

**No.O-17034/51/2015-HFA-4/FTS-13252**  
Government of India  
Ministry of Housing & Urban Poverty Alleviation  
(HFA-IV Section)

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Room No. 323-C,  
Nirman Bhawan, New Delhi -110 108  
Dated: 15<sup>th</sup> February, 2016.

**MINUTES OF THE MEETING**

A copy of the minutes of the second meeting of the Technology Sub-mission on Sustainable Technological Solutions for Faster & Cost Effective Construction of Houses suiting to Geo-Climatic and Hazard Conditions of the country, held on 29.01.2016 under the Chairmanship of Joint Secretary (Housing) is enclosed, for information and necessary action.

**Encl: As above.**



(Rahul Mahna)

Under Secretary to Government of India  
Telefax: 011-23061285

To:

1. Shri Sudhir Kumar Jain, Director, IIT Gandhinagar, VGEC Complex, Chandkheda, Ahmedabad, Gujarat 382355.
2. Prof. C. V. R. Murty, Director, IIT, Jodhpur Old Residency Road, Ratanada, Jodhpur, Rajasthan 342011
3. Prof. Sudhir Mishra, Dept. of Civil Engineering, Indian Institute of Technology Kalyanpur, Kanpur-(U.P.-208016), Ph. 0512-2590131
4. Prof. A Meher Prasad, Head, deptt. Of Civil Engineering, Indian Institute of Technology Madras, Chennai, Tamilnadu. Pin - 600 036. Ph. 044-22574302, 22574260
5. Prof. Yogender Singh, Deptt. Of Earthquake Engineering, IIT Roorkee. Roorkee- Haridwar Highway, Roorkee, Uttarakhand 247667
6. Dr. Anil Sawhney, Associate Dean, RICS School of Built Environment, Block - F2, Fifth Floor, Amity University, Sector - 125, Noida 201313 (UP).
7. Shri. P R Mehta, Architects and Environment Planner, Design Action Group, 2/7 Julena Commercial Complex, Okhla Road, New Delhi 110025. Ph. 26912466, 26910496, FAX- 26914133,
8. Dr Rajiv Kumar Gupta, Principal Secretary (UD & Housing), Govt. of Gujarat, Block No, 14, 9<sup>th</sup> Floor, New Sachivalaya, Gandhinagar- 382010, 0674-2322524/2536903 (Office), 2524 (EPABX) 0674-2394984 (Fax),
9. Shri Shrikant Singh, Pr. Secretary (Housing), Government of Maharashtra, Madam Kama Road, Hutatma Rajguru Chowk,, Mumbai, Maharashtra 400032, Tel: 022-22023036, 22026419, Fax: 022-22025939, 22854573

10. Shri Shambhu Dayal Meena, Principal Secretary (Housing), Government of Karnataka, Room no. 213, Vidhana Soudha, Dr. Ambedkar Veedhi, Bangalore 560 001, Karnataka, Telefax: 080- 22034504/22256356, Fax: 22253718
11. Sh. Lav Agarwal, Secretary (Housing), Government of Andhra Pradesh, AP Secretariat, Room No. 210, South H-Block, Hyderabad- 500022. Andhra Pradesh. Tel: 040-23450365
12. Shri G Mathivathanan, Commissioner-Cum-Secretary(Housing & UD), Government of Odisha, 1<sup>st</sup> floor, State Secretariat, Annex- B, Bhubaneswar- 751001. Ph. - 0674-2536903
13. Sh. P.Raghavendra Rao, Addl. Chief Secretary to Govt., Haryana, Town & Country Planning and Urban Estates and Housing Department, Room No. 622, 6<sup>th</sup> Floor, Civil Secretariat, Sector-1, Chandigarh.- 160001, Ph. 0172-2714058.
14. Dr. K. Venugopala Rao, National Remote Sensing Centre (NRSC), Deptt. Of Space, Indian Space Research Organisation (ISRO), Balanagar, Hyderabad-500037, Tel: 040-23884001, Fax: 040-23877210,
15. Dr. Ajay Mathur, Director General, Bureau of Energy Efficiency , Ministry of Power, Govt. of India, 4th Floor, Sewa Bhawan, R. K. Puram, New Delhi - 110066, Fax: +91 11 26178316
16. Prof. Chetan Vaidya, Director, School of Planning and Architecture, New Delhi, School of Planning and Architecture , 4-Block-B, Indraprastha Estate, New Delhi 110002, Ph. +91 011 - 2370 2375 , 2370 2376, Fax. 011 - 2370 2383
17. Shri Rajesh Goel, Chairman & Managing Director, Hindustan Prefab Limited, Jangpura New Delhi-110014, Tel : 91-11-26340915
18. HUDCO
  - i) Dr. M. Ravi Kanth, CMD, HUDCO, IHC Building, Lodi Road, New Delhi-110003. Tel. No. 011-24693022, Fax. No.24697378.
  - ii) Dr. H.S. Gill, ED (HSMI), HUDCO, , IHC Building, Lodi Road, New Delhi-110003.
19. BMTPC
  - i) Dr. Shailesh Kumar Agrawal, ED, BMTPC, Core 5 -A, First Floor, India Habitat Centre, Lodi Road, New Delhi- 110 003.

