

Annual Report 2013-2014



bmtpc

**Building Materials and Technology Promotion Council
Ministry of Housing & Urban Poverty Alleviation
Government of India**

Annual Report 2013-2014



Building Materials & Technology Promotion Council

Ministry of Housing & Urban Poverty Alleviation, Govt. of India
Core -5A, First Floor, India Habitat Centre, Lodhi Road
New Delhi 110003

FOREWORD

It is my pleasant duty and honour to present the Twenty-fourth Annual Report of the Building Materials & Technology Promotion Council for the year 2013-2014.

BMTPC is mandated to work towards promotion of cost effective, eco-friendly, energy-efficient building materials including disaster resistant construction practices, primarily based on locally available materials and local skills, since its inception in 1990. In the journey of more than 2 decades, BMTPC can boast of successfully transferring number of alternate building materials and technologies from laboratory development to their field level applications. Also, in the fast paced change in demographic scenario and housing shortage specially in urban areas, BMTPC, off-late, has made concerted and rejuvenated efforts for spreading awareness and disseminating cost effective technologies at large scale. A number of public and private agencies have shown interest and using these technologies in their projects for mass housing. A few examples are DSIIDC, Delhi, Kudumbashree, Kerala, RGRHCL, Karnataka.

One of the important component of technology transfer is demonstration construction using alternative materials and technologies. BMTPC since beginning has been instrumental in constructing model demonstration houses in different parts of the country. In the erstwhile Vambay Scheme, BMTPC displayed different materials and technologies by constructing houses at Nagpur, Dehradun, Trichi, Bangalore, Bilaspur, etc. During recent years, BMTPC has constructed demonstration houses in Amethi (UP) and Pinjore (Haryana), Community Centre at Ambala (Haryana), informal Market at Vishakhapatnam (Andhra Pradesh) and Bamboo houses and structures in North Eastern Region. Recently, a demonstration housing project with the aim to propagate the alternate building materials and technologies, has also been completed at Barwaripur, Rae Bareli (U.P.). These demonstration projects stand a testimony of cost effectiveness and applicability of the technologies being promoted by BMTPC.

Apart from home-grown technologies and materials, the Council has embarked upon bringing prospective construction system, which are successful elsewhere in the world, so as to bring economy, quality, environmental protection and speed in housing construction. In this direction, BMTPC earlier invited Global Expression of Interest (EOI) from construction system/technology developers/providers for introducing emerging and alternate cost effective housing technologies suitable to Indian geo-climatic and hazard conditions. Through Technology Advisory Group (TAG), BMTPC approved four emerging technologies so far. Further, five emerging technologies have been awarded certificate under the Performance Appraisal Certification Scheme (PACS) of BMTPC. During the year, four more emerging technologies have applied for plausible issuance of PAC. The efforts are being made to include these emerging technologies in Schedule of Rates of CPWD and State PWD and to spread awareness amongst States and other construction agencies about these emerging systems.

The Council through its multi-pronged approach within its core mandate of promotion, development and application of innovative and disaster resistant building technologies continued its involvement in the implementation of Rajiv Awas Yojana (RAY) by way of appraising and monitoring the projects in addition to ongoing BSUP and IHSDP schemes under JNNURM. The Council has also been involved in handholding of ULBs consultant in the area of project preparation, appraisal & monitoring and quality assurance & control. Third Party Inspection & Monitoring (TPIM) reports for BSUP and IHSDP under JNNURM are also being reviewed by BMTPC for subsequent releases. Besides, the Council has also been designated as one of the Appraisal Agency for 10% Lump-sum Provision for NER States including Sikkim.

The Council is also striving to establish the proactive approach towards disaster mitigation and management and has been in the forefront in educating professionals and creating mass awareness amongst various stakeholders including common man. The National Disaster Management Authority (NDMA) has entrusted BMTPC for the development of updated Earthquake Hazard Zoning Maps upto district level based on IS1893-2002. In order to provide training to trainers in earthquake resistant design and construction, the Council has joined hands with Bihar Institute of Public Administration & Rural Development (BIPARD), Bihar State Disaster Management Authority (BSDMA), Government of Bihar. Under the programme, a series of training programmes are being organized for the engineers and architects of Government of Bihar. Besides, the Council has brought out a publication entitled

“Methodology for Documenting Seismic Safety of Housing Typologies in India” during the year. This document describes housing sub-typologies practiced in seven locations in moderate to severe seismic zones in India.

In order to provide guidance to common man and professionals, the Council has published booklet on Criteria for Production Control of Ready Mix Concrete for RMC Capability Certification under Ready Mix Concrete (RMC) Plant Certification Scheme (QCI), booklet on Performance Appraisal Certification Scheme - A Tool to Propagate Innovative and New Building Materials & Technologies, brochures on Major Activities in Pursuit, Propagation of Cost Effective and Disaster Resistant Technologies through Demonstration Construction and Disaster Mitigation and Management – Initiatives by BMTPC. The website of the Council is being updated regularly for inclusion of latest activities and information. There is good response on website in the form of general enquiry about product and services.

The Council also participated in the HUDCO BuildTech 2013 and put up exhibition on Alternate and Emerging Building Materials and Construction Systems during India International Trade Fair from 14-27 November, 2013 at Pragati Maidan, New Delhi by construction of demonstration house to showcase cost-effective and alternate technologies. BMTPC exhibition also included participation by thirteen technology providers/ companies in the area of emerging housing technologies by putting up their display within the BMTPC area. Like preceding years, on the occasion of World Habitat Day 2013, the Council brought out the Special Issue of “Nirman Sarika” on the theme "Urban Mobility" chosen by the UN-Habitat for the year and organized a painting competition for Differently Abled Children and the winners were felicitated during the World Habitat Day celebrations.

With varying geo-climatic conditions hazard scenario and availability of building materials, it is required to develop regions specific Standard & Specification of dwelling units with different alternate technologies, which may serve as useful guidelines for designers while planning the dwelling units. BMTPC initiated the exercise, in consultation with State Governments to develop such guidelines. In the area of skill development, the Council continued its efforts to provide training to the professionals and artisans for the use of alternate building materials and disaster resistant technologies. With a focus on development and promotion of innovative building technologies, specific R&D projects have also been initiated such as development of Technology for Precast Concrete Column for Low Cost Housing and Development of HuMotor.

It is my privilege to place on record the valuable guidance, support and encouragement received from the President and Members of the Board of Management, the Chairman and Members of the Executive Committee and Ministry of Housing & Urban Poverty Alleviation for various programmes undertaken and executed by the Council. BMTPC is grateful to Planning Commission, Parliamentary Standing Committee on Urban Development, JNNURM & RAY Mission Directorate, MoHUPA, various State Govts., Municipal Corporations and Urban Local Bodies, Ministry of Home Affairs, Ministry of DONER, NDMA, NIDM, MOS&PI, DST, CSIR, IITs, CEPT, IPIRTI, CBRI, SERC, ICI, IHRD, SEP, SPA, HUDCO, BIS, NHB, NCHF, HPL, CGEWHO, CPWD, NSIC, CIDC, BIPARD, UNDP, UNIDO and UN-Habitat for their continued support and interest in strengthening and supporting the efforts of the Council over successive years.

I would also like to place on record my deep appreciation for the cooperation of officers of BMTPC and its staff members for timely implementation of the Council's activities. The Council acknowledges the support and cooperation received from all officers and staff members of the Ministry of Housing & Urban Poverty Alleviation, which helped the Council to meet its mandate and further its objectives.

(Dr. Shailesh Kr. Agrawal)
Executive Director

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Vision

“BMTPC to be world class knowledge and demonstration hub for providing solutions to all with special focus on common man in the area of sustainable building materials, appropriate construction technologies & systems including disaster resistant construction.”

Mission

“To work towards a comprehensive and integrated approach for promotion and transfer of potential, cost-effective, environment-friendly, disaster resistant building materials and technologies including locally available materials from lab to land for sustainable development of housing.”

INTRODUCTION

The Building Materials & Technology Promotion Council (BMTPC), registered as Society in 1990, is an organisation fully supported by the Ministry of Housing & Urban Poverty Alleviation, Govt. of India with the objective of bridging gap between the laboratory development and large scale field application of cost effective, environment-friendly and energy efficient building materials and housing technologies including disaster resistant construction practices.

To meet various objectives enshrined within the mandate of the BMTPC, the Council initiated several multi-faceted activities so as to create enabling environment for sustainable building construction. Over the years, the Council has been striving for the successful transfer of the innovative, cost-effective, environment-friendly and energy-efficient alternate building materials and technologies at grass-root level. The Council also initiated the field level application of these materials and technologies through demonstration construction of model houses and other structures such as informal markets, community centre, etc. in different parts of India. In its technology development, promotion and dissemination efforts, the Council developed various technologies for use in housing and building construction including bamboo based housing solutions.

The Council also constructed demonstration structures in the North Eastern Region and helped in setting up Bamboo Mat Production Centres to make available the bamboo mats for the production of bamboo mat related products such as corrugated sheets, bamboo boards, etc. leading to employment generation. Apart from bringing out the first ever Vulnerability Atlas of India in 1997 and 2006, the Council regularly publishes valuable guidelines/manuals on disaster resistant construction. In order to create awareness regarding seismic retrofitting, the Council has undertaken retrofitting of few MCD schools in Delhi. The Council has also been designated as one of the Appraisal and Monitoring Agencies for Projects under BSUP and IHSDP under the Rajiv Awas Yojana (RAY) and Jawaharlal Nehru National Urban Renewal Mission (JNNURM) which are mission mode programmes of Ministry of Housing & Urban Poverty Alleviation. The Council in recent years has reoriented its approach towards promotion of not only sustainable technologies through intensive evaluation, dissemination but also looking at emerging prefabricated housing technologies from abroad for social mass housing.

Objectives

- **Building Materials & Construction Technologies :** To promote development, standardization, mechanization and large scale field application of proven innovative and emerging building materials and technologies in the construction sector.
- **Capacity Building and Skill Development:** To work as a Training Resource Centre for capacity building and promotion of good construction practices to professionals, construction agencies, artisans and marketing of building technologies from lab to land.
- **Disaster Mitigation & Management :** To promote methodologies and technologies for natural disaster mitigation, vulnerability & risk reduction and retrofitting/reconstruction of buildings and disaster resistant planning for human settlements.
- **Project Management & Consultancy:** To undertake project management and consultancy services including appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes.

Thrust Areas

- Identification, evaluation of proven and emerging technologies available globally and encouraging joint venture in building materials and construction sector.
- Promoting economy, efficiency and quality in construction.
- Up scaling of technologies, know-how acquisition, absorption and dissemination.
- Field level application of environment-friendly, energy-efficient and disaster resistant technologies for proven, locally available and emerging technologies.
- Formulation of Standards on proven building materials/technologies including emerging technologies/systems and incorporation in the schedule of specifications/rates.
- Formulation of Standards/Specifications for Affordable Housing.
- Documentation of benefits, durability and acceptability of cost effective and innovative building materials and technologies.
- Skill upgradation of professionals and construction workers through capacity building programmes, training programmes, seminars, conferences, workshops, exhibitions nationally as well as internationally.
- Promoting disaster resistant construction technologies.
- Appraisal, monitoring and third party inspection of housing projects including undertaking project management and consultancy services.
- Publication of user manuals, guidelines, compendiums, directories, brochures, techno-feasibility reports, video films, demonstration CDs, interactive website, blogs including documentation of success stories.

Administration and Management

As regards its working, BMTPC follows three-tier system:

- i. Board of Management headed by Hon'ble Minister of Housing & Urban Poverty Alleviation
- ii. Executive Committee headed by Secretary, HUPA
- iii. Executive Director

The Board of Management of the Council consists of 14 Members from Ministry of Housing & Urban Poverty Alleviation, Planning Commission, Ministry of Science & Technology, Ministry of Micro, Small & Medium Enterprises, Ministry for the Development of North Eastern Region, National Disaster Management Authority, Council of Scientific & Industrial Research, Central Public Works Department (CPWD) and Housing & Urban Development Corporation (HUDCO).

The Executive Committee consists of 10 Members from Ministry of Housing & Urban Poverty Alleviation, Planning Commission, Housing & Urban Development Corporation (HUDCO), Central Building Research Institute (CBRI) and Technical Experts.

Board of Management

S.No.	Members	
1	Shri. M. Venkaiah Naidu Hon'ble Minister of Housing & Urban Poverty Alleviation, Urban Development and Parliamentary Affairs, Government of India	President
2	Ms. Anita Agnihotri Secretary Ministry of Housing & Urban Poverty Alleviation, Government of India	Vice-President
3	Senior Advisor (HUD) Planning Commission Government of India	Member
4	Prof. K.Vijay Raghvan Secretary, Ministry of Science & Technology Government of India	Member
5	Shri Madhav Lal Secretary, Ministry of Micro, Small & Medium Enterprises, Government of India	Member
6	Shri R.Vijay Kumar Secretary, Ministry for the Development of North Eastern Region, Government of India	Member
7	Secretary National Disaster Management Authority, Government of India	Member
8	Shri P.S.Ahuja Director General Council of Scientific & Industrial Research	Member

S.No.	Members	
9	Shri Divakar Garg Director General Central Public Works Department	Member
10	Dr. M. Ravi Kanth Chairman & Managing Director, Housing & Urban Development Corporation	Member
11	Shri Harish Kumar Arora D 6&7, Lajpat Nagar-III New Delhi-110024	Expert Member
12	Shri K. B. S. Sidhu Joint Secretary (Housing) Ministry of Housing & Urban Poverty Alleviation, Government of India	Member
13	Ms. Jhanja Tripathy Joint Secretary & FA, Ministry of Housing & Urban Poverty Alleviation, Government of India	Member
14	Dr. Shailesh Kr. Agrawal Executive Director, Building Materials & Technology Promotion Council	Member - Secretary

Executive Committee

S.No.	Members	
1	Ms. Anita Agnihotri Secretary, Ministry of Housing & Urban Poverty Alleviation, Government of India	Chairperson
2	Shri K. B. S. Sidhu Joint Secretary (Housing) Ministry of Housing & Urban Poverty Alleviation, Government of India	Member
3	Ms. Jhanja Tripathy Joint Secretary & FA, Ministry of Housing & Urban Poverty Alleviation, Government of India	Member
4	Shri. Sanjeev Kumar Joint Secretary (JNNURM) Ministry of Housing & Urban Poverty Alleviation, Government of India	Member
5	Senior Advisor (HUD) Planning Commission Government of India	Member
6.	Dr. M. Ravi Kanth Chairman & Managing Director, Housing & Urban Development Corporation	Member
7	Prof. S. K. Bhattacharyya Director, Central Building Research Institute Roorkee	Member
8	Prof. A. S. Arya Professor Emeritus and Former National Seismic Advisor, Ministry of Home Affairs	Member
9	Shri. Kuldeep Singh Channa C-119/ D/S Ramesh Nagar, New Delhi-110015	Co-opted Member
10	Dr. Shailesh Kr. Agrawal Executive Director, Building Materials & Technology Promotion Council	Member - Secretary

MAJOR INITIATIVES AND ACTIVITIES DURING THE YEAR 2013-2014

I. DEMONSTRATION BUILDINGS USING COST-EFFECTIVE TECHNOLOGIES

1. Field level application of cost effective technologies through Demonstration Housing Projects

To showcase alternate building materials and cost effective construction technologies besides dissemination at local level, BMTPC on regular basis constructs demonstration houses and structures using cost-effective and disaster resistant technologies on the land being provided by the State Governments. Also during construction, the public of nearby region, students of Civil Engineering and Architectural colleges and artisans especially masons are sensitized/trained about the alternate materials and technologies.

Demonstration Housing Project at Barwaripur, Rae Bareli, Uttar Pradesh

The Council completed Demonstration Houses at Barwaripur, Rae Bareli using alternate technologies at the land provided by the local administration. In this Project, construction of 24 dwelling units (G+1) alongwith onsite infrastructure development were undertaken having each unit with plinth area of 32 sqm consisting of one living room, one bedroom, kitchen, one separate bath and WC with infrastructure facilities. The Demonstration Housing Project includes onsite infrastructure facilities like Pathways, Underground water tank, Boundary wall, Landscapping work, Biodigester toilets, etc. The Demonstration Housing Project was handed over to the local administration in February, 2014. The cost of construction for the project was Rs.840 per sqft. which is 10-15% less than the prevailing cost of conventional construction in the area.

The Technologies and Specifications of the demonstration housing project are as under:

Walling

- Burnt Clay bricks in Rat Trap Bond in place of conventional English/Flemish bond to achieve energy efficiency, cost effectiveness etc.

Roof/Floor

- Reinforced Brick Concrete Slab for ground floor roof
- Filler slab with Earthen Pots for slope roofing
- Mangalore tile cladding on sloping roof.
- IPS flooring



**Demonstration Housing Project using Cost-Effective Technologies
at Barwaripur, Rae Bareilly, UP constructed by BMTPC**



**Demonstration House constructed by BMTPC to demonstrate various alternate
housing technologies during the India International Trade Fair at Pragati Maidan, New
Delhi from 14-27 November, 2013**

Doors/Windows

- Pre-cast RCC door frames in place of wooden frames to achieve cost effectiveness.
- Window frames in steel sections
- Wood Substitute Flush shutters for doors
- Glazed shutters for windows

Finishing

- Exposed brick finish on external surface with pointing
- Internal plastering
- Oil bound distemper on Internal surface
- Exterior walls with water proofing cement paint
- Enamel paint on doors/windows
- Ceramic tiles in toilet and bath room
- Electrical and sanitary work

Others

- Biodigester toilets
- Pathways with concrete pavers
- Ferrocement staircases & sunshades

During the course of construction, at the site of demonstration housing project, two Training Programmes were organised for Masons and a Training Programme for prospective engineers wherein 70 civil engineering students from KNIT Sultanpur were provided hands-on training on Alternate and Cost Effective Housing Technologies.

Promotion of Cost-effective Technologies through Construction of Demonstration House during the IITF 2013

To disseminate the cost effective, alternate and disaster resistant technologies for general public, BMTPC constructed a demonstration house for display at HUDCO BuidTech 2013 during India International Trade Fair at Pragati Maidan from 14-27 November, 2013. The Demonstration Unit having plinth area of 33.15 sqm. consisted of two habitable rooms, kitchen, combined bath & toilet and front and rear court yard.

