for developing this technology. It would help in reducing manpower, cost & time required to finish the tasks in periodic monitoring of the areas, which are difficult to access.

**5.6.1.i Project is for Digital manufacturing and Industrial Internet of Things (IIOT) for enhanced supply chain coordination, quality and maintenance. Industry partner is Tata Sons. (Project cost:- Rs 3.34 Crore plus common expenditure in Innovation Lab)** Under the Project, a small Digital Manufacturing Lab will be set up, which would help the MSMEs to experience and understand the advantages of this set up. The concept of digital manufacturing and Internet of Things has been applied in heavy industries.

5.6.2 The Apex Committee noted that Screening committee has observed that in all the projects factsheet is needed along with export potential and import substitute data. All projects are primarily improvement of process technology. Some of them have started with auto sector but have relevance in Capital Goods Sector also. The need of such a COE in eastern sector was also stressed upon. Further, benchmarking and measurable outcome of all the projects need clarity. It was noted that the equipment under all these projects would be made available for MSMEs for use in the form of common facilities, which is called Innovation lab. They would be forming consortium with Core Members, Associate Members and Affiliate Members. Instead of providing individual project wise grant, IIT Kharagpur has sought 80% of the composite project cost as their model is based on membership model whereas the members would pay Rs.45 lakh, Rs.15 lakh and Rs.5 lakh per year respectively with an initial commitment for five years. Total cost of 9 projects and machines involved (alongwith administrative and infrastructure expense of 3.5 crore) is Rs 75.14 crores

5.6.3 Chairman mentioned that the membership model lacks direct industry contribution in the projects, which is required as per the DHI CG Scheme. He also pointed out that in case the Apex Committee finds itself unable to grant one or more projects, the Membership model may not be workable. The Director, IITKGP informed that its membership model would continue even after the projects are over and if some of the projects are not approved, then they would have to rework the DPR. He further informed that it is a sustainable model and small industries in the nearby area can utilise their facilities. Apex Committee took note of the efforts made by the group and IIT in bringing more industry contribution from smaller units. However, IIT Kgp explained that industry in the eastern region will definitely get a boost, once the outcome of these projects is seen by them. They also explained that since these projects are of the nature of technology and process development, which are at present not being used much in the country & primarily have an indirect impact, therefore they will not be able to give the export potential and import figures, as required by the Screening Committee.

5.6.4 The Apex Committee noted the recommendations of the Screening Committee, agenda presentations, submissions by the applicants and view/ suggestions expressed by members / participants. Projectwise detailed discussions were made.

5.6.4.a As regards the **first project of developing Bainitic Steel**, IIT Kgp informed that they have now given the specified carbon content and the yield strengths of the bainitic steel to be developed. Ramakrishna Forgings stated that they had given some auto components to IIT Kgp, for which they want IIT Kgp to develop appropriate bainitic steel. At this stage, they said that the technical parameters can't be told. JS(HE&MT) said that apart from carbon content and yield strengths there are large number of other parameters, which define bainitic series of steels. IIT Kgp and Ramakrishna have to decide which of the steel in the range will be developed specific to various auto components. Also the end user is kept in loop at the design stage, mismatch of requirements can happen and the steel manufacturers to be identified. IIT Kgp promised to give complete tech specs of the range of the steel intended to be developed for components requirements of Ramakrishna. They also undertook to tie up with one of the steel producer for manufacturing bainitic steel and submit a support letter in this regard.

The Apex Committee noted that such steels are already being used by overseas auto sector and its propagation in India through the suggested route may have merit. However, there is also a need that the technology is commercialized in CG sector as their primary customer – a requirement of the CG Scheme under which IIT Kgp has proposed grants.

***After detailed deliberations, the Apex Committee decided to approve a grant of 80% of the project cost of Rs 8.58 crores i.e. Rs 6.864 crore plus common expenditure in Innovation Lab: remaining to be contributed directly by the Industry partner /s; subject to IIT Kgp providing the detailed specifications with range of steel with carbon percentages, letters from steel manufacturers who would produce steel after development.***

5.6.4.b As regards the **second project on controlling NMI**, Chairman enquired whether Bharat Forge or others has solved NMI problem in their products and if other industries are doing it why HEC cannot do itself. IITKGP informed that they are not aware of other manufacturers' problems and they would have to analyse whether NMIs are due to pouring, refractory or anything else in HEC. IIT Kgp said that they have to carry out scientific investigation at HEC facilities to understand the sources of NMI and then propose solutions for its removal. However entire removal may not be possible. IITKGP was requested to give information about current specifications of NMI at HEC and the targeted levels after the proposed technology intervention. IIT Kgp assured that the technology so developed would be mostly generic and MSMEs would stand to benefit a lot.