Copy to:

1. PS to Secy (HUPA)
2. PS to JS (Housing)
3. PS to JS & FA
4. PS to JS (HFA)
5. PS to Dir (Housing)
6. PS to Dir (HFA-1)
7. PS to DS (HFA-4)
8. Team Leader, PMU

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(Rahul Mahna)

Under Secretary to Government of India  
Telefax: 011-23061285

**Minutes of the 2<sup>nd</sup> Committee Meeting of "Technology Sub-Mission under Housing for All" held on 29<sup>th</sup> January, 2016 at India Habitat Centre, Lodhi Road, New Delhi**

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The second meeting of the Technology Sub-Mission under Housing for All (HFA) Mission was held at 1030 hours on 29<sup>th</sup> January, 2016 at India Habitat Centre, New Delhi under the Chairmanship of Joint Secretary (Housing). The list of participants is at **Annexure –I** and the list of presentations made during the meeting is at **Annexure- II**.

2. The Chairman welcomed all the committee members and Special invitees to the meeting from the Bureau of Energy Efficiency (BEE), School of Planning and Architecture (SPA), New Delhi and the National Remote Sensing Centre (NRSC), Hyderabad. In his opening remarks, Chairman gave a brief introduction of the objectives of Technology Sub-Mission under the Pradhan Mantri Awas Yojana (PMAY) (Urban) Mission. It was informed that PMAY(Urban) mission has already moved forward with sanction of many projects from various States. While, the urban housing shortage was estimated in 2012 at 2 crores houses by the year 2022, the actual demand would be clearly known once the States complete the Demand Survey and prepare the Housing for All Plan of Action. The task, however, of building such a large number of houses is indeed a daunting one and a transformational approach will be needed when viewed from the perspective that from the earlier schemes only about 10 lakh houses were constructed in about ten years. As the scale of construction envisaged is so high, there is need to leverage new construction technologies, new techniques which will enable faster construction which are environment friendly and also suit local geo-climatic conditions. Such technologies also assume significance and would be crucial in helping India fulfill its targets under globally agreed Sustainable Development Goals(SDGs). They are also important from the overall strategy for mitigating the impact of climate change. Through the Technology Sub-mission, it is the intent of the Central Government to, both, steer this mandate as well as act as a facilitator for the State/UT Governments. As Housing is a state subject, the States/UTs will have to ultimately play the main role in adopting and implementing the new technologies to achieve the ambitious target under PMAY (Urban) mission. Chairman also spoke of the importance of Design and Planning solutions and its integration with the technological solutions. He also emphasized on the importance of energy efficiency and GIS/Geo tagging and that it needs to be considered by the Sub-mission as to how these technologies could be integrated into the implementation eco system of the PMAY(Urban) mission. It was in this context, Chairman mentioned that representatives from SPA, BEE and NRSC were specially invited to deliberate on these aspects. Similar to the role of BMTPC in anchoring the Technology part of the Sub-Mission, Human Settlement Management Institute (HSMI), under HUDCO, would coordinate the role of the design and planning activities. Chairman also drew attention of the group that the mission should also keep in mind the challenge of adaptability, acceptance and scaling up of use of such technologies and the key role the close interaction of Institution and State Governments would play. He requested States to take up special interest in this endeavor. After the opening remarks of the Chairman, the agenda was taken up for discussion.

3. Executive Director, BMTPC made a presentation on the ATR of the first meeting of the Technology Sub-mission held on 28<sup>th</sup> August 2015, giving an over view on the current status of the activities envisaged in that meeting. Specifically, on the issue of setting up of Regional hubs, the members were informed that while CSMC has approved setting up of the hubs and technical cells at these hubs, the location of these hubs along with the detailed listing of activities to be undertaken by the technical cells will be communicated after suggestions are received in this regard from the IITs. Members were informed that some IITs have expressed their willingness to be hubs.