The Specifications of the house constructed for demonstration are given hereunder:

Space Norms:

- Plinth Area of 33.15 Sqm. and Carpet area of 25.40 Sqm.
- Two Habitable Independent Rooms
- Kitchen
- Combined Bath & Toilet
- Front and Rear Court Yard

Building Materials/Construction Technologies:

Masonry:

- Fly ash Bricks in 1:4 Cement Coarse sand mortar, in Rat-Trap Bond
- Clay Bricks in 1:4 Cement Coarse sand mortar, in Rat-Trap Bond
- Cellular Light-weight Concrete Blocks
- Hollow Concrete Blocks
- Fly Ash Interlocking Blocks

Roofing:

- RB slab with Bricks
- Filler slab with earthen Pots and Bricks
- MCR Tile Roofing
- Precast RC Planks and Joists
- Bamboo Mat Corrugated Roofing Sheets

Openings:

- Arch opening
- RCC Door Frames
- Z section glazed window
- Brick Corbelling
- Bamboo mat door
- Ferro cement Shelves, Sunshades, Kitchen Slab

Flooring:

- Precast concrete tile flooring
- Ceramic tile flooring
- Precast Pavers Tile

Finishing:

- Cement Pointing

Earthquake/Cyclone Resistant Features:

- RCC Plinth Bands, Lintel Bands, Roof Band and Vertical Steel Reinforcement at corners & Junctions
- Cement Coarse Sand Mortar of 1:4
- Designed as per NBC, BIS Specifications

Sustainability:

- Thermal efficiency due to cavity in Rat-Trap Bond Masonry
- Reduction in bricks and mortar quantity due to Cavity in Masonry
- Concrete quantity reduces due to Filler slab, without compromising structural Strength
- RCC Door/Window Frames reduces demand for Timber/Steel
- Brick Jallies eliminates requirements of windows frames and shutters
- Ferro Cement shelves reduces Stone/RCC slab
- No Plastering is required
- Locally available building materials may be used as per availability and Costing,
- Locally available materials are low Embodied Energy materials
- Embodied Energy of the house can be decreased by about 30 % without increase in Cost

Costing:

- Cost is dependent on geographical area, volume/scale of work and time, however cost of construction with these technologies is about 10% - 15% less than the cost as per standard specifications of CPWD/ States PWDs / Housing Boards / Development Authority's
- No Complicated construction Techniques
- No Proprietary Items of works as all are covered in BIS.

II. DISASTER MITIGATION - REPAIR, RECONSTRUCTION AND RETROFITTING

1. Preparation of Updated Earthquake Hazard Zoning Maps and Atlases

Looking at the overall importance of seismic hazard in Indian context and associated risks involved, the National Disaster Management Authority (NDMA), Government of India entrusted BMTPC the task of preparing updated earthquake hazard maps up to district level incorporating latest data as available from Survey of India, Census and Geological Survey of India, India Metrological Department etc. based on Seismic Zoning Map of India as per 1893-2002.

The Council completed preparation of updated Earthquake Hazard Zoning Map for the whole country upto district level based on the Survey of India administrative boundary data. Subsequently, it was desired by NDMA that boundary data of sub-division (blocks) to be taken from Census of India Atlas 2011. The NDMA has approached Census for providing data. The data from Census is awaited. As soon as the data regarding sub-district level is available from the Census, it will be incorporated and maps will be redeveloped.

2. Training of Trainers (TOT) Programme on Earthquake Resistant Design & Construction for State Engineers and Architects

The Bihar Institute of Public Administration and Rural Development (BIPARD), Government of Bihar at the behest of the Bihar State Disaster Management Authority requested BMTPC's assistance in conducting Training of Trainers (TOTs) on Earthquake Resistant Design and Construction. In order to impart training, standardised Resource material for Training of Engineers and Architects in earthquake resistant design and construction was prepared in association with Deptt. of Earthquake Engineering, IIT Roorkee in form of a book entitled "Design & Construction of Earthquake Resistant Structures : A Practical Treatise for Engineers & Architects". The series of



Training of Trainers (TOT) Programme on Earthquake Resistant Design & Construction for Engineers and Architects of Bihar State Government organised by BMTPC on May 7-10, 2013 at Patna



Training of Trainers (TOTs) Programme was kick-started by organisation of Sensitization Programme on “Earthquake Resistant Design and Construction” jointly with IIT Roorkee in January, 2013 at Patna.

So far seven batches of the TOTs have been organized at Patna as per request from BIPARD. The resource persons were from IIT Roorkee, IIT Mumbai, NIT Patna, BMTPC including other experts in the field. At the end of training of each batch, evaluation of trainees was done through examination.

3. Development of Methodology for Documenting Seismic Safety of Housing Typologies in India

Nearly 60 percent of the land area (about 66 percent of population) in India is vulnerable to earthquake intensities ranging from moderate to severe. Varying geo-climatic conditions, predominance of certain building materials in a region, living habits of people and hazard scenario influence the typology, basic material and construction technologies of houses in that region.

These traditional safer practices are being ignored with the influence of modern construction materials, technologies and practices. Much of the construction taking place in moderate to severe earthquake zones incorporates neither the seismic resistant features of traditional construction, nor the salient features of modern engineering. Earthquakes in recent past have exposed the vulnerability of the existing buildings in the country. Collapse of building during earthquakes is the main cause of human losses, therefore, it is important to follow proactive pre-disaster mitigation and planning approach. For any disaster mitigation planning, it is important to understand the technologies that are existing for building construction in severe earthquake zones of the country, to assess their vulnerability to future earthquake events and identify simple means of strengthening these type of buildings.

BMTPC, in association with Prof.C.V.R.Murty (IIT Madras) and his team comprising of experts in the field earlier took the initiative of undertaking a Pilot Study of different typologies of houses and their safety against future earthquakes in the severe to moderate earthquake zones of Uttarakhand, West Bengal, Chandigarh, Punjab, Assam, J&K, Gujarat and Bihar. In this connection, extensive field studies by the Core Group involving local officials of the area concerned and wide consultation with other known experts were carried out so as to study the house types, identify deficiencies of the existing houses from seismic safety point of view and develop a methodology for

undertaking technical documentation of housing typologies on a larger scale in moderate to severe seismic zones of India.

The publication entitled “Methodology for Documenting Seismic Safety of Housing Typologies in India” was brought out by the Council during the year. This document describes housing sub-typologies practiced in seismic zones in seven locations in moderate to severe seismic zones in India. With description of an ‘Ideal House’ of the typology in focus, it identifies deficiencies of the existing houses from seismic safety point of views and also represents a methodology for undertaking technical documentation of housing typologies on a larger scale. The publication was released by the then Minister for Housing & Urban Poverty Alleviation during the celebration ceremony of World Habitat Day 2013 held on 7th October, 2013.

III. ACTIVITIES IN NORTH-EASTERN REGION

1. Significant Activities in North-Eastern Region

BMTPC is actively involved in developing and promoting bamboo based technologies in the North-Eastern Region and other bamboo growing areas. The major activities encompasses setting up of Bamboo Mat Production Centres for processing of bamboo, encouraging commercial production of bamboo based products, and construction of demonstration houses/structures. The Council is constantly imparting training to the local artisans as regards use of bamboo in building construction. The activities undertaken in the North Eastern Region during the year are:

- The Council organized a Training Programme on Building with Bamboo at Imphal, Manipur from 26 - 29 June 2013 jointly with Manipur State Bamboo Mission, Forest Department, Government of Manipur and South Asia Bamboo Foundation (SABF). During the programme training were provided to 30 participants. During the Training Programme, a Bamboo Gazebo was constructed by the participants under the guidance of master crafts mason at Kangla fort, Imphal for practical training. The Gazebo was handed over to Deptt. of Arts & Culture, Government of Manipur, Imphal.
- The Council organised the Training Programme on Building with Bamboo at Shillong, Meghalaya from 2 - 4 December 2013 jointly with Forest Department, Government of Meghayala. During the programme training were provided to 30 participants. During the Training Programme, a Bamboo Gazebo was



Training Programme on Building with Bamboo organised by BMTPC at Imphal, Manipur from 26 - 29 June 2013 jointly with Manipur State Bamboo Mission, Forest Department, Government of Manipur and South Asia Bamboo Foundation (SABF)





Training Programme on Building with Bamboo organised by BMTPC at Shillong, Meghalaya from 2 - 4 December 2013 jointly with Forest Department, Government of Meghalaya



constructed by the participants under the guidance of master crafts mason in Shillong for practical training.

IV. STRENGTHENING THE INFORMATION AND DATABASE IN THE CONSTRUCTION SECTOR

1. Publication of the “Nirman Sarika” – Special Issue of BMTPC Newsletter

On the occasion of World Habitat Day 2013 celebrated by the Ministry of Housing & Urban Poverty Alleviation on 7th October, 2013, BMTPC brought out a Special Issue of its Newsletter “Nirman Sarika” on the theme “Urban Mobility”, chosen by United Nations to mark the occasion. This special publication focused on the various issues related to the theme of the World Habitat Day besides highlighting the activities of the Council. The “Nirman Sarika” was released by the then Minister for Housing & Urban Poverty Alleviation during the celebration ceremony of World Habitat Day 2013 held on 7th October, 2013.

2. Publication of “Criteria for Production Control of Ready Mix Concrete for RMC Capability Certification under Ready Mix Concrete (RMC) Plant Certification Scheme (QCI)”

Concrete, due to its versatility and durability is the ubiquitous construction material. With increased focus on infrastructure and housing activities, use of concrete in various forms is increasing day by day. For sustainability of RCC construction, proper quality of desired grade and optimum performance of concrete is of paramount importance. Ready Mixed Concrete that is batched in a controlled environment at a central plant instead of being mixed on the job site is always a better option. Starting from early nineties, RMC industry has grown from the second half of the nineties to the present state, when it has spread to the two and three tier cities also.

With the rapid growth of the industry, the challenge of maintaining desired quality and standard of RMC plants have also increased. Realizing this challenge, Ready Mixed Concrete Plant Manufacture's Associations (RMCMA) took initiative to evolve a system of auditing themselves and developed a detailed check list, based on international practices and relevant Indian Standards for audit.

To give the auditing an independent identity, RMCMA has now joined hands with Quality Council of India, who has taken responsibility to operate the certification of RMC plants. BMTPC also joined hands with QCI & RMCMA to prepare the Criteria for Production Control of RMC Plant of Ready Mixed Concrete. The document Criteria of

Production Control of Ready Mixed Concrete for RMC Capability Certificate has been prepared with wide consultation of members of Technical Committee representing user agencies, like CPWD, Airport Authority of India, Ministry of Road Transport & Highway, DMRC & National Highway Authority of India; R&D labs like NCCBM, CBRI; other experts and the industry represented by RMCMA; will form the basis of auditing of plants for the Certification Scheme.

3. Publication of Explanatory Handbook on Performance Appraisal Certification Scheme (PACS)

With the fast changing market scenario, economic liberalization and technological developments, a large variety of new building materials, products, components and composites are emerging in building construction market. The architects/engineers construction agencies, builders and other customers are frequently confronted with the question of quality, durability, serviceability and performance of new building materials, products, components and systems.

Though status of national standards on building materials and construction techniques in India is far superior to many developing and even some developed countries but process of standardization is time consuming and requires the support of field performance of materials before standards are formulated. Further, standards cover generic qualities and properties that cannot be comprehensive enough to cover each and every emerging building materials /technologies and therefore, a large number of building products, components and composites are being marketed with several claims of superiority which cannot be substantiated either due to non-availability of relevant standards or lack of test and evaluation methods/or proprietary nature of products revealing not much about their character, design etc. As per practice in large number of industrialized countries, such a situation calls for providing Performance Appraisal/Evaluation Certification Services by an independent agency to guide the architects, engineers, builders and other users of building materials, products and building systems.

With the above background, the then Ministry of Urban Development & Poverty Alleviation (now Ministry of Housing & Urban Poverty Alleviation), Government of India, under the Gazette Notification has authorized BMTPC to issue Performance Appraisal Certificates (PAC) giving independent opinion of the fitness of new building materials, components, products, elements, construction system and assemblies for intended use, not yet covered by Indian

standard. This scheme provides for a third party certification for certifying the performance of the product and in the process, it generates sufficient data needed for formulation of Indian Standard at later date. BMTPC has so far issued 27 Performance Appraisal Certificates (PACs) for various new materials & construction systems.

In order to give new fillip to PACS, BMTPC published an explanatory handbook on PACS which elaborates all the aspects of PACS and dispels the various doubts about the scheme for the benefit of prospective applicants.

The Explanatory Handbook was released by the then Minister of Housing & Urban Poverty Alleviation during the National Seminar on PACS organised by BMTPC on 23rd August, 2013 at New Delhi.

4. Publication of brochure entitled Major Activities in Pursuit

The Council has prepared a brochure entitled “Major Activities in Pursuit” so as to present various activities of the Council during last 5 to 6 years in pictorial form. BMTPC in line with its mandate, works in areas such as Technology Development & Promotion, Emerging Technologies, Demonstration Construction, Disaster Mitigation, Structural Use of Bamboo, Skill Upgradation and Project Management. The brochure was released by the then Minister of Housing & Urban Poverty Alleviation during the National Seminar on PACS organised by BMTPC on 23rd August, 2013 at New Delhi.

5. Publication of brochure entitled Propagation of Cost Effective and Disaster Resistant Technologies through Demonstration Construction

The publication depicts the details of the demonstration housing projects taken up by BMTPC so far including their plans, specifications and technologies used in various parts of the country. The brochure was released by the then Minister for Housing & Urban Poverty Alleviation during the celebration ceremony of World Habitat Day 2013 held on 7th October, 2013.

6. Publication of brochure entitled Disaster Mitigation and Management – Initiatives by BMTPC

BMTPC is continuously striving to establish the proactive approach towards disaster mitigation and management and has been in the forefront in educating and creating mass awareness amongst stakeholder and the common man. This publication brought out the various initiatives taken by BMTPC in the area of disaster mitigation and management. The brochure was released by the then Minister for Housing

& Urban Poverty Alleviation during the celebration ceremony of World Habitat Day 2013 held on 7th October, 2013.

7. Information Dissemination through Website of the Council

The Website of the Council (www.bmtpc.org) is being visited by professionals of various disciplines globally. It is being used as a reference resource in the area of innovative building materials and construction technologies. The website of the Council acts as a repository on cost-effective building materials and construction in line with its mandate to create enabling environment of affordable housing for all.

There is good response on website in the form of general enquiry about product and services. The website of the Council is regularly updated with latest technical information besides hire and purchase requirements, tender notices, training programmes, Right to Information Act and others as required from time to time.

8. Standardization and Product Evaluation

Performance Appraisal Certification Scheme (PACS)

Performance Appraisal Certification Scheme (PACs), being operated by BMTPC, is a third party voluntary scheme for providing Performance Appraisal Certificate (PAC) to manufacturers or installers of a product which includes building materials, products, components, elements and systems etc. after due process of assessment.

Since the Scheme is operated for the products/systems where no relevant Indian Standards are available, it is required to first work out the desired specifications for Performance Appraisal. For the items under consideration, International practices are also referred. In a few cases, the specifications recommended by the manufacturers have to be modified based on international practices to improve the quality and performance.

Based on the product assessment and evaluation, the 6th Meeting of the Technical Assessment Committee (TAC) was held on 22nd November, 2013 in which PAC was approved for the following products/systems:

1. Advanced Building System Emmedue
2. Factory Made Fast Track Modular Building System
3. Fluorogypsum Based Anhydrite Binder
4. Kooltile

The following products were renewed also during the meeting:

1. Continuous Sandwich Panel
2. Marshal Door
3. FRP Manhole
4. Polyethylene Underground Septic Tank
5. Glass Fibre Reinforced Gypsum Building (Rapid wall) System

Performance Appraisal certificates (PAC) for 27 products have been issued so far covering various items viz. Wooden/FRP/PVC/PUF Doors & Windows, Block Making Machine, Pan Mixer, Recron Fibre, Gypcrete Wall Panel, Brick Kiln Technology, Plastocrete/Insulated/ Sandwich/ Gypsum Panels, Underground Water Storage/ Septic Tanks, FRP Manhole, Monolithic Formwork, Marble Slurry Binder, Factory Made Fast Track Modular Building System and Fluorogypsum Based Anhydrite Binder.

In addition, for appraisal of Speed Floor System and Light Gauge Framed Steel Structure, visit to the production units of M/s Jindal Steel & Power Ltd., Raigarh and M/s J B Fabinfra Pvt. Ltd., Raigarh respectively were made on 4th and 5th September, 2013 by the representatives of BMTPC. Draft PACS prepared based on the details and circulated to the TAC members for their comments.

Applications for issue of PACs for Quickbuild 3D Panels of M/s Beardsel Ltd., Chennai, Concrewall Panels of M/s Schnell Wire System, Italy and Tunnel Forms (Formwork/ Shuttering) of M/s Outinord Intl. Ltd., Pune were received during the period and are under process.

Feedback for reviewing the whole process of PACS was sought from the PAC holders. Most of the PAC holders have submitted the feedback about their products/ systems stating that the PAC has helped them a lot in convincing their clients as a third party assurance from a Govt. body like BMTPC.

As a promotional measure, many agencies involved in manufacturing/ developing/marketing of new materials/ systems to be used in construction have been approached to apply for PAC for their new emerging product/system.

Technical Inputs to Sectional Committees of BIS

Apart from PACS, the Council is providing technical inputs to various Sectional Committees of Bureau of Indian Standards for formulation of Indian Standards on various subjects related to Civil Engineering such as Cement and Concrete; Flooring, Wall Furnishing and Roofing Materials; Earthquake Engineering; Housing Prefabricated

Construction; Hill Area Development; National Building Code; etc.

V. PROMOTIONAL AND CAPACITY BUILDING ACTIVITIES AT NATIONAL AND INTERNATIONAL LEVEL

1. Organization of Brain Storming Session for identification of possible areas of cooperation on alternate and emerging housing technologies with R&D Institutions

BMTPC has been working in the field of development and promotion of appropriate technologies from lab to field, disaster resistant technologies, capacity and skill development for more than last two decades. A number of building materials and technologies have been developed, standardized and are being used in the field with success over the years. With the field experience of use of some of the known technologies, it was felt that there is a need to take stock of current knowledge so as to bring further improvement. Also, there was need to identify areas of plausible Research and Development in cost effective, environment friendly & energy efficient building materials and construction technologies for sustainable housing. With the above backdrop, one day Brain Storming Session for Identification of Possible Areas of Cooperation on Alternate and Emerging Housing Technologies with R&D Institutions was organized by the Council on 12th June, 2013 at New Delhi.

About 40 participants representing academic institutions such as IIT Madras, IIT Kanpur, IIT Roorkee, IIT Delhi, IIT Hyderabad, IIT Bhubaneswar, IIT Patna, IIT Jodhpur, CSIR labs such as Structural Engineering Research Centre, Advanced Materials and Processes Research Institute (AMPRI), Central Building Research Institute (CBRI), Institute of Mineral and Materials Technologies, and other institutions such as Central Glass & Ceramic Research Institute (CGCRI), National Institute of Rural Development (NIRD), The Energy & Resource Institute (TERI), Samrat Ashok Technology Institute, RV-TIFAC Composites Design Centre, Central Public Works Departments (CPWD), Society for Environment Protection, Ultra Tech Cement Limited, RMC & New Projects, R. L. Engineering, Central Soil And Materials Research Station (CSMRS), Coir Display & Information Centre, Coir Board, South Asia Bamboo Foundation, Fly Ash Unit - Department of Science & Technology, TATA Housing Development Co. Ltd., Development Alternatives, Jindal Steel & Power, Foundation for Building Technology & Innovations, Centre of Science for Villages participated in the Brain Storming Session.