***After detailed deliberations in respect of the specific requirements of HEC for minimising waste / NMI with the help of IIT Kgp, Apex Committee approved a grant of Rs 4.2 crore as 80% of the project cost of Rs 5.25 crores plus common expenditure in Innovation Lab, subject to IIT Kgp specifying NMI present and target levels.***

5.6.4.c As regards the **third project on Robotic Systems**, Apex Committee noted that Robotic sampling in steel plants is in practice in some plants overseas. Its introduction in India will be a welcome step, mainly from the point of views of safety, speed of sampling and the improved accuracy of the results. Tata Steel would manufacture Robotic System once developed. To that extent the project will result in use of modern technology – one tiny step towards better competitiveness. Chairman mentioned that Industry leaders like Tata are expected to contribute more than the 20% minimum. TATA replied that they would consult and come back. IIT Kgp was asked to provide the specifications like time saving by the use of robot, size of robot etc.

***After detailed deliberations, the Apex Committee found the project desirable and approved a grant of Rs 1.35 crore as 60% of the project cost of Rs 2.25 crore, plus common expenditure in Innovation Lab subject to providing specifications of the deliverables, as mentioned above.***

5.6.4.d As regards the **project on FSW**, Apex Committee observed that the intended use of the FSW technology is for light weighting i.e. primarily for auto components. The Process technology does not come directly in the purview of CG Sector; however the technology can be extended to CG Sector and must be commercialized for CG Sector also. Chairman wanted to know the demand for FSW products in the CG Sector. IITKGP informed that these can be used in construction equipments for weight reduction. Chairman wanted IIT Kgp to tie up with CG Sector units and transfer FSW technology to them, so that the proposal could be supported under the CG Scheme. JS, DHI asked IIT Kgp to provide the strength characteristics of the weld of dissimilar materials to be welded.

The APEX Committee saw merit in the logic of IIT Kgp that once the FSW technology is developed and demonstrated in auto sector, then the MSMEs of CG sector will be prompted to adopt the same.

***After detailed deliberations, the Apex Committee found the project desirable and approved a grant of Rs 3.064 crore as 80% of the project cost of Rs 3.83 crore, plus common expenditure in Innovation Lab subject to providing the strength characteristics of the weld of dissimilar materials to be welded.***

5.6.4 e & f. As regards the **projects on Additive Manufacturing**, it was noted that the project will lead to development of titanium alloy based components for gas turbine etc. for BHEL and TATA Motors. It would use indigenously available metallic powders and conduct life cycle analysis of the products thus developed. Chairman desired that BHEL and TATA Motors should contribute additional 20% for the project. JS(HE&MT) asked IIT Kgp to work with industry partners to Identify the components and properties to be achieved with respect to original products

***After detailed deliberations, the Apex Committee found the project desirable and approved a grant of Rs 3.48 crore as 60% of the project cost of Rs 5.8 crore, plus common expenditure in Innovation Lab for the first project with BHEL and a grant of Rs 2.268 crore as 60% of the project cost of Rs 3.78 crore, plus common expenditure in Innovation Lab for the second project with TATA Motors, subject to Identifying the components and properties to be achieved with respect to original products.***

5.6.4.g As regards the project on **Automation of FSW**, The Apex Committee observed that automation of the FSW process will benefit the users by offering greater control of the process. IIT informed that these would be used for predictive maintenance and development of FSW process. This technology could be used for other machines also. SHI asked them to involve machine builders industry and also enquired about the names of the manufacturers of the machines once developed. APEX Committee was of the opinion that greater automation of machines and processes are the need of the hour. FSW is gradually growing in use particularly in Electric Mobility, in which India has ambitious plans. Therefore, this technology development will add to modernize ecosystem for electric mobility. It was decided that big groups like TATAs and BHEL, wherever they are the project partners, should contribute more.

***After detailed deliberations, the Apex Committee found the project desirable and approved a grant of Rs 4.494 crore as 60% of the project cost of Rs 7.49 crore, plus common expenditure in***

***Innovation Lab subject to benchmarking the strength characteristics of the weld of dissimilar materials with global standards.***

5.6.4.h As regards the project on drone, screening committee had noted that this would be used in unapproachable areas for inspection. He further told that approval from concerned ministries may also be required.

***After deliberations, The Apex Committee decided not to support the project on Drones as it was felt that flying objects being administered by other department, so it would be better if the industry partner approaches the concerned Ministry for grant support.***

5.6.4.i As regards the project on digital manufacturing and IIOT, Chairman wanted IIT Kgp to ensure that it should help in spreading awareness on Industry 4.0 and helping MSMEs. Chairman asked TATA Sons, to contribute a higher percentage. The Apex Committee noted that the project will provide digitized services to MSMEs for taking better decisions in their operation by providing Industrial Internet of Things infrastructure. The facility will improve global competitiveness of the MSME sector. Therefore the project is considered desirable.