4. Prof Sawhney, RICS School of Built Environment, Amity University, Noida, mentioned that they will also work with HSMI/HUDCO on a Design competition as envisaged in the ATR of the first meeting of the Sub-mission.

5. Sh. Sanjay Seth, Secretary and Energy Economist, Bureau of Energy Efficiency, in his presentation gave an overview of the activities of the BEE. He informed that a Energy Conservation Building Code (ECBC) has been developed by BEE which has been harmonized with National Buildings Code (NBC) and lays down minimum standards to be adhered to while undertaking house construction. While, States and Urban Local Bodies have to be compliant with the ECBC, the State governments can modify provisions of the Code to reasonable extent, to suit local requirements. It was also emphasized that improved thermal comfort is the key in housing while passive features need to be included at the time of design. Guidelines on multi-storey buildings is also available on BEE website. Representative of NRSC/ISRO indicated that work of similar nature has been done by NRSC delineating eco-zones and suggested that a check list of parameters related to energy efficiency could be prepared by BEE which could be considered for incorporation in MIS /geo tagging database of the PMAY (Urban) mission . Chairman requested BEE to forward the checklist to the Ministry and also a comprehensive note on energy efficiency related aspects with reference to affordable mass housing not only in the context of the PMAY (Urban) mission but also on the housing sector as a whole, to be separately discussed with the Ministry. Chairman also indicated that the State level cells set up by BEE is also an area that could be discussed with the Ministry of HUPA to consider points of synergy. Representatives of the states were requested to take it up with their counterparts in the States dealing with these issues.

6. Shri P.R. Mehta, Member, spoke on the need for a clear procurement policy and specifications on how to prepare estimates. SoRs needed to be developed for new technologies for which agencies like NBCC, HPL may host these technologies through their projects which may not necessarily be affordable housing projects. He emphasized the acceptability of new technologies amongst EWS category will also increase through these initiatives.

7. Representative of Municipal Corporation Faridabad, Haryana informed that a building is planned to be constructed on a plot of two acres in Faridabad for which he sought assistance/expertise in the use of new technologies. Chairman advised that HPL and IIT Roorkee may take it as a potential case study for which both institutions agreed in principle. It was also stated by the representative of IIT, Kanpur that they

have come up with a Confined masonry technology for construction which has been used by IIT, Gandhinagar for constructing buildings of their institute.

8. Prof. A.K. Sawhney, RICS Amity University, Noida made a presentation on the web-based Knowledge Portal being developed in association with BMTPC for effective knowledge sharing by various stakeholders. The portal is designed to act as a facilitator between knowledge providers viz. experts, manufacturers and organisations and end users viz. general contractors, individuals and developers. The architecture of the portal is expected to be ready in the next three months. The need for ensuring wide publicity for the portal for the benefit of the end users as well as all stakeholders, was also emphasised. Representative of NRSC suggested that linkage of geo spatial portal with knowledge portal may be explored.

9. Dr. K Venugopal Rao, Group Head, NRSC informed that NRSC has completed a building project at Shadnagar with platinum rating for using green technologies for energy efficiency and agreed to circulate documents for the same.

10. Representative of IIT Kanpur made a presentation on the status of the project entrusted to them under the Sub-mission for "Development of draft protocol for testing of structural components and systems for use in schemes under Housing for All". He informed that a task force has been envisaged with faculty from IIT, Kanpur, IIT, Delhi, IIT, Guwahati and IIT, Patna. As per the schedule, study of relevant test standards and work for structural testing protocols has started. Prof. Meher Prasad, IIT, Madras suggested that the protocol document, apart from the conventional structural parameters should also include other parameters such as fire rating, durability aspects, abrasion, energy efficiency, water proofing, jointing details etc. in a comprehensive manner. Prof. V.K. Paul, SPA, Delhi was of the view that for testing of new technologies, there are already protocols for pre-testing or in situ tests which could be completed before hand. Those where field tests are required could be listed out separately. Chairman suggested that various institutes may provide necessary feedback and suggestions and share the available information with IIT, Kanpur for this project. ED, BMTPC may facilitate this exercise.

11. Sh. R.S. Singh, Director, Ministry of HUPA made a presentation on Design and Planning aspects for Planning and Architecture Institutes. The role of these institutes as envisaged in PMAY (Urban) was outlined. Chairman mentioned that HSMI will coordinate with these institutes with regard to planning and design aspects during the Mission period. Prof. V.K. Paul mentioned the constraints due to limitation of 30 sq mt area for EWS housing since number of persons in a given area increases resulting in increased load in terms of infrastructure design, fire requirements.