Brain Storming Session for Identification of Possible Areas of Cooperation on Alternate and Emerging Housing Technologies with R&D Institutions organised by BMTPC on June 12, 2013 at New Delhi



As the outcome of the Brain Storming Session at New Delhi, the Council received a number of R&D project proposals. In order to guide BMTPC in identification and selection of R&D projects in the field of housing and building construction, to evaluate & recommend the project proposals received and periodic monitoring of the projects, a Committee of Experts was constituted by the Chairman, Executive Committee of BMTPC. The Committee held two meetings during the year. On the recommendation of the Committee, following two projects have been selected and initiated:

- Precast concrete column for low cost housing
- Development of HuMotor – A Human Way to Utilise Human Efforts

2. Organization of National Seminar on Performance Appraisal Certification Scheme at New Delhi

In order to create awareness and disseminate the benefits of the Performance Appraisal Certification Scheme amongst manufacturers/ developers/ suppliers of new building materials and construction system, BMTPC organized a National Seminar on Performance Appraisal Certification Scheme (PACS) on 23rd August, 2013 at New Delhi. The then Minister of Housing & Urban Poverty Alleviation inaugurated the Seminar and gave a key note address emphasizing the use of local materials and emerging technologies. Hon'ble Minister pointed out that in Rajasthan, marble slurry waste is available in abundance and efforts may be made to use such local materials so as to reduce the material and transportation costs which will be comparatively less as compared to the materials brought from other places. On the occasion, two publications of BMTPC namely "Performance Appraisal Certification Scheme - A Tool to Propagate Innovative and New Building Materials & Technologies" and 'Major Activities in Pursuit' were released by the Chief Guest. About 40 participants from different fields and various Govt. Organizations, Institutions, reputed private companies, architects and consultants etc. participated in the Seminar.

3. Organization of Brain Storming Sessions on Utilization of Marble Slurry in Housing and Building Construction at Chittorgarh and Udaipur

BMTPC has been working in the field of development and promotion of appropriate building materials & technologies using locally available materials from lab to field, disaster resistant technologies, capacity and skill development since its inception. A number of building materials and technologies using agro-industrial wastes have been developed, standardized and are being used in the field with success over the years.



National Seminar on Performance Appraisal Certification Scheme (PACS) on August 23, 2013 at New Delhi



Two Brain Storming Sessions on Utilisation of Marble Slurry in Housing and Building Construction organised by BMTPC at Chittorgarh and Udaipur on 24 & 25 February, 2014

As per estimates, marble reserves in India are estimated at 1200 million tonnes and out of which Rajasthan account for 90 percent of the reserve i.e. 1100 million tonnes. The marble industry in Rajasthan is producing huge amount of waste in the form of mining waste, marble rock waste, marble slurry/dust, polishing slurry, etc. which is creating environmental problems, handling problems, threatening the porosity of aquifer zones, wastage of land for dumping, etc. As per research and development work carried out by various research institutes like CBRI, IIT Delhi, CRRI, TIFAC, marble waste can be used in manufacturing of building products such as bricks, blocks, tiles, masonry cement, gypsum plaster based boards, cement concrete as replacement of sand and cement, road pavements, embankments, retaining walls.

In order to create awareness about the gainful utilization of marble waste in housing and building construction and to identify further areas of research, BMTPC organized Brain Storming Sessions on Utilization of Marble Waste in Housing & Building Construction on 23rd January, 2014 at Chittorgarh and on 24th January, 2014 at Udaipur, Rajasthan. The Brain Storming Session at Chittorgarh was attended by more than 170 participants from the local Marble Industry and Government organisations and by more than 150 participants at Udaipur.

During the inauguration of the programme, the then Minister of Housing & Urban Poverty Alleviation, Government of India announced that BMTPC will construct 24 demonstration houses with alternate and disaster resistant technologies using marble slurry waste at each of the four locations namely Chittorgarh, Pratapgarh, Rajsamand and Udaipur as part of their mandate. The land and other infrastructure facilities at each location will be provided by the respective District Collectors for construction of Demonstration houses. The District Collectors of Chittorgarh, Pratapgarh and Rajsamand in principle had agreed to provide land and other infrastructure facilities for construction of Demonstration Houses. The documents containing design and estimates for the demonstration housing projects are under preparation.

4. Organization of Workshop on Emerging Building Materials & Construction Technologies at Gandhinagar

To sensitize about the emerging technologies at the State level, the Council organized a Workshop on Emerging Building Materials & Construction Technologies at Gandhinagar on August 31, 2013 with Ahmedabad Municipal Corporation wherein approximately 400 professionals from various departments of State



Workshop on New Construction Technology for Affordable Housing organised jointly with Amdavad Municipal Corporation at Gandhinagar on August 31, 2013



Workshop on Emerging Building Materials & Construction Technologies organized by BMTPC on 7 March 2014 at Bangalore

Government participated in the Workshop. During the workshop interactions were also held with Gujarat State officials jointly with the technology providers. Similarly, the Council also joined hands with Andhra Pradesh Real Estate Developers' Association (APREDA) and conducted a session on emerging technologies at Hyderabad on 25th October, 2013 during their 4th Annual Conference 2013.

5. Organization of Workshop on Emerging Building Materials & Construction Technologies, 7 March 2014 at Bangalore

BMTPC organized one day Workshop on Emerging Building Materials and Construction Technologies on March 07, 2014 at Bangalore in association with Karnataka Slum Development Board (KSDB). The Workshop was organized in order to disseminate knowledge on emerging technologies in Southern Region being evaluated and promoted by BMTPC. The KSDB is the premier State agency primarily entrusted with the task of slum rehabilitation in the entire State, hence, itself a promising client for such technologies. Total eight technology providers took part in the workshop to showcase their technologies & building systems and interacted with the stakeholders so as to get the feedback and understand the aspirations of the masses as regards quality housing. The participants included policy makers, engineers from various State Govt. Departments and representatives from Developers/Contracting agencies. The participants took keen interest in understanding the intricacies of the emerging technologies for possible field level application in social mass housing.

6. Organization of Consultation Meet on Standards & Specifications for Affordable Housing, 26 March 2014 at Ahmedabad

With the aims of "Housing to All" and housing shortage to the tune of 18.78 million (2012), there is need for faster planning and construction of dwelling units. With varying geo-climatic conditions hazard scenario and availability of building materials, it is required to develop regions specific Standard & Specification of dwelling units with different alternate technologies, which may serve as useful guidelines for designers while planning the dwelling units. BMTPC has initiated the exercise, in consultation with State Governments to develop such guidelines. This also aims to standardize basis module of space dimension for different type of building material component and system. In this regard, a Consultation Meet on Standards & Specifications for Affordable Housing (Western Region) was organized by BMTPC on 26 March 2014 at Ahmedabad. Around 75 participants participated in the Consultation meet including technology providers. The major outcomes of the

Consultation Meet on Standards and Specification for Affordable Housing for Western Region are as follows:

- Validation of the approach adopted for design package of western region by stakeholders.
- Understanding the standardization of spaces will help in cost and time saving including improved quality in adopting prefab technologies.
- Technology providers agreed to provide preferred dimensions suiting their products and system. Based on the information, the guidelines will be prepared for users.
- The general pattern of the project executed in western region is having 500 to 1000 units in multiple of 4 units or 8 units as a cluster.
- On a feasibility analysis, brainstorming clearly revealed that it would be good to do feasibility analysis for an approximately 500 units scale. Small number will not allow precasting and also make standardization non-feasible. Bigger the number of units, standardization will generally be more easier.

7. Skill Development and Capacity Building in the area of Alternate and Cost Effective Building Materials & Construction Technologies

The Council has organised following Capacity Building Programmes during the year:

Training Programme on Alternate and Cost-effective Housing Technologies for Masons and Prospective Engineers

Two Training Programmes were organised for Masons on Alternate and Cost Effective Housing Technologies at the site of ongoing demonstration housing project at Rae Bareilly, U.P. on April 21-22, 2013 and October 29-30, 2013. 22 local masons were trained during the first programme and 20 masons during the second programme. It may be mentioned here that the masons trained during this housing projects have shown competence in the alternate technologies such as rat-trap bonds, filler slabs etc. and some of them informed that they have their hands full for next six months with similar projects in the area.

In addition to the two Training Programmes, a Training Programme was also organized for prospective engineers on 8 February, 2014 wherein 70 civil engineering students from KNIT Sultanpur were provided hands-on training. The participants were given indepth knowledge about the application of the following alternate technologies:



Training Programmes for Masons on Alternate and Cost Effective Housing Technologies at the site of demonstration housing project at Rae Bareli, U.P. organised by BMTPC on April 21-22, 2013 and October 29-30, 2013



Training Programmes for Engineers on Alternate and Cost Effective Housing Technologies at the site of demonstration housing project at Rae Bareli, U.P. organised by BMTPC on 8 February 2014 wherein 70 civil engineers student from KNIT were provided training.

- Rat Trap Bond in Brick Masonry
- Reinforced Brick Concrete Slab
- Filler Slab using Earthen Pots as fillers
- Precast RCC door frames
- Precast Ferro-cement steps
- Interlocking pavers on pathways
- Bio-digester for sewerage.

Training, Capacity Building and Certification Programme For Building Artisan

The Council prepared “Building Artisan Certification System”. The system consist of eight certificate modules including (1) Assistant Mason, (2) Mason, (3) Disaster Resistant Construction (4) RC Construction (5) Concreting, (6) Bar Bending, (7) Repairs of Masonry Structures, and (8) Alternate Building Technologies. Out of these eight modules, the pilot assessment of candidates is being carried out under this project for the Assistant Mason and Mason Certificates.

Six batches of Training Programmes were organized in the following villages near Ahmedabad, Gujarat:

- Village Hasila (5-8 February 2014);
- Village Palundra (21-22 February 2014);
- Village Manipura (3-5 March 2014);
- Village Haisla (6-9 March 2014);
- Village Shiyawada (11-22 March 2014);
- Village Kerala (23-26 March 2014).

Total 74 construction workers participated in the four day training and certification programme in different batches. Out of these 68 were qualified (40 as assistant masons and 28 as main masons).

8. World Habitat Day 2013 Celebrations

On the occasion of World Habitat Day 2013, the Council undertook the following activities:

Painting Competition for Differently Abled Children

Organised Painting Competition for Differently Abled Children on the theme: “Urban Mobility”. These children included differently abled children in the categories namely (i) Mentally Challenged. (ii) Visually impaired, and (iii) Hearing Impaired children.

Out of invited 32 schools, around 2000 students participated in the Painting Competition. From the 137 selected entries

sent by the respective Schools, the Jury in BMTPC selected the best entries for prizes. The prizes were awarded to winning entries by the then Hon'ble Minister for Housing & Urban Poverty Alleviation during the celebrations of World Habitat Day on 7th October, 2013 at New Delhi.

Release of Publications

- i. Special issue of Newsletter of BMTPC "Nirman Sarika"
- ii. Booklet on "Propagation of Cost Effective and Disaster Resistant Technologies through Demonstration Construction"
- iii. Booklet on "Disaster Mitigation and Management – Initiatives by BMTPC"
- iv. Book on "Methodology for Documenting Seismic Safety of Housing Typologies in India"

These publications were released by the then Hon'ble Minister of Housing & Urban Poverty Alleviation during the celebrations of World Habitat Day 2013.

9. Participation in India International Trade Fair, 2013, Pragati Maidan, New Delhi from 14-27 November 2013

BMTPC participated in HUDCO BuildTech 2013 and put up exhibition on Alternate and Emerging Building Materials and Construction Systems by hiring a space of 271 sqft. during India International Trade Fair from 14-27 November, 2013 at Pragati Maidan, New Delhi. BMTPC exhibition included participation by thirteen technology providers/ companies in the area of emerging housing technologies by putting up their display within the BMTPC area. These companies displayed various details of products and plant and machineries for light weight synthetic aggregates, Fly ash based building products, fast and pre-fabricated housing technologies, alternative in cements & water proofing materials, stabilized mud & cement based housing technology and environment friendly bio-digester. Besides, the Council constructed a demonstration house to showcase cost-effective, energy-efficient, environment friendly and disaster resistant materials and construction technologies. Having wide range of products and housing technologies for individual houses to mass housing solutions, the exhibitions attracted large number of visitors.

VI. TECHNOLOGY DEVELOPMENT, DIFFUSION AND TRANSFER

1. Identification and Evaluation of Emerging Housing Technologies

In order to give impetus to emerging technologies for social mass housing, BMTPC has been putting definitive strides

and earlier invited Global Expression of Interest (EOI) for introducing emerging and alternate cost effective housing technologies suitable to Indian geo-climatic and hazard conditions. Technology Advisory Group (TAG) was constituted to help in studying the suitability of emerging technologies for mass scale housing in Indian conditions. Based on the technical details made available, demonstration construction and other aspects, the following four emerging technologies out of the identified technologies have been approved by TAG in its meeting held on 23.10.2013:

- 1) 3S System (Pre-fab / Precast RCC Technologies by M/s B.G. Shirke Construction Technology Pvt. Ltd., Pune.
- 2) Monolithic Concrete Construction using: Plastic–Aluminium Composite formwork manufactured indigenously by M/s Sintex Industries Ltd., Gujarat.
- 3) Monolithic Concrete Construction using Aluminium Formwork (Imported) by M/s P.G. Setty Construction Technology Pvt. Ltd., Mysore.
- 4) Advanced Building System EMMEDUE by M/s EMMEDUE S.P.A, Via Toniolo, 39/b Z. I. Bellocchi 61032, Fano (PU), Italy

The technology profiles of the above technologies have also been prepared. All the details regarding the approved technologies has been forwarded to State Governments and their related Departments through the Ministry of Housing & Urban Poverty Alleviation with a letter that these are technologies which have potential and can be used for mass housing.

In addition, following technologies were also evaluated and Certificates were issued under Performance Appraisal Certification Scheme of the Council:

- 1) Advanced Building System EMMEDUE by M/s EMMEDUE S.P.A, Via Toniolo, 39/b Z. I. Bellocchi 61032, Fano (PU), Italy
- 2) Factory Made Fast Track Modular Building System – INSTACON by M/s Synergy Thrislington, Mohali Chandigarh

For appraisal of Speed Floor System and Light Gauge Framed Steel Structure, visit to the production units of M/s Jindal Steel & Power Ltd., Raigarh and M/s J B Fabinfra Pvt. Ltd., Raigarh respectively were made by the representatives of BMTPC. Draft PACS have been prepared based on the details provided by the respective agencies and circulated to the TAC members for their comments.



Emerging Technology - Monolithic Concrete Construction System using Plastic - Aluminium Composite Formwork



Emerging Technology - Expanded Polystyrene Core Panel System



Emerging Technology - Industrialized 3-S System using Cellular Light Weight Concrete Slabs & Precast Columns



Emerging Technology - Monolithic Concrete Construction System using Aluminium Formwork



**Emerging Technology -
Factory Made Fast Track Modular Building System**



Presentations from the Technology Providers of Monolithic Concrete Construction using Aluminium/Plastic formwork was organized by BMTPC on September 20, 2013 and GFRG Panel system on October 18, 2013 before the senior engineers and architects of CPWD

The Council has also initiated a process for inclusion of already evaluated emerging technologies in the CPWD Schedule of Rates (SOR). In this direction, presentations from the Technology Providers of Monolithic Concrete Construction using Aluminium/Plastic formwork was organized on September 20, 2013 and GFRG Panel system on October 18, 2013 before the senior engineers and architects of CPWD. CPWD desired that BMTPC may first formulate SOR on the technology and submit the same for their consideration. BMTPC has already initiated the process for preparation of SOR jointly with Indian Building Congress, IIT Chennai and SEP Ahmedabad. The SOR for GFRG technology has been prepared and are under circulation to the various stakeholders for comments.

2. Development of Technology for Precast Concrete Column for Low Cost Housing

BMTPC has initiated a project entitled "Precast Concrete Column for Low Cost Housing" in association with Department of Civil Engineering, Indian Institute of Technology, Roorkee.

To meet the demand of Low Cost Housing systematic approach to design efficient and economical structural component is the need of the hour. Column are main load bearing component of framed structure. In the proposed project the composite columns of Concrete filled steel tube are tested as alternative to conventional RCC columns. The present study is confined to the provision of columns in two or three storied buildings. In this project Precast Concrete Pipes which are commonly used for water supply and sanitary purpose shall be used to prepare the Precast Concrete Filled Columns. The precast concrete pipes shall be filled with concrete having different grades along with the minimum reinforcement and shall be tested for their axial load carrying capacity and ductility. In such columns the precast concrete material present on the periphery shall not only provide confinement to the filled concrete but also shall increase its sheer capacity. Grade of concrete shall be varied between M20-M30 to study its effect on the behaviour of columns. Diameter length and wall thickness of the Cement concrete pipe shall also be varied to study the effect of diameter/thickness and length/diameter. Number and diameter of RCC bars shall also be varied. Based on the experimental findings the effect of tube thickness diameter, reinforcement mesh, the bond strength, the load bearing capacity etc. will be calculated. The energy absorbing capacity of the columns shall also be analyzed.

On the basis of the outcome of the project the design methodology for the design of Precast Concrete Columns shall be proposed and the formulas for the calculation of the

column design will be formulated which will be helpful to ensure structural stabilities of the columns. The proposed columns could be easily cast and would speed up construction work.

3. Development of HuMotor

BMTPC undertook a study on development of final design of HuMotor designed and developed on laboratory scale by Department of Engineering Design Indian Institute of Technology, Madras.

Human labour is extensively used in many commercial activities of building Construction. These labour intensive techniques sometimes results in frequent injuries due to work induced repetitive stress. Unawareness and poor arrangements of safety measures lead to fatal injuries. The monotonous and stressful environments combines with available primitive tools and techniques results in poor productivity.

In the proposed project the mechanical device ‘HuMotor’ has been designed to ease out the human effort and provide stress free working environment to speed up the construction. The device “HuMotor” - an acronym for “Human Powered Motor” converts human efforts harnessed in the form of a stair climbing motion of the legs into a unidirectional rotation of a pulley- from which power can be tapped to perform tasks such as lifting of materials, machines and thus rely upon human labour for activities such as material transportation, mixing of concrete, bending and cutting of reinforcement bars. The proposed project will lead to construction practice that will reduce the need for scaffolding and the number of people working at height .The device can also be used for bending of steel rods to create RCC reinforcement.

The product has won an award from the National Innovation Council (NIC) as one of the winning entries to the Anti-drudgery Challenge and the product was proposed to be introduced to the market by NIC. Some modifications and improvement has been proposed to the existing design with aim to have its successful operation and widespread use at construction sites.

4. Development of Design Methodology for Chemically Treated bamboo Reinforced Concrete Members for Low Cost Housing

The Council in association with IIT Kharagpur undertook a project for Development of Design Methodology for Chemically Treated bamboo Reinforced Concrete Members for Low Cost Housing.

The objectives of the project were as under:

- I. Development of bamboo reinforced concrete members such as column, beam, roof, slab wall and technologies which would be environment conducive and cost effective.
- II. Development of modular design of various types of DUs for different group of people. Provision of basic amenities such as a multipurpose room, a bath, a W.C. and a kitchen will be made in each unit.