***Apex Committee found the project desirable and approved a grant of Rs 2.004 crore as 60% of the project cost of Rs 3.34 crore subject to the project following all the applicable common instructions on Industry 4.0.***

5.6.5 IIT Kgp mentioned that all the machines in the Innovation lab are linked to the projects and they would provide a linkage detail, wherever missing. Any equipment, if exclusive to drone project in the innovation lab, shall be removed.

***5.6.6 After detailed deliberations, Apex committee approved the COE at IIT-Kgp, subject to IIT-KGP providing the data mentioned in paras above, for a total grant of Rs 47.62 crores especially in view of the fact of desirability and need of at least starting such a center in the Eastern region, which would eventually cater to the smaller CG Units in the region, as per the details below:***

***5.6.6.1 Project for development of Micro- alloyed bainitic steel: 80% of the project cost of Rs 8.58 crores i.e. Rs 6.864 crore***

***5.6.6.2 Project for NonMetallic Inclusions (NMI) control: DHI grant of Rs 4.20 crore as 80% of the project cost of Rs 5.25 crores***

***5.6.6.3 Project for developing Multi- sensor integrated Robotic System :DHI grant of Rs 1.35 crore as 60% of the project cost of Rs 2.25 crore***

***5.6.6.4 Project for Friction Stir Welding of dissimilar materials : DHI grant of Rs 3.064 crore as 80% of the project cost of Rs 3.83 crore***

***5.6.6.5 & 5.6.6.6 Two Projects of Additive Manufacturing :DHI grant of Rs 3.48 crore as 60% of the project cost of Rs 5.80 crore, & DHI grant of Rs 2.268 crore as 60% of the project cost of Rs 3.78 crore***

***5.6.6.7 Real Time control of defects in Friction Stir Welding Process : DHI grant of Rs 4.494 crore as 60% of the project cost of Rs 7.49 crore***

**5.6.6.8 Digital manufacturing and Industrial Internet of Things (IIOT) : DHI grant of Rs 2.004 crore as 60% of the project cost of Rs 3.34 crore,**

**Plus 80% of common expenditure of Rs.24.87 crore for equipment related to these projects in Innovation Lab i.e. Rs.19.896 crore (for all the above projects)**

**5.7 TAFP proposal for Technology Acquisition for Printing Machines by Pelican Rotoflex Pvt.Ltd., Rajkot:**

5.7.1 The proposal in a nutshell is for technology acquisition of R 982 model of rotogravure printing machine of 450 rpm from Cerutti Group. This would result in higher accuracies of registration and lesser losses of raw materials. Transfer of Technology package includes know how from design to after sales service. The applicant has sought a DHI grant of Rs 2.3 crore ( 25%) out of total technology acquisition cost of Rs 9.2 crore. M/s. Pelican Rotoflex has agreed to comply with IPR, TAFP Knowledge Sharing & Know how conditions.

5.7.2 Apex Committee noted that Screening Committee has recommended the Proposal for consideration by the Apex Committee for DHI grant of Rs 2.3 Crore in the total Technology Acquisition cost of Rs. 9.2 crore.

**5.7.3 Apex Committee approved the Proposal for DHI grant of Rs 2.3 Crore in the total Technology Acquisition cost of Rs. 9.2 crore subject to the applicant following the IPR Conditions.**

**5.8 CoE proposal to design, develop and fabricate five cubic meter hydraulic excavator by M/s. HEC Ltd. with the support of ISM Dhanbad.**

5.8.1. M/s HEC, the largest PSU in Heavy Engineering, set up 60 years ago have proposed modernisation of their product range for electric shovel excavator to hydraulic excavator with smart technology based on internal design validated by ISM Dhanbad. The outcome will be designs and commercial prototype of five cubic meter hydraulic excavator with smart technology. The project cost is Rs.6.60 crores, Rs.5.28 crore DHI grants and Rs.1.32 crore as HEC contribution.

5.8.2 The Apex Committee noted that the Screening Committee had recommended the project subject to relaxing the scheme requirement of an IIT like institution to be involved in COE , by considering HEC as such an institute by the Competent Authority;80% of the commercial consideration by selling/leasing/renting the first prototype be returned to the Government or any other suitable mechanism to be decided by the Apex Committee.

5.8.3. The Apex Committee also observed that this project development is a step towards uplifting technology from electrical to hydraulic in line with the end user demands. At present design of this technology is not being done by any company in the country. HEC has agreed to transfer the technology as per the IPR conditions of COE. Considering the technical capability of HEC, this specific condition can be considered for relaxation by the Competent Authority. Since in a COE, the prototype remains with the institute but in this case it is proposed to sell/commercialize the prototype for validation purposes, Committee agreed that part of cost by

selling the Commercial Prototype developed under grants (80% of profit and not revenue) should be returned.