12. Shri P.R Mehta emphasized on the need for protocol on method of construction and eligibility criteria for selection of materials. He was of the view that there should be unique design for each project and landscaping should be necessarily be included in the project.

13. Representative of Haryana insisted on self certification of plans by architects due to shortage of staff in ULBs and also emphasized on training of the architects. He also advocated internships for students to work in ULBs should be included in the curriculum of planning and architectural studies.

14. Prof. Meher Prasad emphasized that considering the scale of housing envisaged in PMAY (Urban) mission, there is need for adoption of modular design and standardization. A brief presentation on the proposed Centre for Urbanization, Building and the Environment (CUBE) in association with State Governments was made by Prof. Meher Prasad. The Centre focuses both, on technology as well as integration aspects but work of routine nature is not envisaged. Also, the efforts of IIT as regards GFRG technology were discussed. IIT, Madras also assured the representative of the Tamil Nadu Slum Clearance Board for providing their expertise in undertaking at least one project using GFRG technology under PMAY (Urban) for which Central release has been sanctioned recently as suggested by the Chairman.

15. NRSC apprised about geo tagging and made a brief presentation on the status of the activities envisaged under the MoU signed with the Ministry. It was discussed that master trainers may be trained in the States on geo tagging. On a request from Tamil Nadu representative, it was decided that a training of trainers programme may be scheduled by NRSC in Hyderabad, during February, 2016 covering southern States for a start. A slot will also be included to explain the MIS being developed for the PMAY (Urban) mission by the Ministry of HUPA. Dr. Y. Singh of IIT, Roorkee, desired that some attributes regarding disaster risk assessment may also be captured in the geo tagging exercise as this will help in undertaking risk assessment in future. It was agreed by NRSC and IIT, Roorkee, volunteered to provide the list of those attributes. ED, BMTPC would facilitate this.

16. ED BMTPC, elaborated on the expectations from the States/UTs under the PMAY (Urban) mission as this was crucial if the activities are to take a concrete shape. The need for States to bring policy level intervention so as to adopt new technologies, creating an enabling eco-system for mainstreaming these technologies like inclusion of technologies by the State Governments in their specifications, creating capacities at State level which may include engineers, architects skilled work force, contractors, training etc, was emphasized. It was also suggested that States/UTs should actively interact with technology providers for adoption of technologies in the States.

17. Summing up, Chairman outlined the following issues for follow-up:

(i) on the issue of setting up of Regional hubs, Ministry will be communicating the location and the institutions that will form the hub;

(ii) RICS mentioned that they will also work with HSMI/HUDCO on a Design competition as envisaged in the ATR of the first meeting of the Sub-mission. ED, HSMI to initiate further action.

(iii) As suggested by the representative of NRSC during the meeting, a suitable simplified check list of parameters related to energy efficiency could be prepared by

BEE which could be considered for incorporation in the MIS database of the PMAY (Urban) mission;

(iv) BEE may also forward a comprehensive note on energy efficiency related aspects with reference to affordable mass housing not only in the context of the PMAY (Urban) mission but also on the housing sector as a whole, for a separate discussion with the Ministry. The State level cells set up by BEE for monitoring compliance with ECBC is also an area that could be discussed with the Ministry of HUPA to consider possible areas of synergy;

(v) the representative of the Municipal Corporation Faridabad, Haryana, may coordinate with HPL and IIT Roorkee for their assistance/expertise in the use of new technologies for the proposed building of MCF in Faridabad. BMTPC may facilitate the coordination;

(vi) the knowledge portal being developed by BMTPC in partnership with RICS to be expedited and wide publicity to be given. It's linkage with the geo spatial portal of NRSC may also be explored;

(vii) BMTPC and HSMI to seek the views of the Technical and Planning institutions with regard to the suggestion for including internship with the ULBs/city governments, in the curriculum of studies at graduate/Post graduate level;

(viii) HSMI will coordinate with the Planning and Architecture Institutes with regard to planning and design aspects during the Mission period of PMAY(Urban);.

(ix) Tamil Nadu Slum Clearance Board will coordinate with IIT, Madras for undertaking at least one project under PMAY (Urban) for which Central release has been sanctioned recently, using GFRG technology;

(x) the training of trainers programme may be scheduled by NRSC in Hyderabad, in February, 2016 covering the southern States. A slot will also be included to explain the MIS being developed for the PMAY (Urban) mission by the Ministry of HUPA;

(xi) IIT, Roorkee, to provide the attributes regarding disaster risk assessment to NRSC to be captured in the geo tagging exercise as this will help in undertaking risk assessment in future.