The project has been completed during the year including construction of model houses using bamboo reinforced concrete members.

5. Development of Energy Efficient Construction Materials for Buildings

The Council has initiated a project for development of energy efficient construction materials for buildings in association with Department of Civil Engineering, IIT Roorkee.

Under the project, it is proposed to carryout experimental studies in the laboratory of the Department of Civil Engineering, IIT Roorkee on various types of construction materials used in building construction specially for wall and roof claddings. These include solid masonry walls, cavity walls with and without insulation material, single layer metal sheets and sandwich panels for wall and roof claddings. It is proposed to make single room building units with varying wall and roof claddings and study the difference in external and internal room temperature. Thermal imager and thermal couples will be used to measure surface temperature on wall and cladding units and room temperature in space.

The work done so far under this project is as under:

- Equipment to be used to measure temperature on the surfaces has been procured.
- Heaters required to heat the wall surface have been procured.
- Plywood, slotted angles, bricks and hollow blocks have also been procured.
- A room of size 2.5 m x 2.5 m in plan and 2.5 m height has been prepared.
- Experimental study has started and data is being collected which will be analyzed soon.

It is envisaged that the outcome of the project would be useful for the architects and engineers in selecting suitable construction materials while designing buildings for various

purposes. The selection made will result in saving energy required for cooling and heating in buildings.

6. Project on “Scientific Authentication of Semi Automatic Brick Masonry Construction”

The Council has undertaken the project on “Scientific Authentication of Semi-Automatic Brick Masonry Construction”. Prof. S.N.Sinha, Former Professor, Civil Engineering Department, IIT Delhi has developed a novel and unique machine for making innovative interlocking/interfitting green masonry units for semi-automatic masonry construction. Under the project, a large number of masonry units were made to authenticate the working of the machine. The models of masonry walls were also made and both masonry units and models of masonry walls were tested for compressive strength. The average compressive strength achieved for masonry unit is 18.5 Mpa and for masonry walls 12.8 Mpa. The advantages of the masonry are as follows:

- (i) It facilitate semi automatic masonry construction.
- (ii) The construction shall lead to self alignment and self adjustment of the masonry units due to its interlocking and interfitting.
- (iii) It provide better quality of masonry work due to self-alignment of masonry units and its uniform bonding by pumping / pouring of slurry from the top.
- (iv) It provides reduced man power requirement and reduced time of construction. The construction can be done by unskilled worker as well.
- (v) The masonry units have various predetermined dimensions depending upon the type of construction.
- (vi) The masonry units can be manufactured faster and economical than the conventional masonry units.
- (vii) The abundantly available fly ash shall be used as one of the main constituent of the materials for making masonry units.
- (viii) The hollow masonry units result in reduced dead weight of masonry wall making the design of structure more economical. Also the reduced dead weight resulted in reduced effect of earthquake.
- (ix) The inward depression of lower masonry and outward projection of upper masonry at a horizontal joint provide enhanced interlocking / inter fitting of masonry units resulting in its improved behavior under gravity and earthquake loads.
- (x) Also the inward depression of a masonry and outward projection of adjoining masonry at a vertical joint provide enhanced interlocking / interfitting of masonry un its resulting in its improved behavior under gravity and earthquake loads.

- (xi) The thickness of slurry for bonding masonry units is small resulting in increased strength of masonry as compared to strength of the conventional masonry. The strength of such masonry has been observed to be 60 - 80 percent of the strength of masonry unit whereas the strength of conventional masonry is only 30 - 40 percent of the strength of masonry unit.
- (xii) No plaster is required on any vertical faces of wall constructed with the invented masonry units as both vertical faces are plane and smooth and aligned.
- (xiii) No curing of wall is required as the slurry for bonding the masonry units are confined within the thickness of wall.
- (xiv) Walls constructed with hollow masonry units provide better thermal insulation than the walls with conventional solid bricks.

7. Project on “Rejuvenation and Strengthening of the National Network of Building Centres – Pilot Studies” under HUDCO CSR funding

The Council has been assigned a Project on “Rejuvenation and Strengthening of the National Network of Building Centres – Pilot Studies” by HUDCO under HUDCO CSR funding. The Ministry of Housing & Urban Poverty Alleviation made concerted efforts to revive the Building Centres and a Committee was set up by HUDCO in consultation with Ministry to look into problems, prospects and proposal for revival. After detailed discussions with HUDCO, 16 projects have been initiated. During the period, following projects have been completed:

Sl. No.	Name of Project	Name of Agency
1	Creating Regional/State Building Resource Centres- Madhya Pradesh pilot	Vidisha Building Centre.
2	Market absorption of women as skilled construction workers	Gujarat Mahila Housing Sewa Trust Ahmadabad
3	Capacity building support for using Bamboo as a building material	Forum of scientist, engineers & technologist (FOSET), West Bengal
4	Capacity building support for using Bamboo as a building material	West Tripura Building Center promoted by NB Institute For Rural Technology(NBIRT) Tripura

VII. JAWAHARLAL NEHRU NATIONAL URBAN RENEWAL MISSION (JNNURM), RAJIV AWAS YOJANA (RAY) – PILOT PHASE AND PROJECTS UNDER 10% LUMP-SUM PROVISION FOR NER STATES INCLUDING SIKKIM

1. BMTPC's Role in Rajiv Awas Yojana (RAY)

The Ministry of Housing & Urban Poverty Alleviation, Govt. of India, has designated BMTPC as one of the Appraisal Agency for projects under Pilot as well as implementation Phases of Rajiv Awas Yojana (RAY).

Appraisal of Detailed Project Reports (DPRs) under RAY

The Council appraised 62 DPRs sanctioned under Rajiv Awas Yojana (RAY) received from States as Arunachal Pradesh (4), Haryana (7), Gujarat (10), Karnataka (15), Madhya Pradesh (4), Rajasthan (12), Nagaland (3), Uttarakhand (5) and West Bengal (2). The proposals were worth Rs.2465.50 crores with Government of India share of Rs.1367.73 crores covering 45551 Dwelling Units.

S. No	City/Town	Location	No. of Projects
ARUNACHAL PRADESH			
1	Itanagar	Rental Housing for relocation of slum dwellers staying in hazardous locations under RAY at Chimpu	4
2	Dirang	Detailed Project Report for EWS Housing Project at Dirang under Rajiv Awas Yojana	
3	Bomdila	RAY Project – Bomdila EWS Housing Project	
4	Palin	Detailed Project Report for EWS Housing Project at Palin under Rajiv Awas Yojana	
HARYANA			
1	Yamunanagar-Jagadhri	Pilot project for providing infrastructure facilities in 9 slums of YamunaNagar-Jagadhri, Haryana under RAY	7
2	Sirsa	Pilot Project for construction of 2144 DUs at two locations (Kanganpur and near Park auto market) at Sirsa under RAY	
3	Ambala	Pilot Project for Ambala under Rajiv Awas Yojana	
4	Rohtak	Pilot Project of In-Situ Housing & infrastructure Development of 8 slums in Rohtak under Rajiv Awas Yojana	
5	Hisar	DPR of Hisar City for construction of 1508 DUs in SatRoad slum under Rajiv Awas Yojana.	
6	Rohtak	Construction of 2280 (G.F) Du's Housing at 51 selected slums (In-Situ Development) Including Infrastructure in Rohtak City Under RAY	
7	Hansi	DPR for relocation of existing households of Prithvi Raj Chauhan Fort slum of Hansi City by construction 192 DUs under RAY	

GUJARAT			
1	Ahmedabad	Pilot DPR of In-Situ Redevelopment of Ramesh Dutt Colony for Construction of 924 DUs and Construction of 163 DUs at Jadibanagar-Indiranagar	10
2	Rajkot	Pilot DPR for Construction of 252 (G+4) DUs including infrastructure at Natrajnagar slum Ward No.12, Rajkot under RAY	
3	Bharuch	Detailed Project Report for Construction of 512 Dwelling Units for urban poor at Bharuch under Rajiv Awas Yojana	
4	Vadodara	Detailed Project Report of Rental cum transit housing construction of 218 DUs at TP 13; FP 209 and 280 DUs at TP 13; FP 148 in Channi area under RAY	
5	Ahmedabad	Detailed Project Report of New EWS housing of 1184 Dwelling units at 2 relocation plots of Ahmedabad Municipal Corporation under RAY	
6	Ahmedabad	Detailed Project Report of New EWS housing of 1344 Dwelling units at 2 relocation plots of Ahmedabad Municipal Corporation under RAY	
7	Bhuj	Detailed Project Report for Slum Rehabilitation project for Bhimrao Nagar – 1, Ramdev Nagar and GIDC relocation site in Bhuj under Rajiv Awas Yojana	
8	Vadodara	DPR of In-Situ Redevelopment of Sahkarnagar slum(at FP-234, TP-22) for construction of 1448 DUs in Akota Tandalja Area	
9	Deesa	DPR of In-Situ Redevelopment of North slums (at R.S. no. 5278, 5279-5280 and 4896, near sports club Area.) for construction of 1456 DUs	
10	Vadodara	DPR of In-Situ Redevelopment of Ektanagar slum (at R.S. no. 287, draft TP-44) for construction of 1856 DUs in Bapod Area	
KARNATAKA			
1	Gulbarga	Pilot DPR for Construction of 1024 DU's for slum dwellers (pandit dinadayal upadhaya slum, budga jangam, artisans, poura karmikas & devadasis) in Gulbarga city under Rajiv Awas Yojana	15
2	Bangalore	Pilot DPR for Construction of Incremental Housing 1353 (G.F) houses at Selected slums of Bangalore under Rajiv Awas Yojana	
3	Kolar	DPR for Construction of 851 (G.F) DU's Housing at 4 selected slums (In-situ development) including infrastructure in Kolar City under RAY	
4	Bangalore	DPR for construction of 588(G.F) DU's Housing including infrastructure at 1 selected slum and 80 (G+4) DU's Housing including infrastructure at 1 Selected slum in Bangalore City in K.R.Puram Area under RAY	

5	Bangalore	DPR for Construction of 666 (G.F) DU's Housing at Kuvempunagara slum (In-situ development) including Infrastructure in Bangalore City, Byatarayanapura Area under RAY	
6	Mysore	DPR for Construction of 1329 (G.F) Du's Housing at 8 Selected slums (In-situ development) including Infrstructure in Mysore City, Krishnaraja Area under RAY	
7	Mysore	DPR for Construction of 700 (G.F) DU's Housing at K.N.Pura slum (In-situ development) including Infrstructure in Mysore City, Narasimharaja Area under RAY	
8	Tumkur	DPR for Construction of 1566 (G.F) Du's Housing at 6 selected slums (In-Situ Development) Including Infrastructure in Tumkur City under RAY	
9	Mandya	DPR for Construction of 1335 (G+3) DU's Housing in 4 different slum locations (Hallahalli, Tamil Colony East, Kalikamba Temple slum & Mandya Tank Bed slum) at Hallahalli including part infrastructure in Mandya City under RAY	
10	Mysore	Construction of 655 (G.F) Du's Housing at 4 Selected slums (In-situ redevelopment) including Infrastructure in Mysore City, Chamaraja Area Under RAY	
11	Bangalore	Construction of 1534(G.F) Du's Housing including infrastructure at 6 selected slums and 80 (G+4) Du's Housing including infrastructure at 1 Selected slums in Bangalore City in Shanthinagara Area Under RAY	
12	Bangalore	Construction of 1118(G.F) Du's Housing including infrastructure at 6 selected slums and 444 (G+3) Du's Housing including infrastructure at 1 Selected slums in Bangalore City in Raja Rajeshwarinagar Area Under RAY	
13	Kolar	Construction of 843 (G.F) DU's Housing at 4 selected slums (In-situ development) including infrastructure in Robertsonpet (K.G.F)	
14	Chitradurga	Construction of 1563 (G.F) Du's Housing at 8 selected slums (In-Situ Development) Including Infrastructure in Chitradurga City	
15	Chintamani	DPR for Construction of 230 (G.F) DU's Housing at 2 selected slums (In-situ development) including infrastructure in Chintamani, Chikkaballapur Distt. under RAY	
MADHYA PRADESH			
1	Chindwara	DPR for construction of 1054 Insitu & 44 Rental DU's including infrastructure at Chindwara under RAY	4
2	Neemuch	DPR for Slum Redevelopment (In-Situ) of slum behind Bhageshwar Mandir in Radhakrishna Ward under RAY	
3	Singrauli	DPR of Identified Slums of Singrauli City under RAY	
4	Ratlam	DPR for cin-situ redevelopment of Ishwar Nagar Slum in Ratlam City under RAY	

NAGALAND			
1	Medziphema	DPR for Housing for urban poor under RAY for Medziphema town	3
2	Tseminyu	DPR for Housing for urban poor under RAY for Tseminyu town	
3	Chumukedi ma	DPR for Housing for urban poor under RAY for Chumukedima town	
RAJASTHAN			
1	Jodhpur	Pilot Project for construction of 208 DUs at Natiya Basti in Jodhpur under RAY	12
2	Badi Sadri	Pilot Project in-situ redevelopment of various slums in Badi Sadri under RAY	
3	Begun	Pilot Project in-situ redevelopment of various slums in Begun under RAY	
4	Jodhpur	Pilot Project development of Rental housing scheme at Bhuri Beri slum in Jodhpur under RAY	
5	Chittorgarh	DPR for in-situ redevelopment of various slums and development of Rental housing scheme in Chittorgarh under RAY	
6	Choti Sadri	Pilot Project in-situ redevelopment of various slums in Choti Sadri under RAY	
7	Kapasan	Pilot Project in-situ redevelopment of various slums in Kapasan under RAY	
8	Nimbahera	DPR for in-situ redevelopment of various slums and development of Rental housing scheme in Nimbahera under RAY	
9	Pratapgarh	DPR for in-situ redevelopment of various slums and development of Rental housing scheme in Pratapgarh under RAY	
10	Kapasan	Project for Relocation of slums (Gadoliya Lohar basti , Nandavana Colony kachhi basti , Miyachand Kheda kachhi basti & Krishi Mandi kachhi basti) in Kapasan under RAY	
11	Fatehnagar	DPR for in-situ, Relocation & Rental House redevelopment of various slums in Fatehnagar, Udaipur under RAY	
12	Udaipur	DPR for in-situ development of various slums (763 New houses) in Udaipur under RAY	
UTTARAKHAND			
1	Augustmuni	Detailed Project Report for Insitu Redevelopment at Augustmuni under Rajiv Awas Yojana	5
2	Joshimath	Detailed Project Report for Insitu Redevelopment at Joshimath distt. Chamoli under Rajiv Awas Yojana	
3	Rudraprayag	Detailed Project Report for Insitu Redevelopment at Rudraprayag under Rajiv Awas Yojana	
4	Bajpur	DPR for construction of 190 (G.F) DU's Housing at 10 selected slums (In-Situ Development) Including Infrastructure in Bajpur City	
5	Nainital	Rehabitation Housing Scheme for Urban Poor Nainital (96 DUs) under RAY	
WEST BENGAL			
1	Bhatpara	Pilot Project for In-Situ Redevelopment of Suormari slum, Bhatpara Municipality under Rajiv Awas Yojana	2

2	Kalyani	Pilot Project for In-Situ Redevelopment of Harijan Para slum, Kalyani Municipality under Rajiv Awas Yojana	
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2. BMTPC's Role in Implementation of JNNURM

The Ministry of Housing & Urban Poverty Alleviation, Govt. of India, is implementing Basic Services to Urban Poor (BSUP) and Integrated Housing & Slum Development Programme (IHSDP) under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), Rajiv Awas Yojana (RAY) and projects under 10% Lump-sum Provision for NER States including Sikkim. The activities undertaken by BMTPC in implementation of the JNNURM are as given below:

Appraisal of Detailed Project Reports (DPRs) under JNNURM

BMTPC has been involved in the implementation of the JNNURM - sub-components Basic Services to Urban Poor (BSUP) and Integrated Housing & Slum Development Programme (IHSDP) for Appraisal of DPRs, Monitoring of Projects, Third Party Inspection & Monitoring (TPIM) Reviews, and organization of capacity building programmes. The projects appraised by the Council include housing and other infrastructure services such as roads, water supply, sewerage, storm water drains, community facilities, health centres, education facilities etc.

During the year, the Council appraised 6 revised DPRs of BSUP projects under JNNURM received from Andhra Pradesh (1) Madhya Pradesh (4), & West Bengal (1). The proposals worth Rs.162.62 crores with Government of India share of Rs.77.34 crores covering 12113 Dwelling Units. The BSUP Sub component is under extension phase & no new projects are being sanctioned.