**5.8.4. *After deliberations, Apex committee approved a grant of Rs 5.28 crores subject to relaxing the scheme requirement of an IIT like institution to be involved in COE , by considering HEC as such an institute by the Review Committee and 80% of the profit from the commercial consideration by selling/leasing/renting etc. the first prototype be returned to the Government & the observations mentioned above.***

## **5.9 CEFC Proposal for skill development of design engineers by M/s Korus Engineering Solutions Pvt. Ltd.**

5.9.1 M/s Korus Engineering Solutions Pvt. Ltd. country's third largest steel plant designers, have proposed to train designers and technicians in steel equipment designing by setting up an SPV. The expenditure on workshop will be about Rs.5 crores and another Rs 1 crore on training equipment. They had also requested Rs 0.68 lakh grants towards training charges in the first year out of the total training expenses of Rs.169 lakhs.

5.9.2 The Apex Committee noted the recommendations of the Screening Committee , who recommended the proposal with DHI funding of Rs 4.8 crores (excluding the training expense sought for the first year), subject to Forming an SPV, putting in place proper mechanisms including MOUs in place to ensure arms length distance between the activities of SPV and that of Korus, revise/redesign the course and equipment list as per the industrial requirement and use high tech machines instead of traditional machines. The applicants agreed to comply with the provisions. As regards the list of training center machines requested being traditional, they mentioned that they have been frugal in their approach and will provide their own facility for training, if required.

5.9.3 Chairman asked for increase in contribution by Korus Engineering Solutions Pvt. Ltd. They requested for at least 60% funding from DHI for the Workshop.

**5.9.4 *Having found then pioneering effort desirable especially that such a design institute will help in upgrading the skills of design engineers, as per the market requirement, the Apex Committee approved grant of Rs 3.6 crore to a SPV to be formed by Korus Engineering Solutions Pvt. Ltd. for the project as 60% of the Rs 6 crore for the Workshop and subject to observations mentioned above.***

## **5.10 CEFC proposal for modernisation of Precision Metrology Laboratory by CMTI Bangalore**

5.10.1 CMTI has proposed to modernize their measurement facilities by setting up machines like ultra high precision CMM, high precision roundness tester, high precision surface roughness and contour tester etc. With proposed project cost of Rs.9.18 crore, half of which have already been approved by Government of Karnataka and the remaining half is being sought from DHI as grants. There is no industry contribution proposed.

5.10.2 The Apex Committee noted that the Screening Committee has recommended the proposal subject to Competent Authority waiving the scheme condition of minimum industry contribution and formation of an SPV. The Screening Committee also stipulated that CMTI should earn

minimum revenue of Rs 2 crore from second year onwards to ensure proper benefit goes to the CG Sector units.

5.10.3 Chairman impressed upon the need to involve the industry and also contributions from them. He outlined the need for CMTI to proactively approach the industry and seek their indulgence in the programmes and activities of CMTI. He lauded the efforts of CMTI with the Strategic Sector. At the same time, he reminded that CMTI is formed with the primary objective of serving CG and manufacturing Sectors. He advised CMTI to step up their marketing efforts. Industry present also made the same suggestion of industry contribution and involvement. It was expressed that since CMTI may not be able to form SPV, exemption for the same may be sought from the Review Committee.

5.10.4 Representative of Government of Karnataka present in the meeting assured that he would facilitate meeting of CMTI with the industries and some contribution they would definitely get. It was mentioned that this being a testing lab, 20% contribution would be difficult to arrange.

***5.10.5 After deliberations, the Apex Committee decided to approve a grant of Rs 3.672 as 40% of the project cost of Rs. 9.18 crore with atleast 10% in cash and /or kind through Industry contributions, approval of the review committee for exemption from formation of SPV and also 10% contribution in cash/ kind and subject to observations mentioned above.***

**5.11 Proposal from IISc-Bangalore with Wipro 3D (Buisness unit of Wipro Enterprise (Pvt.) Ltd.)under the Scheme component centre of Excellence for design and development of 3 D Printing technologies, systems and materials.**

5.11.1 IISc and Wipro 3 D have proposed development of 3 D printing systems , energy sources and materials recipe. It was noted that this COE will help develop indigenous additive manufacturing capability spanning –High performance metallic alloy characterization, Electron beam/laser/plasma based configurable energy source development, Dynamic process control capabilities for such complex manufacturing process, process monitoring sensors etc., which will reduce the production cost and lead time by at least 30%. The present Industry contribution is Rs.1.4 crore out of the total project cost of Rs. 10.5 crore which is less than the envisaged 20%.

5.11.2 Apex Committee noted that the Screening Committee has recommended the project subject to IISc adhering to 20% Industry contribution. CMTI was of the view that the project is very ambitious. They will be best advised to take up development of those technologies which are needed most in India. They were also advised that the end user must be involved at the planning stage itself. More private and public sector stakeholders may also be involved. Along with machine development and application technologies, metal powder development technologies may also be taken up.