18. In his concluding remarks, Chairman stressed the need of establishing linkages between States and IITs/ NITs for Design, Implementation, Monitoring and Evaluation (DIME) which is very important for the success of the Technology Sub-Mission. There should be synergy between States and professional institutes i.e. IITs and NITs and other technical institutions. It was also reiterated that States/UTs should pro-actively approach IITs and NITs and seek solutions regarding adoption of appropriate materials and technologies which can help in building quality, sustainable houses in quicker time. ED, BMTPC should take urgent steps to start the 'open house' as contemplated, to have close and periodical interaction.

19. During the meeting, two MoUs i.e. one with IIT Madras and other one with IIT Roorkee were finalised. The other IITs present i.e. IIT Kanpur, IIT, Gandhinagar were requested to sign the MoU at the earliest.

The meeting ended with a vote of thanks to the Chairman, Members, Special invitees by Deputy Secretary, Ministry of HUPA.

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**List of Participants**

1. Shri Rajiv Ranjan Mishra, Joint Secretary (Housing), MoHUPA - **Chairman**
2. Prof A. Meher Prasad, Head- Civil Engineering, IIT, Chennai
3. Prof Yogendra Singh, Department of Earthquake Engineering, IIT Roorkee
4. Dr Anil Sawhney, Dean, RICS School of Built Environment, Amity University, Noida
5. Shri P.R. Mehta, Architect & Environment Planner, Design Action Group, New Delhi
6. Prof. Pranab Mohapatra, IIT Gandhinagar
7. Shri. K.K. Bajpai, Principal Scientific Officer, IIT Kanpur
8. Prof. S.P. Bhattacharya, IIT Kharagpur
9. Shri. A.K. Patel, Project Specialist & CE, AHM, Government of Gujarat
10. Shri. Rajendra Parmar, Project Engineer Specialist, AHM, Government of Gujarat
11. Shri. Kabul Singh, CE- Housing Board, Government of Haryana
12. Shri. N.K. Sahu, Housing Board, Government of Haryana
13. Shri. Ajit S. Bankar, Mission Director (HFA), Government of Maharashtra
14. Shri. S.S. Sadhwani, Dy. CE, MHADA, Mumbai
15. Shri. R. Palaniswamy, MD (HFA), Tamil Nadu Slum Clearance Board
16. Dr. P.G. Diwakar, Deputy Director, National Remote Sensing Centre, Hyderabad
17. Dr. K. Venugopal Rao, Group Head, National Remote Sensing Centre, Hyderabad
18. Shri. Sanjay Seth, Secretary, Bureau of Energy Efficiency
19. Prof. V.K. Paul, School of Planning and Architecture, New Delhi
20. Dr. Shailesh Kr. Agrawal, Executive Director, BMTPC, New Delhi - **Member Secretary**
21. Shri. R. S. Singh, Director, MoHUPA
22. Shri Shashi Valiathan, Deputy Secretary, MoHUPA
23. Shri Rahul Mahna, US (HFA-4), MoHUPA
24. Dr H S Gill. Executive Director, HSMI, New Delhi
25. Shri Rajesh Goel, CMD, HPL, New Delhi
26. Shri. S. K. Padhi, DGM, NHB, New Delhi
27. Ms. Usha P. Mahavir, GM (Project), HUDCO, New Delhi
28. Shri Pankaj Gupta, Deputy Chief, BMTPC, New Delhi
29. Shri Arup Khan, Team Leader-PMU cell, MoHUPA
30. Mr. Akash Mathur, Development Officer, BMTPC
31. Ms. Shikha Chopra- PMU cell, MoHUPA
32. Mr. Arekh-PMU cell, MoHUPA
33. Mr. Krupal-PMU cell, MoHUPA
34. Ms. Ankita Takkar, PMU cell, MoHUPA

## Annexure-II

### The following presentations were made during the meeting:

- 1) Presentation by Shri Sanjay Seth, Secretary, BEE on energy efficiency
- 2) Presentation by ED, BMTPC on ATR of first meeting held on 28.08.2015.
- 3) Presentation by Prof Mehar Prasad, IIT, Madras on CUBE
- 4) Presentation by IIT, Kanpur on the status of progress of the project on developing draft protocol.
- 5) Presentation by NRSC on geo tagging.
- 6) Presentation by Director, HFA-I, M/HUPA on role planning and architecture institutes in PMAY(Urban).