S. No	City/Town	Location	No. of Projects
BSUP			
Madhya Pradesh			
1.	Bagra Dafai, Jabalpur	Revised Detailed Project Report, Bagra Dafai, Jabalpur, M.P	4
2.	Basor Mohalla, Jabalpur	Revised Detailed Project Report, Basor Mohalla, Jabalpur, M.P	
3.	Chhuikhadan, Jabalpur	Revised Detailed Project Report, Chhuikhadan, Jabalpur, M.P	
4.	Lal Kuan, Jabalpur	Revised Detailed Project Report, Lal Kuan, Jabalpur, M.P	
Andhra Pradesh			
5.	Vijayawada	Curtailed/revised DPR for Repairs to DUs constructed under the VAMBAY in Ajit Singh Nagar, VMC	1

West Bengal			
6.	Maheshtala (Kolkata Agglomeration)	Revised BSUP Project for Maheshtala Municipality (Phase-IV) for 1184 Dus	1
Total No. of BSUP Project Appraised			6

Monitoring of BSUP and IHSDP Projects

The Council is also designated as Monitoring Agency for monitoring of the BSUP and IHSDP projects. A detailed monitoring mechanism in consultation with the Ministry of HUPA has been evolved for effective monitoring of these projects. However, during the period, no monitoring visits were undertaken by BMTPC

Review of TPIM Reports

The Council has been undertaking review of Third Party Inspection & Monitoring (TPIM) reports for BSUP and IHSDP projects. During the year, TPIM Review of the following projects were undertaken and submitted to the JNNURM Mission Directorate:

S.No	Name of State	TPIM Review Reports Submitted to Mission Directorate
1.	Arunachal Pradesh	8
2.	Assam	5
3.	Chandigarh	4
4.	Chattisgarh	19
5.	Delhi	6
6.	Gujarat	15
7.	Haryana	10
8.	Himachal Pradesh	6
9.	Jammu & Kashmir	19
10.	Karnataka	6
11.	Kerala	21
12.	Maharashtra	28
13.	Madhya Pradesh	23
14.	Manipur	1
15.	Meghalaya	9
16.	Nagaland	5
17.	Orissa	21
18.	Puducherry	2
19.	Rajasthan	62
20.	Sikkim	4
21.	Tamilnadu	33
22.	Tripura	14
23.	Uttarakhand	8
24.	Uttar Pradesh	47
25.	West Bengal	74
Total		450

3. BMTPC's Role in Implementation of projects under 10% Lump-sum Provision for NER States including Sikkim

The Ministry of Housing & Urban Poverty Alleviation, Govt. of India, is implementing projects under 10% Lump-sum Provision for NER States including Sikkim. The Council has been designated as one of the Appraisal Agencies for appraising the projects received under 10% Lump-sum Provision for NER States including Sikkim. The following project has been appraised during the year:

S. No	State	Project Name	No. of Projects
1	MANIPUR	Construction of Tombisana (Khwairamband) Market for re-habilitation of women vendors, Imphal	1
Total No. of Project Appraised			1

ORGANISATION

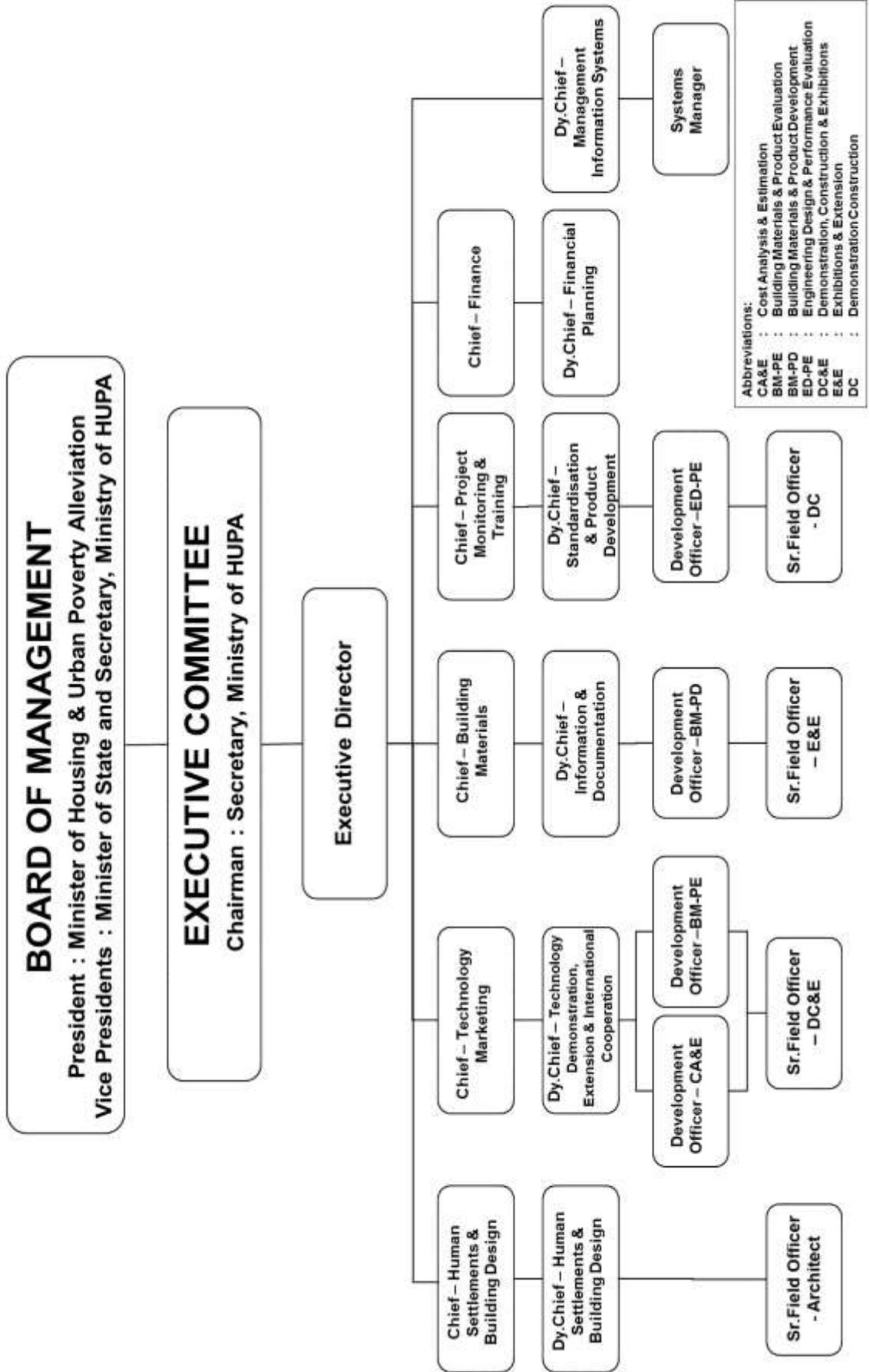
The organizational structure of the Council is shown at next page. As on 31st March, 2014, BMTPC had a staff strength 39 comprising 21 officers and 18 supporting staff. Also technicians/professionals are hired on contract on project and need basis.

The Council has continued following administrative and financial measures for bringing transparency, responsiveness and greater participation of the employees:

- Implementation of modified Byelaws, Recruitment-cum-Promotion Rules and Delegation of Power.
- Internal Committee for smooth and harmonious functioning of the Council:
 - Construction Committee
 - Investment Committee
 - Advertisement Committee
 - Printing Committee
 - Local Purchase Committee
 - Store Purchase Committee
 - Transport Committee
 - Contractual Payment Committee
- The Council has implemented the Result-Framework document (RFD)
- To redress citizen grievances, online handling of the public grievances through centralized public grievances redress and monitoring system has been initiated.
- Nominated an officer as the Director of grievances and an officer as Welfare Officer for smooth functioning of the organization and to find out the solution of the grievances of the staff members.
- SCs & STs Cell for welfare and development of Scheduled Casts & Scheduled Tribes
- Implementation of RTI Act, 2005
- Committee for Prevention of Sexual Harassment of women at workplace.
- Independent audit of implementation of Citizen's Charter.
- Independent audit of implementation of public grievance redressal system.

BUILDING MATERIALS & TECHNOLOGY PROMOTION COUNCIL

ORGANISATION CHART



STAFF STRENGTH (as on 31.3.2014)

<u>S.No.</u>	<u>Name & Designation</u>	<u>Date of Joining</u>
1.	Dr. Shailesh Kr. Agrawal <i>Executive Director</i>	17.01.08
2.	S.Balasinivasan <i>Chief-Finance</i>	08.04.92
3.	J.K.Prasad <i>Chief-Building Materials</i>	01.09.03
4.	M. Ramesh Kumar <i>Chief- Human Settlements & Building Design</i>	01.04.93
5.	Arun Kumar Tiwari <i>Chief-Project Monitoring & Training and Administration</i>	22.07.03
6.	S.K.Gupta <i>Deputy Chief- Technology, Demonstration Extension & International Cooperation</i>	26.10.93
7.	Arvind Kumar <i>Deputy Chief- Management Information Systems</i>	15.04.99
8.	Dr. Amit Rai <i>Deputy Chief</i>	05.11.98
9.	Chandi Nath Jha <i>Deputy Chief- Standardization & Product Development</i>	09.09.99
10.	Pankaj Gupta <i>Deputy Chief-Information & Documentation</i>	14.10.99
11.	D.P.Singh <i>Development Officer-Engineering Design & Product Evaluation</i>	05.10.98
12.	Dalip Kumar <i>Senior Field Officer- Demonstration Construction & Exhibition</i>	04.03.91
13.	Alok Bhatnagar <i>Senior Field Officer- Exhibition & Extension</i>	05.10.98
14.	Akash Mathur <i>Senior Field Officer- Architect</i>	01.01.02
15.	Anita Kumar <i>Sr. Programmer</i>	03.10.96
16.	M.Ramakrishna Reddy <i>Liaison Officer (On deputation to Ministry of Corporate Affairs)</i>	29.10.03
17.	Pankaj Gupta <i>Personnel Officer</i>	01.03.94
18.	Praveen Suri <i>Systems Analyst</i>	01.09.94
19.	S.S.Rana <i>Library Officer</i>	01.04.98
20.	D.Prabhakar <i>Field Officer</i>	29.01.04
21.	Ashwani Kumar <i>Asstt. Field Officer</i>	01.01.02
<u>Superannuation</u>		
	S.M.Malhotra <i>Principal Private Secretary (Superannuated on 31.7.2013)</i>	09.04.99

ACCOUNTS

The Council received grants of Rs. 500.00 lakhs from the Ministry of Housing & Urban Poverty Alleviation, Government of India during the FY 2013-14. In addition, receipts from other sources like Fees, Consultancy, Training, BIPARD, JNNURM, Interest, Publications, etc. was Rs. 236.14 lakhs and the total expenditure incurred was Rs. 1027.07 lakhs during the year, as per Receipt & Payment Account Statement. A summary of expenditure is given below:

Major Heads	Amount (in Rs.)
• Expenses towards infrastructure facilities, computers & automation systems	12,59,216
• Expenditure on Salary, Establishment & Administration	4,28,31,417
• Organisation and participation in various Seminars, Conferences, Workshops in India and abroad, Dissemination of technical know-how in form of brochures leaflets, manuals, guidelines, etc. Capacity Building-cum-Hands-on Training Programmes for professionals as well as construction workforce	88,09,632
• Construction of Demonstration Housing Projects and other Structures in different parts of India including Tripura, Expenditure on Financial Assistance for technology development/application and Sponsored Studies	2,13,70,176
• Expenses towards Appraisal, Monitoring, Capacity Building and Training Programmes, Monitoring Cell and other activities relating to JNNURM, BIPARD, Building Centers and others	2,84,37,285
TOTAL	10,27,07,726

The Accounts have been audited by M/s Matta & Associates, Chartered Accountants. The balance sheet and the statement of accounts for the year 2013-14 are placed in the report.



MATTA & ASSOCIATES

Chartered Accountants

- 877, Aggarwal Cyber Plaza-II, Netaji Subhash Place, Pitampura, Delhi-110034
- 308, RG Trade Tower, Plot No. B-7, Netaji Subhash Place, Pitampura, Delhi-110034

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Web : www.mattaassociates.com

INDEPENDENT AUDITORS' REPORT

To

The Members,
Building Materials & Technology Promotion Council
NEW DELHI

Report on the Financial Statements

We have audited the accompanying financial statements of **BUILDING MATERIALS & TECHNOLOGY PROMOTION COUNCIL** ("the SOCIETY") registered under the Societies Registration Act, 1860, which Comprise the Balance Sheet as at March 31, 2014 and statement of Income and Expenditure for the year ended and a summary of significant accounting policies and other explanatory information.

Management Responsibility for the Financial Statement

Management is responsible for the preparation of these financial statements that give a true and fair view of the financial position, financial performance in accordance with the Accounting Principles generally accepted in India. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with the Standards on Auditing issued by the Institute of Chartered Accountants of India. Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Society's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the



circumstances. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of the accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidences we have obtained are sufficient and appropriate to provide a basis for our unqualified audit opinion.

Basis for Opinion:

Opinion

In our opinion and to the best of our information and according to explanation given to us, the financial statements give the information required in the manner so required and give true and fair view in conformity with the accounting principles generally accepted in India:

- (a) In case of Balance sheet, of the state of affairs of the Society as at March 31, 2014;
- (b) In case Statement of Income and Expenditure Account, of the Surplus for the year ended on that date; and
- (c) In case of Receipts and Payment Account of Receipts and Payments for the year ended on that date.

Report on Other Legal and Regulatory Requirements:

We report that:

- (a) We have obtained all the information and explanation, which to the best of our knowledge and belief were necessary for the purpose of our audit.
- (b) In our opinion, proper books of accounts as required by the law have been kept by the Society so far as it appears from our examination of the books.
- (c) In our opinion, the Balance Sheet & Statement of Income & Expenditure account dealt with by the report complies with the Accounting Standards issued by the Institute of Chartered Accountants of India.
- (d) The Balance Sheet and Statement of Income & Expenditure account dealt with by this Report are in agreement with the books of accounts.
- (e) The Receipts and Payment Account dealt with by this report are in agreement with the books of accounts.

**For MATTA AND ASSOCIATES
Chartered Accountants
FRN NO. 004259N**

**(Anil Matta)
(Partner)**

Membership No: 084835



**Place: DELHI
Date: 25.07.2014**

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BALANCE SHEET AS ON 31 MARCH 2014

		Amount (₹)	
	Schedule	2013-14	2012-13
<u>CORPUS/CAPITAL FUND AND LIABILITIES</u>			
CORPUS/CAPITAL FUND	1	10,00,000	10,00,000
RESERVES AND SURPLUS	2	19,40,01,939	21,17,65,648
EARMARKED FUNDS	3	29,28,030	74,79,974
CURRENT LIABILITIES AND PROVISIONS	4	18,42,297	66,67,249
TOTAL		19,97,72,266	22,69,12,871
<u>ASSETS</u>			
FIXED ASSETS	5	3,96,64,141	3,95,24,455
CURRENT ASSETS, LOANS & ADVANCES ETC.	6	16,01,08,125	18,73,88,416
TOTAL		19,97,72,266	22,69,12,871
SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS	14		

S.B. Srinivasan
 (S. Balasrinivasan)
 Chief - Finance

Dr. Shailesh Kr. Agrawal
 (Dr. Shailesh Kr. Agrawal)
 Executive Director

As per our report of even date attached.

for **MATTA & ASSOCIATES**
Chartered Accountants

Anil Matta

 Anil Matta, FCA
 Partner
 M.No. 084835
 Firm No. 04259N

Place :Delhi
Date : 25.07.2014

INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 MARCH 2014

	Schedule	2013-14	2012-13
Amount (₹)			
INCOME			
Grants / Subsidies	7	5,00,00,000	5,00,00,000
Jnnum Monitoring/Appraisal Fees/Seminar Receipts	8	1,05,71,250	1,85,69,000
Income from Publications and PAC's Fee etc.	9	10,48,686	3,16,032
Interest Earned	10	1,27,18,336	1,25,33,114
TOTAL (A)		7,43,38,272	8,14,18,146
EXPENDITURE			
Expenditure on Salary, Establishment & Administration	11	4,08,78,799	3,52,27,417
Expenditure on Dissemination / Seminars/Workshops, Training Programmes, JNNURM etc.	12	2,87,86,819	2,66,11,756
Expenditure on Financial Assistance, Sponsored Studies etc.	13	2,13,16,833	1,66,85,096
Depreciation	5	11,19,530	11,85,561
TOTAL (B)		9,21,01,981	7,97,09,830
Excess of expenditure over income (B-A)		(1,77,63,709)	
Excess of income over expenditure (A-B)			17,08,316
BALANCE BEING SURPLUS/DEFICIT CARRIED TO BALANCE SHEET		(1,77,63,709)	17,08,316
SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS	14		

S.B. Srinivasan
(S. Balasrinivasan)
Chief - Finance

Dr. Shailesh Kr. Agrawal
(Dr. Shailesh Kr. Agrawal)
Executive Director

As per our report of even date attached.
for **MATTA & ASSOCIATES**
Chartered Accountants

Arif Matta
Arif Matta, FCA
Partner
M.No.-084835
Firm No. 04259N

Place : Delhi
Date : 25.07.2014

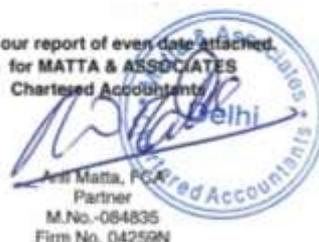
RECEIPTS & PAYMENT ACCOUNT FOR THE YEAR ENDED 31 MARCH 2014

	Amount (₹)	
	2013-14	2012-13
RECEIPTS		
1 Opening Balance		
Cash Balances in hand	1,50,685	1,64,267
Bank Balances		
With Scheduled Banks:		
- On Deposit Account	13,14,52,624	12,00,84,236
- On Savings Accounts:		
- Canara Bank (Parliament Street)	3,25,88,749	3,59,81,669
- Canara Bank (HauzKhas)	3,51,287	3,35,471
- Canara Bank, Bangalore	1,99,087	98,400
- State Bank of Hyderabad (Scope Complex)	43,62,461	16,89,54,208
2 Grants-in-aid from Central Government (Ministry of Housing & Urban Poverty Alleviation)	5,00,00,000	5,00,00,000
3 Receipts towards Fees/Consultancy & Training/Conferences/JNNURM	53,96,250	2,62,14,750
4 Security Deposit etc	3,39,163	1,80,837
5 Loan & advances(Net)	37,18,909	22,64,567
6 Income from Publications etc.	10,48,686	3,16,032
7 Interest Earned	1,31,11,806	1,23,60,919
TOTAL	24,27,19,707	25,29,74,579
PAYMENTS		
1 Purchase of Fixed Assets	12,59,216	1,17,629
2 Expenditure on Salary, Establishment & Administration	4,26,31,417	3,39,83,656
3 Expenditure on Training Programmes, Seminars/Workshops, etc.	86,09,632	1,01,50,842
4 Expenditure on Financial Assistance, Sponsored Studies, etc.	2,13,70,176	7,42,70,441
5 Earmarked funds		
Establishment of Bamboo Mat Production Centres in North-Eastern States	18,41,598	--
Construction of Demonstration Houses in Mizoram	3,14,343	--
Construction of Demonstration Buildings with cost effective technologies and technology Demonstration-cum-Production Centre in Tripura	17,78,430	3,09,760
Capacity Building Training Programme on IPOMS, Quality Assurance and TPM	6,326	54,222
Modal Amendment in Town & Country Planning Act, Zoning Regulation	--	5,36,801
BIPARD	5,65,668	4,13,083
NDMA	1,60,630	17,78,120
Rejuvenation and strengthening of Building Centers	6,91,675	53,78,672
6 Expenditure on JNNURM	2,30,58,613	29,28,000
7 Closing Balance		
Cash Balances in hand	75,930	1,50,685
Bank Balances		
With Scheduled Banks:		
- On Deposit Account	13,05,78,006	13,14,52,624
- On Savings Accounts:		
- Canara Bank (Parliament Street)	15,85,808	3,25,88,749
- Canara Bank (HauzKhas)	3,65,479	3,51,287
- Canara Bank, Bangalore	49,544	1,99,087
- State Bank of Hyderabad (Scope Complex)	73,57,212	13,99,36,051
TOTAL	24,27,19,707	25,29,74,579

S.B. Srinivasan
(S. Balasrinivasan)
Chief - Finance

Shailish Kr. Agrawal
(Dr. Shailish Kr. Agrawal)
Executive Director

As per our report of even date attached
for **MATTA & ASSOCIATES**
Chartered Accountants