5.11.3 IISc responded saying that at present Wipro 3D is a partner on application side. Domain experts in other five segments of the technologies will be associated with the project. At present IISc has expertise gained from few project on the 3 D side at Bosch Centre in the Campus. They also are open to associate CMTI and other machine builders. However, metal powder technology is not their domain.



**5.11.4 The Apex Committee agreeing with the priority need of the development of 3 D ecosystem in the country, approved a grant of Rs 8.4 crore as 80% of the project cost of Rs 10.5 crore subject to IISc confirming the balance contribution from the industry partner (s) and the observations mentioned above.**

**5.12 Proposals of funding under Enhancement of Competitiveness in the Indian Capital Goods Sector for two on-going plan projects of CMTI, earlier approved by DIPP, i.e. Nano Manufacturing Technology Centre(NMTC) and Sensor Technology Development Facility (STDF) with enhanced budget**

5.12.1 CMTI has proposed continuation of two 12th FY Plan projects approved while CMTI was under the administrative control of DIPP. These projects are at final stages of implementation. The project cost is increased due to escalations and unforeseen circumstances. Apex Committee noted that review committee has already approved the funding of these two projects under the CG Scheme, as per the already approved project cost by DIPP. The approved project cost for NMTC is Rs 134.22 crores and Rs 95 crores for STDF. The pending fund requirement, as per the approved project cost, is. Rs 6.6 crores for NMTC and Rs 45.05 crores for STDF.

5.12.1 CMTI has explained that in the Project of NMTC, they have sought an additional budget of Rs. 19.36 crores over the sanctioned cost of Rs. 134.22 crores. Out of the increased budget of Rs. 19.36 crores, Rs. 12.74 crores are being sought for capital expenditure and Rs. 6.614 crores for operational and administrative overheads. CMTI has explained that this increase in capital expenditure is because the earlier DPR was based on estimated cost given by CPWD without actual bill of material. However, after taking sufficient technical inputs and considering active vibration inputs by Bangalore Metro, they had to redesign the specification for clean room, electrical requirement and vibration related equipments. This has been supported by Rise University, Nagaraja etc.

5.12.2 For STDF, CMTI has sought an additional budget of Rs. 7.75 crore over the approved project cost of Rs. 95 crores. The major increase in the project cost is because of the new infrastructural requirement for clean room. Earlier they had assumed that the equipment for STDF can be accommodated within the existing infrastructure of NMTC Lab. However, recent factory audit made it clear that the system cannot be placed in the basement for their additional requirement and a separate infrastructure is required for the purpose.

5.12.3 It was noted that the review committee had earlier agreed to fund these two projects under the CG Scheme upto the amount already sanctioned by DIPP. As regards the sanction of actual funds it was directed that the projects with cost escalation details need to be placed before Apex Committee, which is the competent body to sanction the funds under CG Scheme. It was noted that the Screening Committee recommended the projects for funding with additional project costs. Chairman desired that CMTI may further reduce their requirements and try to generate some funds internally. Accordingly CMTI has reduced the cost escalation support from DHI :- Rs 18.46 crore for the NMTC project (from earlier requested amount of Rs 19.36 crores) and Rs 7.55 crores (from earlier requested amount of Rs 7.75 crores)for the STDF project.

**5.12.4 After deliberations, the Apex Committee approved the cost escalation of Rs 18.46 for the NMTC project and Rs 7.55 crores for the STDF project, in addition to the pending fund requirement of Rs 6.6 crores for NMTC project and Rs 45.05 crores for the STDF project.**

**5.13 TAFP proposal for Material parameter Development for Additive Manufacturing of metal components for Earthmoving & Other Sectors- M/s. Wipro enterprises Private Limited, Bangalore**

5.13.1 Applicant informed that it is for application development for 3D printing of components. They stated that timely development of 3 D printing technology applications is important for the manufacturing sector to maintain their competitiveness. Therefore, they have proposed to collaborate with EoS based on their machines.

5.13.2 Apex Committee noted the observations of Screening Committee of merging this proposal with the COE proposal of IISc, where again Wipro is the partner. Also implications and applicability of technology development is much more than technology acquisition. However, Wipro mentioned that this development is independent of their proposal with IISc and is required in short term while development is a medium term objective. They also said that they are in touch with BHEL for developing complex geometries for turbine blades. They requested to reconsider their proposal.