Place :Delhi
Date : 25.07.2014

SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31 MARCH 2014

	Amount (₹)	
	2013-14	2012-13
SCHEDULE 1- CORPUS/CAPITAL FUND		
Balance as at the beginning of the year	10,00,000	10,00,000
TOTAL	10,00,000	10,00,000
SCHEDULE 2- RESERVES AND SURPLUS		
1. Capital Reserve		
Opening Balance	8,61,12,188	8,59,94,559
Addition during the year	12,59,216	1,17,629
2. Excess of Income over Expenditure	8,73,71,404	8,61,12,188
Opening Balance	12,56,53,460	12,40,62,773
Less : Amount transferred from Income & Expenditure A/c	1,77,63,709	-
Add : Amount transferred from Income & Expenditure A/c	-	17,08,316
	10,78,89,751	12,57,71,089
Less transferred to Capital Reserve	12,59,216	1,17,629
TOTAL	19,40,01,939	21,17,65,648
SCHEDULE 3- EARMARKED FUNDS		
1 Construction of Demonstration Buildings with cost effective technologies and technology Demonstration-cum-Production Centre in Tripura		
Opening Balance	17,78,430	20,88,190
Less : Utilisation/Expenditure during the year	3,29,120	3,09,760
Less:amount refunded during the year	14,49,310	-
2 Model amendments in Town and Country Planning Act., Zoning Regulations	-	-
Opening Balance	-	5,36,801
Less : Amount refunded during the year	-	5,36,801
3 Establishment of Bamboo Mat Production Centres in North-Eastern States	-	-
Opening Balance	18,41,598	18,41,598
Less : Utilisation/Expenditure during the year	-	-
Less:amount refunded during the year	18,41,598	-
4 Construction of Demonstration Houses in Mizoram	-	-
Opening Balance	3,14,343	-
Less:amount refunded during the year	3,14,343	-
5 Capacity Building Training Programme on IPOMS, Quality Assurance and TPM	-	-
Opening Balance	12,03,091	11,10,035
Less : Utilisation/Expenditure during the year	6,328	6,944
Add : Adjustment during the year	-	1,00,000
6 NDMA PROJECT	-	-
AMOUNT RECEIVED DURING THE YEAR	1,60,630	19,20,750
Less : Utilisation/Expenditure during the year	-	17,60,120
7 BIPARD PROJECT	-	-
AMOUNT RECEIVED DURING THE YEAR	1,64,882	6,80,000
Less : Utilisation/Expenditure during the year	7,50,000	5,15,118
8 Rejuvenation and strengthening of Building Centers	-	-
AMOUNT RECEIVED DURING THE YEAR	20,17,000	49,45,000
Less : Utilisation/Expenditure during the year	6,91,675	29,28,000
TOTAL	29,28,030	74,79,974
SCHEDULE 4- CURRENT LIABILITIES AND PROVISIONS		
CURRENT LIABILITIES		
- Outstanding Liabilities	5,94,048	57,58,163
- Security Deposit	11,78,277	8,39,114
- Balance of funds received for developing building bye-laws	19,972	18,972
- Liability towards Bilaspur project under VAMBAY	50,000	50,000
TOTAL	18,42,297	66,67,249





Building Materials & Technology Promotion Council

Ministry of Housing & Urban Poverty Alleviation, Government of India

SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31 MARCH 2014

SCHEDULE 5- FIXED ASSETS							Amount (₹)	
	GROSS BLOCK			DEPRECIATION			2013-14	2012-13
	Cost as at 1.4.13	Additions	Total	Upto 1.04.13	Current year	Upto 31.03.14	NET BLOCK As at 31.03.14	NET BLOCK As at 31.03.13
Office Building at IHC (Lease hold)	3,43,19,817	-	3,43,19,817	-	-	-	3,43,19,817	3,43,19,817
Furniture and Fixtures	34,29,006	1,47,645	35,76,651	24,40,609	1,06,222	25,46,831	10,29,820	9,88,397
Office Equipments	1,89,89,139	14,000	1,90,03,139	1,67,14,973	3,42,175	1,70,57,148	19,45,991	22,74,166
Computers/ Peripherals	1,61,21,526	7,74,345	1,68,95,871	1,56,69,809	3,93,337	1,62,63,146	6,32,725	2,51,717
Air conditioners	7,31,940	3,03,226	10,35,166	5,12,135	55,713	5,67,848	4,67,318	2,19,805
Fan & Coolers	55,405	20,000	75,405	34,838	4,585	39,423	35,982	20,567
TV and VCR	3,80,450	-	3,80,450	2,88,112	13,851	3,01,963	78,487	92,338
Exhibits, Panels, Display Models	1,20,84,905	-	1,20,84,905	1,07,27,257	2,03,647	1,09,30,904	11,54,001	13,57,648
	8,61,12,186	12,59,216	8,73,71,404	4,65,87,733	11,19,530	4,77,07,263	3,96,64,141	3,95,24,455
Previous Year (2012-13)	6,59,94,559	1,17,629	6,61,12,188	4,54,02,172	11,85,561	4,65,87,733	3,95,24,455	4,05,92,387





SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31 MARCH 2014

		Amount (₹)	
SCHEDULE 6 - CURRENT ASSETS, LOANS, ADVANCES ETC.		2013-14	2012-13
A. CURRENT ASSETS:			
1. Cash in hand		75,930	1,50,685
2. Bank Balances			
- On Deposit Account	13,05,78,008		13,14,52,624
- On Savings Accounts:			
- Canara Bank (Parliament Street)	15,85,808		3,25,88,749
- Canara Bank (Hauz Khas)	3,65,479		3,51,287
- Canara Bank (Bangalore)	49,544		1,99,087
- State Bank of Hyderabad (Scope Complex)	73,57,212	13,99,36,051	43,62,461
			16,89,54,208
B. LOANS, ADVANCES AND OTHER ASSETS			
1. Loans to staff	26,60,839	26,60,839	35,39,382
2. Advances and other amounts recoverable in cash or in kind or value to be received			
a. Income tax, Service tax & Other advances Recoverable	71,46,192		39,45,968
b. Security Deposit (space) Recoverable	4,20,000	75,66,192	5,35,590
			44,81,558
3. Interest Accrued		98,69,113	1,02,62,583
TOTAL (A + B)		16,01,08,125	18,73,88,416



**Building Materials & Technology Promotion Council**

Ministry of Housing & Urban Poverty Alleviation, Government of India

**SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT
FOR THE YEAR ENDED AS ON 31 MARCH 2014**

Amount (₹)

SCHEDULE 7- GRANTS/SUBSIDIES (Irrevocable Grants & Subsidies Received)	2013-14	2012-13
1 Central Government (Ministry of Housing & Urban Poverty Alleviation, Government of India)	5,00,00,000	5,00,00,000
TOTAL	5,00,00,000	5,00,00,000

SCHEDULE 8 - FEES/SUBSCRIPTIONS	2013-14	2012-13
1 Appraisal Fees from Ministry of Housing & Urban Poverty Alleviation	--	1,85,69,000
2 Monitoring Fees from Ministry of Housing & Urban Poverty Alleviation	1,05,71,250	--
TOTAL	1,05,71,250	1,85,69,000

SCHEDULE 9- INCOME FROM PACS FEE, PUBLICATION ETC.	2013-14	2012-13
1 Receipts towards sale of publications, PACS etc	10,48,686	3,16,032
TOTAL	10,48,686	3,16,032

SCHEDULE 10- INTEREST EARNED	2013-14	2012-13
1 On Term Deposits With Scheduled Banks	1,16,81,278	1,16,16,048
2 On savings Accounts With Scheduled Banks	9,31,605	8,37,749
3 On Loans-Employees/Income Tax Refund	1,05,453	79,317
TOTAL	1,27,18,336	1,25,33,114

SCHEDULE 11- EXPENDITURE ON SALARY, ESTABLISHMENT & ADMINISTRATION	2013-14	2012-13
1 Pay and Allowances	3,44,34,472	2,84,10,093
2 Leave Travel Concession	5,58,709	4,03,475
3 Reimbursement of Medical Expenses	9,60,213	13,78,737
4 Honorarium	2,43,000	2,00,300
5 Advertisement expenses towards hiring of personnel	18,428	5,12,113
6 Administration Expenses	46,63,977	43,22,699
TOTAL	4,08,78,799	3,52,27,417

SCHEDULE '12' - EXPENDITURE ON DISSEMINATION / SEMINARS/WORKSHOPS, TRAINING PROGRAMMES, JNNURM ETC.	2013-14	2012-13
1 Exhibition and publicity	26,67,983	41,81,713
2 Seminar and Conference Expenses	25,12,938	24,66,674
3 Printing,Publication,Advertisement	19,07,457	22,21,828
4 Books and Periodicals	93,434	99,469
5 Technology transfer and training Programmes	7,96,061	7,35,345
6 JNNURM Expenditure including Administration Expenses	2,08,08,946	1,69,06,729
TOTAL	2,87,86,819	2,66,11,759





**SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT
FOR THE YEAR ENDED AS ON 31 MARCH 2014**

		Amount(₹)	
SCHEDULE '13' - EXPENDITURE ON SPONSORED STUDIES, FINANCIAL ASSISTANCE, ETC.		2013-14	2012-13
A Building Materials & Construction Technologies			
1	Energy efficient construction material for buildings	2,50,000	1,50,000
2	Design methodology for chemical treated bamboo reinforced concrete members for low cost Housing	4,55,000	4,55,000
3	Construction of community centre at Ambala	1,88,531	14,09,471
4	Construction of demonstration houses at Raibareilly	1,15,25,166	29,72,889
5	Construction of demonstration houses at Pinjore	6,10,892	47,41,630
6	Setting up of bamboo mat production centre at Dimapur, Nagaland	4,23,600	15,04,200
7	Improvement of earthquake resistant capacity of circular columns	18,000	2,54,000
8	Performance appraisal certification scheme	4,53,790	26,160
9	Brain storming session for possible areas of cooperation with R&D institution	2,77,662	-
10	Construction of demonstration structure using bamboo based technologies	1,54,168	-
11	Consultation on standard specification for affordable housing in Gujarat	1,00,000	-
12	Workshop on emerging building materials & construction technology at Bangalore	2,54,584	-
13	Development of concrete column for low cost housing	2,17,268	-
14	Development of curriculum on sustainable building technology for engineering & architecture education	2,50,000	-
15	Developing works specification & rate analysis for monolithic concrete construction technology	1,37,700	-
16	Guidelines for rapid visual screening of building of masonry & reinforced concrete as prevalent in India	24,000	-
17	Project on Hu Motor: A human way to utilize human efforts	3,00,000	-
18	Pilot study for design of Indira Awas Yojna for western region with focus on Gujarat	1,15,888	-
19	Project on representation of GFRG structure using building information model(BIM)	3,00,000	-
20	Design packages for construction of demonstration structure using cost effective technologies at Karnataka	1,50,000	-
21	Development of schedule of rate on GFRG & monolithic concrete construction technologies	2,00,000	-
22	Documentation of demonstration housing project at Amethi	2,34,800	-
23	Development of standard specification for plain region e.g. Madhya Pradesh/Bihar & coastal region-Orissa/Andhra Pradesh	5,50,000	-
24	Development of standard & specification including suggestive design for EWS & L	2,75,000	-
25	Prototype design & planning of low cost innovative housing for doaba region in Punjab and surrounding region	1,89,000	-
26	Prototype design & planning of low cost innovative housing for kolkata and surrounding region	1,89,000	-
27	Development of work specification and analysis of rates for GFRG buildings	1,87,500	-
28	Scientific authentication of semi-automatic brick masonry construction	-	1,50,000
29	Development of building components from sponge iron waste	-	2,50,000
30	Developing database on embodied energy of building materials	-	3,94,000
31	Performance of concrete with rice husk ash as buiding materials	-	1,50,000
32	Upgradation facility for commercialisation of bamboo mat corrugated ridge cap	-	1,00,000
33	Energy auditing and carbon footing in manufacture of bamboo mat corrugated she	-	3,89,250
34	Detailed study of performance of cement concrete doors & windows frames	-	3,29,046
35	Development of design package for Uttarakhand region	-	1,30,200
36	Estimation of model housing project using cost-effective technology for Haryana	-	45,000
37	Devolpment of design package for western region	-	84,739
38	Devolpment of design package for southern region	-	2,13,265
39	Developing manual on basic of framework	-	29,781
Sub-Total (A)		1,80,31,549	1,37,78,631





**SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT
FOR THE YEAR ENDED AS ON 31 MARCH 2014**

		Amount(₹)	
SCHEDULE '13' - EXPENDITURE ON SPONSORED STUDIES, FINANCIAL ASSISTANCE, ETC. (contfd.)		2013-14	2012-13
B Capacity Building & Skill Development			
1	Evolving building artisan friendly certification programmer linked to decentralised modules	12,40,435	6,08,200
2	Development of basic audio-video and still based training module for artisan	6,62,160	2,40,000
3	Training programme for supervisors on effective housing technologies at Tehri Garhwal, Uttarakhand	50,000	50,000
4	Training programme for engineers & supervisors on green building technology at Kanyakumari	49,000	49,000
5	Training programme for supervisors on low cost technologies at Vidisha,MP	1,00,000	50,000
6	Training programme for mason on cost effective technology at Amirgarh, Gujarat	45,824	73,750
7	Training programme for construction workers on disaster resistance practice at Ahmedabad,Gujarat	34,543	57,835
8	Training programme cum work shop on bamboo housing at Shilong,Meghalaya	4,12,520	-
9	Training programme for engineers at Raibareilly	49,850	-
10	Training programme for masons in rural areas on flyash based buildings components at Jamshedpur	61,431	-
11	Training programme cum workshop on bamboo housing at Imphal (Manipur)	4,00,000	-
12	Training programme for masons at RaiBareilly	66,000	-
13	Training programme for masons on disaster resistance technologies at Srinagar,Garhwal	-	76,100
14	Training Programme for Masons on cost effective technologies at kanyakumari	-	79,100
15	Retrofitting of MCD school at New Delhi	-	19,900
16	Training programme for construction supervisor at Kanyakumari	-	56,000
17	Training programme for construction supervisor at Vidisha,MP	-	1,60,000
18	Training programme for construction supervisor at Tehri Garhwal,Uttarakhand	-	76,000
19	Training programme for field & lab techicians on concrete	-	2,90,630
20	Training programme for supervisors on low cost technologies at Vidisha,MP	-	50,000
21	Training programme for masons in rural areas on flyash based buildings components at Adityapur	-	50,200
22	Training programme on rapid wall building systems at Chennai	-	2,45,790
Sub-Total (B)		31,71,763	22,32,305
C Disaster Mitigation & Management			
1	Organisation of training of trainers with BIPARD on earthquake resistant design & construction at Patna	1,13,521	-
2	Preparation of earthquake tips	-	6,74,160
Sub-Total (C)		1,13,521	6,74,160
TOTAL (A+B+C)		2,13,16,833	1,66,85,096



SCHEDULE 14: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS**1 Significant Accounting Policies**

- a) **System of Accounting** - The accounts have been prepared to comply with all material aspects with applicable principals in India and notified Accounting Standards.
- b) **Fixed Assets** - Fixed assets are stated at cost of acquisition and depreciation is provided at written down values rates and in the manner as specified in the Income Tax Act 1961.
- c) **Retirement Benefits** -
1. The Council contributes to its own Provident Fund Trust which is recognized by the Income Tax authorities and the contributions paid during the year to Provident Fund Trust are charged to revenue.
 2. Liability in respect of Gratuity to employees is provided for by way of annual premium paid to LIC under Group Gratuity Scheme.
 3. Liability in respect of Leave Encashment payable to the employees is provided for by way of annual premium paid to LIC of master policy and the premium paid is charged to revenue.
- d) **General** - Accounting policies not specifically mentioned are otherwise in consonance with generally accepted accounting practices.

2 **Contingent Liabilities** - Claims against the Council not acknowledged as debts - NIL.

3 In opinion of the Management, the amount on realisation of current assets, loans and advances in the ordinary course of business would not be less than the amount at which they are stated in the Balance Sheet. Further, provision for all known liabilities has been made in the accounts.

4 As there being no taxable income under the Income Tax Act, 1961, provision for Income Tax has not been made in the accounts. The Council is regularly depositing TDS, Service Tax and other statutory liabilities. The same have been deposited timely except a few TDS cases.

5 In respect of office space at India Habitat Centre, Lodhi Road, New Delhi, the exact cost has not been apportioned by IHC amongst the different allottees. As such a sum of Rs. 3.43 crores has been capitalized by the Council on the basis of calls/payment made to IHC.

6 Since the Financial Year 2012-2013, the administration expenditure has been apportioned equally to Grants as well as JNNURM expenditure.

7 Figures have been rearranged & regrouped wherever required and all the above said information has been given by the management and relied upon by the auditors.

S.B. Srinivasan
(S. Balasrinivasan)
Chief - Finance

Dr. Shailesh Kr. Agrawal
(Dr. Shailesh Kr. Agrawal)
Executive Director

As per our report of even date attached.
for **MATTA & ASSOCIATES**
Chartered Accountants


Anil Matta, FCA
Partner
M.No.-084835
Firm No. 04259N

Place : Delhi
Date : 25.07.2014

PARTICIPATION IN NATIONAL AND INTERNATIONAL EVENTS**I. EXHIBITIONS**

During the year, the Council actively participated in the following exhibitions which have helped in sharing knowledge and experience in cost effective, environment friendly and energy efficient building materials, construction technologies and simple machines for production of building components including emerging technologies:

- 17th National Exhibition on the theme of “India Advancing towards a World Power” during 6 to 10 September, 2013 at Santiniketan, Bolpur, West Bengal organized by Central Calcutta Science & Culture Organisation for Youth, Kolkata.
- Nainital Carnival 2013 from 8 to 15 August, 2013 at Haldwani, Nainital, Utrakhand organised by India International Trade Event Organization, New Delhi.
- Utkal-Banga Utsav – 2013 from 14 to 21 August, 2013 at Chandaneswar Mahavidyalaya Campus, Sahabajipur, P.O. Bhograi, Distt.-Balasore, Odisha
- Big 5 Construct India 2013 International Building & Construction Show from 2 to 4 September, 2013 at Mumbai organized by Federation of Indian Chamber of Commerce and Industry, New Delhi.
- HUDCO BuildTech’13 during India International Trade Fair from 14-27 November 2013 at Pragati Maidan, New Delhi.
- BUILD INTEC 2014 : 7th edition from 6 to 9 December, 2014 at Coimbatore organized by organized by CODISSIA INTEC Technology Centre.
- Exhibition during Indian Geotechnical Conference: IGC – 2013 from 22 to 24 December 2013 at Roorkee organized jointly by IGS Roorkee, IIT Roorkee and CSIR-CBRI Roorkee.
- Exhibition on “5th Vision Rajasthan 2014” from 17 to 19 February 2014 at Jaipur, Rajasthan.
- International Conclave & Bamboo Expo – 2014 from 22 to 23 February, 2014 at Bangalore organized by Bamboo Society of India.



BMTPC Display during the India International Trade Fair at Pragati Maidan, New Delhi from 14-27 November, 2013



Shri Arun Kumar Misra, Secretary, Ministry of Housing & Urban Poverty Alleviation visiting the Demonstration House constructed by BMTPC to demonstrate various alternate housing technologies during the India International Trade Fair at Pragati Maidan, New Delhi from 14-27 November, 2013



Shri Arun Kumar Misra, Secretary, Ministry of Housing & Urban Poverty Alleviation interacting with the BMTPC Network Partners at BMTPC Display during the India International Trade Fair at Pragati Maidan, New Delhi from 14-27 November, 2013



II SEMINARS/ CONFERENCES/ WORKHOPS/TRAINING PROGRAMMES etc.

- Training of Trainers (TOT) for Engineers and Architects on Design & Construction of Earthquake Resistant Structures for the Bihar Government organized by BMTPC jointly with BIPARD and BSDMA from 7 - 10 May, 2013 at Patna.
- First Session of the National Platform for Disaster Risk Reduction on “Mainstreaming DRR in Development: From Risk to Resilience” held on 13-14th May, 2013 at New Delhi.
- Annual Conference of Relief Commissioners/ Secretaries, Department of Disaster Management of States/UTs, to review the status of preparedness for South West Monsoon 2013, held on 14th May 2013 at New Delhi.
- Launch of QCI Ready Mixed Concrete (RMC) Plant Certification Scheme Programme held on 17th May 2013 at New Delhi.
- Training of Trainers (TOT) for Engineers and Architects on Design & Construction of Earthquake Resistant Structures for the Bihar Government organized by BMTPC jointly with BIPARD and BSDMA from 21 - 24 May, 2013 at Patna.
- Inauguration of GFRG Demonstration Building for Rapid Affordable Mass Housing at IIT, Chennai on 7th June 2013 at Chennai.
- Brain Storming Session for “Identification of Possible Areas of Cooperation on Alternate and Emerging Housing Technologies with R&D Institutions in India and Abroad” held on 12th June 2013 at New Delhi.
- Training of Trainers (TOT) for Engineers and Architects on Design & Construction of Earthquake Resistant Structures for the Bihar Government organized by BMTPC jointly with BIPARD and BSDMA from 11 - 14 June, 2013 at Patna.
- National Seminar of NCHF//NHB-NCHF Study on Cooperative Housing Problems & Prospects held on 14th June 2013 at New Delhi.

- Training programme on Use of Bamboo in Housing Construction in North Eastern Region from 25-27th June 2013 at Imphal organized by BMTPC jointly with SABF and local government.
- Round table discussion on “Potential of credit based Eco- housing for Rural and Peri-urban areas of India” held on 28th June 2013 at New Delhi organized by BMTPC and Development Alternatives.
- National Symposium on Affordable Housing organized by Ministry of Housing & Urban Poverty Alleviation on 22nd July 2013 at New Delhi.
- Green Habitat Summit India on 25-26 July, 2013 at New Delhi organised by Hexa Green – DevCom Media Pvt. Ltd., New Delhi
- “National Real Estate Summit” on 31 July 2013 at PHD House, New Delhi organized by PHDCCI.
- The 9th International Conference on Real Estate “REALTY 2013” aimed at delineating a broad vision for real estate housing and retail organised on 2nd August 2013 at New Delhi by Confederation of Indian Industry.
- National Seminar on Performance Appraisal Certification Scheme (PACS) on 23rd August 2013 at New Delhi organized by BMTPC.
- Sensitization cum awareness Workshop on Emerging and New Construction Technologies for Social Mass Housing in different states held from 30th-31st August 2013 at Ahmedabad organized jointly with Ahmedabad Municipal Corporation.
- Celebration of World Habitat Day 2013 organised by Ministry of Housing & Urban Poverty Alleviation on 7th October 2013 at New Delhi.
- Conference on “Staying Ahead in Real Estate– Innovative Construction and Understanding Taxation” organised by APREDA –NAREDCO on 24th-25th October 2013 at Hyderabad.
- Symposium on Technology & Equipment for Construction and Demolition (C&D) Waste Recycling from 8 – 9 November, 2013 at New Delhi organized by Indian Concrete Institute under the aegis of Ministry of Urban Development, Govt. of India.

- 8th Asia Pacific Conference on Wind Engineering (APCWE VIII) during 10-14 December, 2013 at CSIR-SERC, Chennai
- International Conference on “Trends and Challenges in Concrete Structures” during 19 to 21 December, 2013 at CPWD Training Institute, Ghaziabad organized by Indian Concrete Institute.
- 12th National Convention on “Real Estate-The best asset class” and the National Realty Awards held on 18th January 2014 at New Delhi organized by NAREDCO
- Presentation of Awards function of projects under JNNURM & RAY organized by Ministry of Housing & Urban Poverty Alleviation on 21st January 2014 at New Delhi.
- Indian Geotechnical Conference: IGC – 2013 from 22 to 24 December 2013 at Roorkee organized jointly by IGS Roorkee, IIT Roorkee and CSIR-CBRI Roorkee.
- Brain Storming Session on “Utilization of Marble waste in housing and building construction” held on 24-25th January 2014 at Chittorgarh and Udaipur.
- Release of Pilot Housing Start Up Index by (HSUI) organized by National Buildings Organization on 3rd February 2014 at New Delhi.
- Foundation Stone Laying Ceremony for the demonstration housing projects on 3rd March 2014 at Chittorgarh and Udaipur.
- Workshop on Emerging Building and Construction Technologies jointly with Karnataka Slum Development Board on 7th 8th March 2014 at Bangalore.
- International Seminar on Cities, Human Settlements and Development: Towards an agenda for applied research and policy-making in emerging countries from 17-18th March 2014, Sao Paulo, Brazil.

III TECHNICAL COMMITTEE/ WORKING GROUPS /MEETINGS ETC.

- Meeting on Examination of Demand for Grants of Ministry of Housing & Urban Poverty Alleviation for the year 2013-14 held on 1st April 2013 at Parliament House Annexe, New Delhi

- 143rd meeting of CSMC and 139th meeting of CSC under JNNURM and 11th CSMC meeting of RAY on 12.04.2013 at New Delhi.
- 85th meeting of Governing Council of India Habitat Centre on 22.04.2013 at New Delhi.
- Round Table discussions with expert group to discuss regarding syllabus for 'Sustainable Building Technologies for Civil Engineering and Architecture Courses' on 23.4.2013 at New Delhi.
- Meeting of Experts Group to review various Upgraded Earthquake Hazard Maps of States and Districts of India as prepared by BMTPC organized by National Disaster Management Authority on 29.4.2013, New Delhi.
- Meeting to review appraisal report for the projects under 10% Lump sum provision for the North East on 13th May, 2013 in the chamber of JS (UPA), New Delhi.
- Meeting of Performance Evaluation Report of BMTPC, RFD-cum-Annual Action Plan on 5th June 2013 at New Delhi.
- Meeting to discuss the product Polymer Concrete with M/s Polycare Research Technology UK Ltd. on 6th June 2013 at New Delhi.
- 140th Meeting of CSC under JNNURM on 17th June 2013 at New Delhi.
- Meeting for Identification evaluation of New Emerging Construction Technologies on 16th July 2013 at New Delhi.
- 50th Research Council Meeting of CSIR-Structural Engineering Research Centre (SERC) on 24th – 25th July 2013 at Chennai.
- Meeting for discussion on making the CPWD Schedule of Rates compatible for mass affordable housing by incorporating relevant specifications in the office of Secretary Chamber M/o HUPA held on 8th August 2013.
- Meeting with M/s Synergy Thrislington regarding PACS on Factory Made Fast Track Modular Building System on 12 and 13 August 2013 at Mohali, Chandigarh.

- 145th Meeting of CSMC and 141th Meeting of CSC under JNNURM held on 13th August 2013 at New Delhi.
- Meeting with M/s Jindal Steel & Power Ltd. regarding PACS on Speed Floor and Light Gauge Steel Frame Structure held on 5 and 6 September, 2013 at Raigarh, Chhattisgarh.
- 86th Governing Council meeting of India Habitat Centre held on 6th September 2013 at New Delhi.
- 1st Meeting of CSMC under RAY held on 10th September 2013 at New Delhi.
- 146th Meeting of CSMC and 142nd Meeting of CSC under JNNURM held on 10th September 2013 at New Delhi.
- Meeting of Standing Committee on Urban Development held on 11th September 2013 at Parliament House Annexe with Oral evidence before PAC.
- Presentation of Emerging Technologies before the Senior officers of CPWD for inclusion of Emerging Technologies in Schedule of Rates of CPWD held on 20th September 2013 at New Delhi.
- 2nd Meeting of CSMC under RAY and 147th Meeting of CSMC under JNNURM on 26th September 2013 at New Delhi.
- 143rd Meeting of CSC under JNNURM held on 26th September 2013 at New Delhi.
- Inspection of the ongoing construction of 24 Demonstration Houses at Barwaripur, Rae Bareilly on 30th-1st October 2013.
- RMC Certification Committee meeting at Quality Council of India held on 3 October 2013.
- 1st meeting of R&D Committee held on 3 October 2013 at BMTPC's Conference Room, New Delhi.
- Presentation of Emerging Technologies before the Senior officers of CPWD for inclusion of Emerging Technologies in Schedule of Rates of CPWD held on 18th October 2013 at New Delhi.

- Meeting of Technology Advisory Committee for Identification of Emerging Technologies on 23rd October 2013 at New Delhi.
- Meeting taken by Secretary, HUPA with Directors of IITs on 11th November 2013 at New Delhi.
- 43rd Executive Committee meeting of BMTPC held on 19th November 2013 at New Delhi
- Meeting organized by NDMA on Implementation of Techno–Legal regime component under National Earthquake Risk Mitigation Project (Preparatory Phase) held on 19th November 2013 at New Delhi.
- Meeting of Technical Assessment Committee of Performance Appraisal Certification Scheme (PACS) held on 22nd November 2013 at New Delhi.
- 104th Finance and Expenditure Committee Meeting of IHC held on 10th December 2013 at New Delhi.
- 4th Meeting of CSMC under RAY and 149th Meeting of CSMC under JNNURM held on 12th December 2013 at New Delhi.
- 145th Meeting of CSC under JNNURM held on 12th December 2013 at New Delhi.
- 5th Meeting of CSMC under RAY and 150th Meeting of CSMC under JNNURM held on 30th December 2013 at New Delhi.
- 146th Meeting of CSC under JNNURM held on 30th December 2013 at New Delhi.
- 2nd meeting of R&D Committee of BMTPC held on 7th January 2014 at New Delhi.
- Meeting to discuss Annual Plan for the year 2014-15 in respect of Ministry of HUPA under the Chairmanship of Senior Advisor (HUD), Planning Commission held on on 13th January 2014 at New Delhi.
- Meeting with Indian Building Congress for development of Schedule of Rates held on 13 and 16 January, 2014, New Delhi.
- Meeting with National Building Construction Corporation for development of Schedule of Rates held on 18 January, 2014, New Delhi.

- 6th Meeting of CSMC under RAY under the Chairmanship of Secretary, HUPA held on 20th January 2014 at New Delhi.
- 151th Meeting of CSMC and 147th Meeting of CSC under JNNURM held on 20th January 2014 at New Delhi.
- 10th Meeting of Board of Management of BMTPC under the Chairpersonship of Hon'ble Minister of HUPA held on 12th February 2014 at New Delhi.
- Meeting for finalization of the vision document – Technology Vision 2035 on Habitat Sector held on 14th February 2014 at Roorkee.
- Meeting regarding Demonstration housing projects to be taken up in Rajasthan under the Chairpersonship of Hon'ble Minister of HUPA from 15-16 February 2014 at Chittorgarh and Udaipur.
- 152nd Meeting of CSMC and 148th Meeting of CSC under JNNURM held on 20th February 2014 at New Delhi.
- Meeting with DSIIDC regarding construction of transit accommodation at Kanjhawala on 21st February 2014 at New Delhi.
- Meeting of Sustainability in Building Construction Sectional Committee – CED 58, BIS, February 24, 2014 at New Delhi.
- Meeting to hand over Demonstration Houses project at Barwaripur, Rae Bareli on 24-25th February 2014 at Rae Bareli.
- 7th Meeting of CSMC under RAY held on 27th February 2014 at New Delhi.
- Meeting of Cement & Concrete Sectional Committee – CED 2, BIS, March 14, 2014 at New Delhi.
- 153rd Meeting of CSMC and 149th Meeting of CSC under JNNURM held on 25th March 2014 at New Delhi.
- Meeting to review the steps taken by M/o Textiles and M/o HUPA and Banks to mitigate pollution on 25th March 2014 at Rajya Sabha Secretariat, New Delhi.

- Meeting for finalization of the vision document – Technology Vision 2035 held on 27th March 2014 at TIFAC Board Room, New Delhi.
- A series of meetings to consider the proposal received from the State Government under National Bamboo Mission.
- A series of meeting for awarding the projects under Pilot Project on Rejuvenation and Strengthening of National Network of Building Centres.

IV OTHER ACTIVITIES

- A Team comprising of the officials of Ministry of Housing & Urban Poverty Alleviation along with technical officials of HUDCO, BMTPC & HPL visited Dehradun on 6/7 July 2013 and met the Chief Minister, Govt. of Uttarakhand on 6th July 2013 in Dehradun to extend help and support for rehabilitation and restoration activities being undertaken by Uttarakhand Government.
- As a part of team, assessed the claim of M/s Jumbo Roofings and Tiles, Guwahati and M/s North East Roofing Pvt.Ltd., Kamrup under Central Capital Investment Subsidy Scheme (CCIS), 2007 of Department of Industrial Policy and Promotion, Ministry of Commerce and Industry in September, 2013.
- Meeting with Mr. Felix Ngoma, Ambassador of Congo on 17th September 2013 at Embassy of Republic of Congo regarding India-Africa Technical Cooperation Programme in the field of Housing and Human Settlements.

PAPERS PRESENTED/PUBLISHED

- Presentation on Promotion of Bamboo based Technologies for Housing Construction in the North Eastern Region - BMTPC's Initiatives during the Training Programme on Building with Bamboo at Imphal, Manipur from 26 - 29 June 2013 organised jointly with Manipur State Bamboo Mission, Forest Department, Government of Manipur and South Asia Bamboo Foundation (SABF).
- Presentation on Emerging Technologies for Housing & Building Construction during the Seminar on New Construction Technology for Affordable Housing organised by Amdavad Municipal Corporation and BMTPC on August 31, 2013 at Ahmedabad.
- Paper on BMTPC's Initiatives in Mainstreaming Disaster Risk Reduction in Housing Sector published in NCHF News Letter, October 2013.
- Paper on Bhawano ka Bhukampiya Punrawas (Hindi) published in BMTPC Nirman Sarika, October, 2013.
- Paper on Detailed Project Reports for Slum Rehabilitation Projects in Urban Areas published in BMTPC Nirman Sarika, October, 2013.
- Presentation on Emerging Technologies for Housing & Building Construction during the Conference on Staying Ahead in Real Estate – Innovative Construction and Understanding Taxation by APREDA-NAREDCO on October 25, 2013 at Hyderabad organized.
- Paper on Alternate and Emerging Building Materials and Technologies for Sustainable Built Environment published in the Indian Building Congress Journal, December 2013
- Presentation on Promotion of Use of Bamboo based Technologies for Housing Construction in the North Eastern Region during the Training Programme on Building with Bamboo at Shillong, Meghalaya from 2 - 4 December 2013 jointly with Forest Department, Government of Meghalaya.
- Presentation on Emerging Technologies for Housing & Building Construction during Executive Roundtable - Offsite Construction In India: It's Time, organized by RICS and Amity University, January 29, 2014, New Delhi.

- Presentation on Alternate and Emerging Technologies for Housing & Building Construction during the Workshop on Building and Construction Standards on 12 February, 2014 organized by CII at New Delhi.
- Paper on Use of Bamboo in Building Construction published in International Conclave and Bamboo Expo – 2014 held from 22 to 23 February, 2014 at Bangalore organized by Bamboo Society of India.
- Presentation on Research, Knowledge Creation and Dissemination through Urban Networks during International Seminar on Cities, Human Settlements and Development: Towards an Agenda for Applied Research and Policy-making in emerging countries, organized by IBSA, March 12-14, 2014, Sao Paulo, Brazil.
- Presentation on Overview on Affordable Housing Technologies during the Consultation on Standards and Specification for Affordable Housing organized by BMTPC on March 26, 2014 at Ahmedabad

PUBLICATIONS BROUGHT OUT DURING THE YEAR

1. Criteria for Production Control of Ready Mix Concrete for RMC Capability Certification under Ready Mix Concrete (RMC) Plant Certification Scheme (QCI)
2. Performance Appraisal Certification Scheme - A Tool to Propagate Innovative and New Building Materials & Technologies
3. Major Activities in Pursuit
4. Propagation of Cost Effective and Disaster Resistant Technologies through Demonstration Construction
5. Disaster Mitigation and Management – Initiatives by BMTPC
6. Methodology for Documenting Seismic Safety of Housing Typologies in India
7. "Nirman Sarika" - Special Issue of Newsletter highlighting issues related to the theme, "Urban Mobility" of World Habitat Day 2013.

VISITORS FROM FOREIGN COUNTRIES

1. A Delegation of Asia Pacific Minister's Conference on Housing & Urban Development (APMCHUD) comprising of delegates from Yeman, Iraq, Sri Lanka and Afghanistan undertook a Study Tour and visited BMTPC on 8.4.2013. BMTPC made a presentation on the cost effective housing as well as emerging technologies. The visiting delegation shown keen interest in the various alternate technologies for social mass housing. The visiting delegation shown keen interest in the various alternate technologies.
2. A high level delegation from the National Fund for Housing & Reconstruction, the Republic of Sudan comprising of Mr. Elhag Mohamed Ali, Director General Policies, Finance & Investment Dept., Mr. Elgizoli Mohammed, Director General (Kassala State), Mr. Elkhalwati Elsharief, Chief Engineer Consultant, Mr. Hasabo Abdalbagi, Executive Director, Africa City of Technology, and Mr. Ghoham Eldin M. Ahmad, Architecture Engineer visited BMTPC to explore the opportunity for future cooperation with BMTPC in the relative field on November 8, 2013 and detailed discussions were held on appropriate construction technologies for the construction of social housing.

RESULTS-FRAMEWORK DOCUMENT FOR THE YEAR 2013-14 INCLUDING PERFORMANCE EVALUATION REPORT AND CORRESPONDING ACHIEVEMENTS

Section 1: Vision, Mission, Objectives and Functions

Vision

BMTPC to be world class knowledge and demonstration hub for providing solutions to all with special focus on common man in the area of sustainable building materials, appropriate construction technologies & systems including disaster resistant construction.

Mission

To work towards a comprehensive and integrated approach for promotion and transfer of potential, cost-effective, environment-friendly, disaster resistant building materials and technologies including locally available materials from lab to land for sustainable development of housing.

Objectives

1. **Building Materials & Construction Technologies** : To promote development, standardization, mechanization and large scale field application of proven innovative and emerging building materials and technologies in the construction sector.
2. **Capacity Building and Skill Development**: To work as a Training Resource Centre for capacity building and promotion of good construction practices to professionals, construction agencies, artisans and marketing of building technologies from lab to land.
3. **Disaster Mitigation & Management** : To promote methodologies and technologies for natural disaster mitigation, vulnerability & risk reduction and retrofitting/ reconstruction of buildings and disaster resistant planning for human settlements.
4. **Project Management & Consultancy**: To undertake project management and consultancy services including appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes.

Function

1. Identification, evaluation of proven and emerging technologies available globally and encouraging joint venture in building materials and construction sector.
2. Promoting economy, efficiency and quality in construction.
3. Upscaling of technologies, know-how acquisition, absorption and dissemination.