**5.13.3. *In view of the discussions, Apex Committee asked the Screening Committee to re-examine the application and give its recommendations.***

**5.14 Proposal for Development & Manufacture of High End Multi process Turn Mill Centres in India-M/s. Bharat Frit Werner Limited**

5.14.1 The Project in a nutshell is for acquisition of technology to enable manufacturing of Multi axes Machining Technology with Advanced Features by acquiring the technology from GMTK, Spain. (Project Cost: Rs 33.91 crores. DHI grant: Rs 8.5 crore )

5.14.2 It was noted that the Screening Committee had recommended the proposal provided BFW informs the Apex Committee about the detailed technology cost break-up as per their ToT with the Technology Supplier. The information was provided by GITA to DHI a day before. Therefore, Screening committee could not examine the fresh information.

**5.14.3. *In view of the circumstances, the Apex Committee decided that the Screening committee may examine the proposal in its entirety with the information given and come back to the Apex Committee with its recommendations.***

**5.15 Request from Tool and Gauge Manufacturers' Association, India (TAGMA)**

**5.15.1 *The request was not agreed to by the Apex Committee as this may lead to audit objections and is prone to misuse.***

5.16 In the case of following proposals the Apex Committee noted the recommendations of the Screening committee and accordingly no grant support, at present, is proposed for these projects under the DHI CG Scheme:-

❖ **PSG TIFAC Core Metal 3 D Printing**

- ❖ **Belgaum Foundry Cluster**
- ❖ **Foundries Development Foundation, Coimbatore**
- ❖ **TAFP Hawa Valves**
- ❖ **MIDHANI**

6. It was stated that the specific observations of Apex Committee and Screening Committee shall form a part of the approval letter and MOUs to be signed with the institute/SPV. The project implementation shall be monitored through a PR&MC having eminent experts on the subject.

7. It was noted by the Committee that due to funding of ongoing projects of CMTI under the CG Scheme as well as the administrative overheads, earlier funded by DIPP, has put an extra constraint on the budget of the scheme. However, in the overall interest of the public money, continuation of the project was an essential requirement. The additional impact on the CG Scheme due to the same is Rs. 77.66 crore. The same was not anticipated earlier as it was assumed that the transfer of DIPP to DHI would be with necessary budget availabilities. It was noticed by the Apex Committee that the total approved proposals in this Apex Committee meeting (including the CMTI proposal) are worth Rs 246.64 crores, as per details below:-

(Rs. In Crore)

<b>Scheme Component</b>	<b>Original scheme allotment</b>	<b>Commitment made thus far for DHI grant</b>	<b>Commitment Expected</b>	<b>Total</b>
<b>COE</b>	<b>250</b>	<b>88.58</b>	<b>81.368</b>	<b>169.948</b>
<b>CEFC(including STDF &amp;NMTC Projects)</b>	<b>48.96</b>	<b>84.85</b>	<b>162.972</b>	<b>247.822</b>
<b>IIIF</b>	<b>125</b>	<b>125</b>	<b>0</b>	<b>125</b>
<b>TAFP</b>	<b>50</b>	<b>16.46</b>	<b>2.30</b>	<b>18.76</b>
<b>Test Center</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Total so far</b>	<b>573.96</b>	<b>314.89</b>		
<b>UAY+IMPRINT</b>		<b>10.69</b>		<b>10.69</b>
<b>Total</b>		<b>325.58</b>	<b>246.64</b>	<b>572.22</b>
<b>Balance</b>		<b>248.38</b>		<b>1.74</b>

8. Apex Committee noted that most of the proposals being considered herein are under CEFC. However, considering the urgency of priority for setting up Industry 4.0 CEFC, actual allotment will have to be revised by inter component adjustments, with overall scheme fund remaining the same. So far not much progress has been made on the setting up of a test center under the CG Scheme, while the CEFC component has been oversubscribed. Therefore same can be taken up in the expanded scheme. Subsequent to proposed revision, almost no fund would be left for the Test Center and the agreement for marketing TAFP with GITA would also have to be reviewed in view of the lesser availability of funds for other components including TAFP. Apex Committee also noted that earlier this issue was considered by Review Committee in its second meeting and it was decided “ On deliberation the Committee agreed to allow flexibility in fund allocation amongst the Scheme components within a reasonable limit to accommodate merit

worthy proposals under the Scheme without violating the overall limit of GoI financial support envisaged under the Scheme”.

9. Apex Committee was of the view that since all the projects started need to be completed within the scheme period, and the scheme has already completed almost two years and nine months, it would be better to fund all the approved projects and further projects finding merit, which could not be taken up in this scheme due to fund crunch, may be taken up in the Enhanced scheme on which the department is working.

10. To summarize, Apex Committee, approved the following proposals, as per details mentioned below:-

- (i) CEFC proposal on Industry 4.0 by M/s. SLK CSR foundation, groups and others for a budgetary support of Rs. 14.40 crore subject to the observations mentioned in para(s) above.
- (ii) CEFC proposal of M/s. Automation Association of India and IIT Delhi for CEFC on industry 4.0 for a budgetary support of Rs. 19.4 crore subject to the observations mentioned in para(s) above.
- (iii) CEFC proposal of Indian Institute of Science, Bangalore for CEFC industry 4.0 for a budgetary support of Rs 23.76 subject to the observations mentioned in para(s) above
- (iv) CEFC proposal of CMTI Bangalore for industry 4.0 for a budgetary support of Rs 20.48 crores subject to the observations mentioned in paras above
- (v) CoE Proposal of IIT Delhi for Textile Machinery for a budgetary support of Rs 20.068 crores subject to the observations mentioned in paras above
- (vi) CoE Proposal of IIT Kharagpur for Advanced Manufacturing for a budgetary support of Rs 47.62 crores subject to the observations mentioned in paras above
- (vii) TAFP proposal of M/s Pelican for Printing machines for a budgetary support of Rs 2.3 crores subject to the observations mentioned in paras above.
- (viii) CoE proposal of HEC for manufacturing Hydraulic Excavator by HEC with institutional support of ISM Dhanbad for a budgetary support of Rs. 5.28 crore subject to observations mentioned in paras above
- (ix) CEFC proposal of Korus for a budgetary support of Rs 3.6 crores subject to the observations mentioned in paras above.
- (x) CEFC proposal for modernisation of Precision Metrology Laboratory by CMTI Bangalore for a budgetary support of Rs 3.672 crores subject to the observations mentioned in paras above.
- (xi) CoE Proposal from IISc-Bangalore with Wipro 3D for design and development of 3 D Printing technologies, systems and materials for a budgetary support of Rs 8.4 crores subject to the observations mentioned in paras above.
- (xii) Cost escalation of Rs 18.46 for the NMTC project and Rs 7.75 crores for the STDF project, in addition to the pending fund requirement of Rs 6.6 crores for NMTC project and Rs 45.05 crores for the STDF project.

	Project	Proposed Project Cost (Rs. crore)	DHI Grant (Rs. crore)
<b>1</b>	<b>Kirloskar</b>	<b>19.35</b>	<b>14.40</b>
<b>2</b>	<b>AIA</b>	<b>30.85</b>	<b>19.40</b>
<b>3</b>	<b>CMTI I4.0</b>	<b>29.7</b>	<b>23.76</b>
<b>4</b>	<b>IISC I4.0</b>	<b>25.6</b>	<b>20.48</b>
<b>5</b>	<b>IIT-Delhi</b>		
	Multidoffer Flat Carding system	5.1271	4.0813
	Roller Carding	4.0995	3.2737
	Yarn Fault characterization	3.1207	2.4864
	3 D weaving machine	3.6	2.88
	Robot for sliver can transfer	4.6433	3.7146
	Fabric inspection machine	4.54	3.632
	<b>Total</b>	<b>25.1306</b>	<b>20.068</b>
<b>6</b>	<b>IIT-Kharagpur</b>		
	Micro- alloyed bainitic steel	8.58	6.864
	NonMetallic Inclusions (NMI) control	5.25	4.20
	Multi- sensor integrated Robotic System	2.25	1.35
	Friction Stir Welding of dissimilar materials	3.83	3.064
	Selection of raw materials Additive Manufacturing	3.78	2.268
	Life cycle analysis of Additive Manufacturing process	5.80	3.48
	Real Time control of defects in Friction Stir Welding Process	7.49	4.494
	Digital manufacturing and Industrial Internet of Things (IIOT)	3.34	2.004
	Innovation Lab	24.87	19.896
	<b>Total</b>	<b>65.19</b>	<b>47.62</b>
<b>7</b>	<b>TAFP Pelican</b>	<b>9.2</b>	<b>2.3</b>
<b>8</b>	<b>CEFC-Korus</b>	<b>6</b>	<b>3.60</b>
<b>9</b>	<b>COE-HEC</b>	<b>6.6</b>	<b>5.28</b>
<b>10</b>	<b>CEFC-CMTI Precision</b>	<b>9.18</b>	<b>3.672</b>

	lab		
11	COE-IISc-Wipro	10.5	8.40
12	CMTI Additional grant on NMTC	Approved project cost 134.22 (pending grant requirement is 6.6)	Additional grant 18.46
13	CMTI Additional grant on STDF	Approved project cost 95(pending grant requirement is 45.05)	Additional grant 7.55
	<b>TOTAL</b>	<b>314.9606</b>	<b>246.64</b>

11. The meeting ended with a Vote of Thanks to the Chair.

**AUGUST 9, 2017 AT 10.00 HRS UDYOG BHAVAN, NEW DELHI ATTENDANCE SHEET****6<sup>TH</sup> APEX COMMITTEE MEETING**

S.No.	NAME/DESIGNATION	ORGANISATION
1.	Shri Girish Shankar, Secretary	Department of Heavy Industry
2.	Shri Anant Kumar Singh , Secretary	Ministry of Textiles
3.	Shri Subhash Chandra Pandey, AS&FA	Department of Heavy Industry
4.	Shri N. Sivanand, Joint Secretary	Department of Heavy Industry
5.	Shri Puneet Agarwal, Joint Secretary	Ministry of Textiles
6.	Smt. Ritu Pande, Director (HE&MT)	Department of Heavy Industry
7.	Shri H.S. Bisht, Director	MSME
8.	Shri P.Ranjan, ED	TIFAC,DST
9.	Shri S. Biswas, Director(R&D)	BHEL
10.	Prof. Partha Pratim Chakaravarti, Director	Indian Institute of Technology (IIT), Kharagpur
11.	Shri Sateesh Kumar , Director	Central Manufacturing Technology Institute (CMTI)
12.	Sh. Sanjay Chavre, Sr.D.O.	Department of Heavy Industry
13.	Sh. N L Goswami, Sr.D.O.	Department of Heavy Industry
14.	Shri Sushil Lakra, Consultant	Department of Heavy Industry
15.	Shri Satyamani Technical Director/ (NIC)	Department of Heavy Industry
16.	Shri Zakaria Khan, Sr.D.O.	DIPP
17.	Shri Vinay Kumar, Scientist 'E'	DSIR
18.	Shri Rajnesh Khole , Head MED,	BIS
19.	Shri M. Balasubramanian, Deputy Director,	Office of the Textile Commissioner, Mumbai
20.	Shri Anil Uppin, Managing Director,	Karnataka Council for Technical Upgradation.

21.	Shri. A.K. Jha, General Manager (Operation)	SAIL
22.	Smt. Seema Gupta, Director	CII
23.	Ms. Usha S.	CMTI
24.	Shri B.R. Mohanraj	CMTI
25.	Shri K. Niranjan Reddy	CMTI
26.	Shri Prakash Vinod,	CMTI
27.	Shri Vikrum Salunkhe,	Kirloskar
28.	Shri Ravi Damodaran,	Kirloskar
29.	Shri Rahul Kirloskar,	Kirloskar
30.	Shri D.S. Navalsundhar,	Kirloskar
31.	Shri Asif Sumair, Mfg. Consulting (CTO),	TATA Consultancy Services
32.	Shri G.G Ray,	IIT Kharagapur
33.	Shri Partha Saha, Professor, Department of Mechanical Engineering	IIT Kharagpur
34.	Shri Manoj Kumar Tiwari,	IIT Kharagpur
35.	Shri S.K. Pal, Prof. Mechanical Engineering,	IIT Kharagpur
36.	Dr. Sunil Jha,	IIT, Delhi
37.	Prof. Pulak M. Pandey, Mechanical Engineering Department,	IIT Delhi
38.	Shri S.M. Ishtiaque, Professor,	IIT Delhi
39.	Shri B.K. Behera, Professor,	IIT Delhi
40.	Shri R.Rajendran,	Lakshmi Machine Works Ltd.
41.	Shri S.Rajasekaran,	Lakshmi Machine Works Ltd
42.	Shri C.V. Venkatesh,	Lakshmi Machine Works Ltd.



43.	Shri S.Krishnaswamy,	Lakshmi Machine Works Ltd.
44.	Shri K.H.Thulasi Raman,	IISC, Bangalore
45.	Shri J.E. Diwakar, Chief Research Scientist(Rtd), Centre for Product Design & Mfg.	IISC, Bangalore
46.	Shri Anurag Srivastava,	IISC
47.	Shri B. Gurumoorthy,	IISC
48.	Shri A. Chakrabarti,	IISC
49.	Shri Ajay Parikh,	WIPRO
50.	Shri Ravi K.R. Associate Professor,	PSG College of Technology Coimbatore
51.	Shri E. Sreedhar Kumar Sr. Manager,	PSG TIFAC CORE PSG College of Technology, Coimbatore
52.	Dinesh Vedpahale, Head Cluster Program,	ACMA, Pune
53.	Ms. Vinnie Mehta, DG,	ACMA, Pune
54.	Shri D. Sawhney,	AIA/Rockwell
55.	Shri Anup Wadhwa,	AIA
56.	Shri Manjunath G Bedre,	TAGMA
57.	Shri Dhirender Kapoor, Manager-Projects,	KORUS Engineering Solutions Pvt. Ltd
58.	Shri. H.G. Agarwal, Managing Director,	KORUS Engineering Solutions Pvt. Ltd
59.	Shri S.P. Sharma,	KORUS Engineering Solutions Pvt.Ltd.
60.	Shri S.K. Chetal,	KORUS Engineering Solutions Pvt.Ltd.
61.	Shri Manish K. Singh,	Chief Automation, TATA STEEL
62.	Shri Purnendu Sinha, Tech. Leader, IOT Analytic,	TATA SONS, GTIO