4. Field level application of environment-friendly, energy-efficient and disaster resistant technologies for proven, locally available and emerging technologies.
5. Formulation of Standards on proven building materials/technologies including emerging technologies/systems and incorporation in the schedule of specifications/rates.
6. Documentation of benefits, durability and acceptability of cost effective and innovative building materials and technologies.
7. Skill upgradation of professionals and construction workers through capacity building programmes, training programmes, seminars, conferences, workshops, exhibitions nationally as well as internationally.
8. Promoting disaster resistant construction technologies.
9. Appraisal, monitoring and third party inspection of housing projects including undertaking project management and consultancy services.
10. Publication of user manuals, guidelines, compendiums, directories, brochures, techno-feasibility reports, video films, demonstration CDs, interactive website, blogs including documentation of success stories.

Section 2: Inter se Priorities among Key Objectives, Success indicators and Targets

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value					
						Excellent (100%)	Very Good (90%)	Good (80%)	fair (70%)	Poor (60%)	
[1] Building Materials & Construction Technologies : To promote development, standardisation, mechanisation and large scale field application of proven innovative and emerging building materials and technologies in the construction sector.	60	[1.1] Construction of Demonstration Housing Project at Rae Bareilly	[1.1.1] Completion of the project	Date	12.0	30/11/2013	31/12/2013	31/01/2014	28/02/2014	31/03/2014	
		[1.2] Cooperation with R&D and Academic Organizations in the area of New and Emerging Building Materials and Construction Technologies	[1.2.1] Organization of two brain storming sessions for possible areas of cooperation with R&D institutions both India & abroad	Nos.	2.0	2	1				
			[1.3.1] One to one meetings for preparation of strategy & methodologies and finalisation of Memorandum of Understanding	Date	1.0	30/11/2013	31/12/2013	31/01/2014	28/02/2014	31/03/2014	
			[1.4.1] Selection and initiation of R&D projects	Nos.	3.0	3	2	1			
		[1.5] Promotion of New and Emerging Building Materials and Construction Technologies	[1.5.1] Approval of identified emerging technologies	Nos.	6.0	3	2	1			
			[1.6.1] Preparation of Technology Profiles including cost analysis	Nos.	3.0	3	2	1			
			[1.7.1] Interactions with State Govt. and Real Estate Developers/ Builders jointly with the Technology Providers	Nos.	2.0	2	1				

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent (100%)	Very Good (90%)	Good (80%)	fair (70%)	Poor (60%)
			[1.8.1] Identification and Evaluation of additional emerging technologies (2 nos.) apart from 8 already identified technologies	Nos.	3.0	2	1			
		[1.9] Organisation of Exhibition for promotion of emerging/ cost effective technologies	[1.9.1] Organisation of one exhibition during IITF or any other location	Nos.	5.0	1				
		[1.10] Establishment of Permanent Display Centre at venue provided by HUDCO at New Delhi	[1.10.1] Establishment of Centre	Date	2.0	31/12/2013	31/01/2014	28/02/2014	31/03/2014	
		[1.11] Implementation of Performance Appraisal and Certification Scheme	[1.11.1] Organization of national level seminar on PACS	Date	3.0	31/12/2013	31/01/2014	28/02/2014	31/03/2014	
			[1.12.1] Evaluation of products/systems under PACS	Nos.	3.0	5	4	3	2	1
			[1.13.1] Award of PACS	Nos.	3.0	5	4	3	2	1
		[1.14] Dissemination of information through print & electronic media including website upkeep	[1.14.1] Periodic sharing of information through journals, magazines, website, advts. and preparation of display material	Date	4.0	31/03/2014				
			[1.15.1] Preparation of publications	Nos.	4.0	3	2	1		
		[1.16] Participation in important Exhibitions related with Building Materials & Construction Technologies	[1.16.1] Participation in seminars/ workshops/ exhibitions	Nos.	4.0	5	4	3	2	1
[2]Capacity Building and Skill Development: To work as a Training Resource Centre for capacity building and promotion of good construction practices to professionals, construction agencies, artisans and marketing of building technologies from lab to land.	15	[2.1] Organisation of training programme for engineers, architects and masons on field level application of cost effective technologies at ongoing project at Rae Bareli, UP	[2.1.1] No. of engineers and architects trained	Nos.	3.0	25	20	15	10	

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent (100%)	Very Good (90%)	Good (80%)	fair (70%)	Poor (60%)
			[2.2.1] Nos. of masons trained	Nos.	3.0	40	30	20	10	
		[2.3] Organisation of training programmes for artisans on already developed training modules	[2.3.1] Organisation of training programmes	Nos.	3.0	4	3	2	1	
		[2.4] Implementation of Project on "Rejuvenation and Strengthening of the National Network of Building Centres – Pilot Studies" – sponsored by HUDCO under CSR	[2.4.1] Pilot Studies on Rejuvenation and Strengthening of the National Network of Building Centres	Nos.	6.0	10	8	7	6	5
[3] Disaster Mitigation & Management : To promote methodologies and technologies for natural disaster mitigation, vulnerability & risk reduction and retrofitting/ reconstruction of buildings and disaster resistant planning for human settlements.	6	[3.1] Organization of Training of Trainer Programmes for engineers and architects of Bihar Govt. through BIPARD	[3.1.1] Organisation of TOT Programmes	% of request received	3.0	100	90	80	70	60
		[3.2] Preparation of updated Earthquake Hazard Maps for National Disaster Management Authority	[3.2.1] Preparation of remaining Earthquake Hazard Maps for 11 States/UTs	Date	3.0	30/09/2013	31/10/2013	30/11/2013	31/12/2013	31/01/2014
[4] Project Management & Consultancy: To undertake project management and consultancy services including appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes.	8	[4.1] Appraisal of projects under JNNURM / RAY	[4.1.1] Submission of Appraisal Reports	% of project received	2.0	100	90	80	70	60
		[4.2] Monitoring of project sites under JNNURM / RAY	[4.2.1] Submission of Monitoring Reports	% of project monitored	2.0	100	90	80	70	60
		[4.3] TPIM Review	[4.3.1] Submission of TPIM Review Reports	% of project reviewed	2.0	100	90	80	70	60

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent (100%)	Very Good (90%)	Good (80%)	fair (70%)	Poor (60%)
		[4.4] Capacity Building programme on quality assurance & TPIM	[4.4.1] Organization of capacity building programmes in different States	% of request from Mission Direct	2.0	100	90	80	70	60
* Efficient Functioning of the RFD System	3	Timely submission of Draft RFD (2013-14) for approval	On-time submission	Date	2.00	15/05/2013	16/05/2013	17/05/2013	20/05/2013	21/05/2013
		Timely submission of Results for RFD (2012-13)	On-time submission	Date	1.00	01/05/2013	02/05/2013	05/05/2013	06/05/2013	07/05/2013
* Administrative Reforms	4	Implement ISO 9001 as per the approved action plan.	% Implementation	%	2.00	100	95	90	85	80
		Prepare an action plan for Innovation	On time submission	Date	2.00	30/07/2013	10/08/2013	20/08/2013	30/08/2013	10/09/2013
* Improving Internal Efficiency /responsiveness / service delivery of Ministry / Department	4	Implementation of Sevottam	Independent Audit of Implementation of Citizen's Charter	%	2.00	100	95	90	85	80
		Implementation of Sevottam	Independent Audit of implementation of public grievance redressal system	%	2.00	100	95	90	85	80

Section 3: Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 2011-2012	Actual Value for FY 2012-2013	Target Value for FY 2013-2014	Projected Value for FY 2014-2015	Projected Value for FY 2012-2013
[1] Building Materials & Construction Technologies : To promote development, standardisation, mechanisation and large scale field application of proven innovative and emerging building materials and technologies in the construction sector.	[1.1] Construction of Demonstration Housing Project at Rae Bareli	[1.1.1] Completion of the project	Date			31/12/2013		
	[1.2] Cooperation with R&D and Academic Organizations in the area of New and Emerging Building Materials and Construction Technologies	[1.2.1] Organization of two brainstorming sessions for possible areas of cooperation with R&D institutions both India & abroad	Nos.			1	2	
		[1.2.2] One to one meetings for preparation of strategy & methodologies and finalisation of Memorandum of Understanding	Date			31/12/2013	31/12/2014	
		[1.2.3] Selection and initiation of R&D projects	Nos.			2	3	
	[1.3] Promotion of New and Emerging Building Materials and Construction Technologies	[1.3.1] Approval of identified emerging technologies	Nos.			2	3	
		[1.3.2] Preparation of Technology Profiles including cost analysis	Nos.			2	3	
		[1.3.3] Interactions with State Govt. and Real Estate Developers/ Builders jointly with the Technology Providers	Nos.			1	2	
		[1.3.4] Identification and Evaluation of additional emerging technologies (2 nos.) apart from 8 already identified technologies	Nos.			1	2	
	[1.4] Organisation of Exhibition for promotion of emerging/ cost effective technologies	[1.4.1] Organisation of one exhibition during IITF or any other location	Nos.			1	1	
	[1.5] Establishment of Permanent Display Centre at venue provided by HUDCO at New Delhi	[1.5.1] Establishment of Centre	Date			31/01/2014		

Objective	Action	Success Indicator	Unit	Actual Value for FY 2011-2012	Actual Value for FY 2012-2013	Target Value for FY 2013-2014	Projected Value for FY 2014-2015	Projected Value for FY 2012-2013	
	[1.6] Implementation of Performance Appraisal and Certification Scheme	[1.6.1] Organization of national level seminar on PACS	Date			31/01/2014	31/01/2015		
		[1.6.2] Evaluation of products/systems under PACS	Nos.			4	5		
		[1.6.3] Award of PACS	Nos.			4	5		
	[1.7] Dissemination of information through print & electronic media including website upkeeping	[1.7.1] Periodic sharing of information through journals, magazines, website, advts. and preparation of display material	Date				31/03/2014	31/03/2015	
		[1.7.2] Preparation of publications	Nos.				2	3	
	[1.8] Participation in important Exhibitions related with Building Materials & Construction Technologies	[1.8.1] Participation in seminars/workshops/ exhibitions	Nos.				4	5	
[2] Capacity Building and Skill Development: To work as a Training Resource Centre for capacity building and promotion of good construction practices to professionals, construction agencies, artisans and marketing of building technologies from lab to land.	[2.1] Organisation of training programme for engineers, architects and masons on field level application of cost effective technologies at ongoing project at Rae Bareli, UP	[2.1.1] No. of engineers and architects trained	Nos.				20	25	
		[2.1.2] Nos. of masons trained	Nos.				30	40	
	[2.2] Organisation of training programmes for artisans on already developed training modules	[2.2.1] Organisation of training programmes	Nos.				3	4	
	[2.3] Implementation of Project on "Rejuvenation and Strengthening of the National Network of Building Centres – Pilot Studies" – sponsored by HUDCO under CSR	[2.3.1] Pilot Studies on Rejuvenation and Strengthening of the National Network of Building Centres	Nos.				8		
[3] Disaster Mitigation & Management : To promote methodologies and technologies for natural disaster mitigation, vulnerability & risk reduction and retrofitting/	[3.1] Organization of Training of Trainer Programmes for engineers and architects of Bihar Govt. through BIPARD	[3.1.1] Organisation of TOT Programmes	% of request received				90		

Objective	Action	Success Indicator	Unit	Actual Value for FY 2011-2012	Actual Value for FY 2012-2013	Target Value for FY 2013-2014	Projected Value for FY 2014-2015	Projected Value for FY 2012-2013
reconstruction of buildings and disaster resistant planning for human settlements.								
	[3.2] Preparation of updated Earthquake Hazard Maps for National Disaster Management Authority	[3.2.1] Preparation of remaining Earthquake Hazard Maps for 11 States/UTs	Date			31/10/2013		
[4] Project Management & Consultancy: To undertake project management and consultancy services including appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes.	[4.1] Appraisal of projects under JNNURM / RAY	[4.1.1] Submission of Appraisal Reports	% of project received			90	100	
	[4.2] Monitoring of project sites under JNNURM / RAY	[4.2.1] Submission of Monitoring Reports	% of project monitored			90	100	
	[4.3] TPIM Review	[4.3.1] Submission of TPIM Review Reports	% of project reviewed			90	100	
	[4.4] Capacity Building programme on quality assurance & TPIM	[4.4.1] Organization of capacity building programmes in different States	% of request from Mission Direct			90	100	
*Efficient Functioning of the RFD System	Timely submission of Draft RFD (2013-14) for approval	On-time submission	Date	07/03/2012	02/04/2011	15/05/2013	15/05/2014	15/05/2015
	Timely submission of Results for RFD (2012-13)	On-time submission	Date	30/04/2013		01/05/2013	01/05/2014	01/05/2015
*Administrative Reforms	Implement ISO 9001 as per the approved action plan.	% Implementation	%			95	100	100
	Prepare an action plan for Innovation	On time submission	Date			30/07/2013	30/07/2014	30/07/2015
*Improving Internal Efficiency /responsiveness /service delivery of Ministry / Department	Implementation of Sevottam	Independent Audit of Implementation of Citizen's Charter	%			95	100	100
		Independent Audit of implementation of public grievance redressal system	%			95	100	100

Section 4: Acronyms

Acronym	Description
BIPARD	Bihar Institute of Public Administration and Rural Development
BIS	Bureau of Indian Standards
BMTPC	Building Materials & Technology Promotion Council
BSUP	Basic Services for Urban Poor
CSR	Corporate Social Responsibility
HUDCO	Housing and Urban Development Corporation
IHSDP	Integrated Housing & Slum Development Programme
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
NDMA	National Disaster Management Authority
PACS	Performance Appraisal Certification Scheme
R&D	Research and Development
RAY	Rajiv Awas Yojana
TAG	Technology Advisory Group (The Group will comprise of eminent experts, academicians of India and help identifying the technologies)
TOT	Training of Trainers
TPIM	Third Party Inspection & Monitoring

Section 4: Description and Definition of Success Indicators and Proposed Measurement Methodology

SI.No.	Success Indicator	Description	Definition	Measurement	General Comments
1	[1.1.1] Completion of the project	Construction of Demonstration Housing Project at Rae Bareli using cost effective technologies	Construction of Demonstration Housing Project at Rae Bareli	Timely completion of the project	
2	[1.2.1] Organization of two brain storming sessions for possible areas of cooperation with R&D institutions both India & abroad	Cooperation with R&D and Academic Organizations in the area of New and Emerging Building Materials and Construction Technologies	Cooperation with R&D and Academic Organizations in the area of New and Emerging Building Materials and Construction Technologies	Organisation of Brain Storming Sessions	
3	[1.2.2] One to one meetings for preparation of strategy & methodologies and finalisation of Memorandum of Understanding	Cooperation with R&D and Academic Organizations in the area of New and Emerging Building Materials and Construction Technologies	Cooperation with R&D and Academic Organizations in the area of New and Emerging Building Materials and Construction Technologies	Preparation of strategy and methodologies and finalisation of MoU	
4	[1.2.3] Selection and initiation of R&D projects	Cooperation with R&D and Academic Organizations in the area of New and Emerging Building Materials and Construction Technologies	Cooperation with R&D and Academic Organizations in the area of New and Emerging Building Materials and Construction Technologies	Identification and development of guidelines, products and technologies	
5	[1.3.1] Approval of identified emerging technologies	Promotion of New and Emerging Building Materials and Construction Technologies	Promotion of New and Emerging Building Materials and Construction Technologies	Approval of emerging technologies	
6	[1.3.2] Preparation of Technology Profiles including cost analysis	Promotion of New and Emerging Building Materials and Construction Technologies	Promotion of New and Emerging Building Materials and Construction Technologies	Preparation of Technology Profiles	
7	[1.3.3] Interactions with State Govt. and Real Estate Developers/ Builders jointly with the Technology Providers	Promotion of New and Emerging Building Materials and Construction Technologies	Promotion of New and Emerging Building Materials and Construction Technologies	Promotion of New and Emerging Building Materials and Construction Technologies	
8	[1.3.4] Identification and Evaluation of additional emerging technologies (2 nos.) apart from 8 already identified technologies	Promotion of New and Emerging Building Materials and Construction Technologies	Promotion of New and Emerging Building Materials and Construction Technologies	Promotion of New and Emerging Building Materials and Construction Technologies	
9	[1.4.1] Organisation of one exhibition during IITF or any other location	Organisation of Exhibition for promotion of emerging/ cost effective technologies	Organisation of Exhibition for promotion of emerging/ cost effective technologies	Organisation of Exhibition	
10	[1.5.1] Establishment of Centre	Establishment of Centre for promotion of emerging/ cost effective technologies	Establishment of Centre for promotion of emerging/ cost effective technologies	Establishment of Centre	
11	[1.6.1] Organization of national level seminar on PACS	Implementation of Performance Appraisal and Certification Scheme	Implementation of Performance Appraisal and Certification Scheme	Award of Performance Appraisal and Certificates	
12	[1.6.2] Evaluation of products/systems under PACS	Implementation of Performance Appraisal and Certification Scheme	Implementation of Performance Appraisal and Certification Scheme	Award of Performance Appraisal and Certificates	

Sl.No.	Success Indicator	Description	Definition	Measurement	General Comments
13	[1.6.3] Award of PACS	Implementation of Performance Appraisal and Certification Scheme	Implementation of Performance Appraisal and Certification Scheme	Award of PACS	
14	[1.7.1] Periodic sharing of information through journals, magazines, website, advts. and preparation of display material	Dissemination of information through print & electronic media including website upkeeping	Dissemination of information through print & electronic media including website upkeeping	Promotion of emerging and cost effective building technologies	
15	[1.7.2] Preparation of publications	Dissemination of information through print & electronic media	Dissemination of information through print & electronic media	Printing of publications	
16	[1.8.1] Participation in seminars/ workshops/ exhibitions	Participation in important Exhibitions related with Building Materials & Construction Technologies	Participation in important Exhibitions related with Building Materials & Construction Technologies	Promotion of emerging and cost effective technologies	
17	[2.1.1] No. of engineers and architects trained	Organisation of training programme for engineers, architects and masons on field level application of cost effective technologies at ongoing project at Rae Bareli, UP	Organisation of training programme for engineers, architects and masons on field level application of cost effective technologies at ongoing project at Rae Bareli, UP	Capacity building of engineers and architects in use of cost effective building technologies	
18	[2.1.2] Nos. of masons trained	Organisation of training programme for engineers, architects and masons on field level application of cost effective technologies at ongoing project at Rae Bareli, UP	Organisation of training programme for engineers, architects and masons on field level application of cost effective technologies at ongoing project at Rae Bareli, UP	Skill development of masons in various cost effective technologies	
19	[2.2.1] Organisation of training programmes	Organisation of training programmes for artisans on developed training modules	Organisation of training programmes for artisans on developed training modules	Skill upgradation	
20	[2.3.1] Pilot Studies on Rejuvenation and Strengthening of the National Network of Building Centres	Implementation of Project on "Rejuvenation and Strengthening of the National Network of Building Centres – Pilot Studies" – sponsored by HUDCO under CSR	Implementation of Project on "Rejuvenation and Strengthening of the National Network of Building Centres – Pilot Studies" – sponsored by HUDCO under CSR	Strengthening of Building Centres	
21	[3.1.1] Organisation of TOT Programmes	Organization of Training of Trainer Programmes for engineers and architects of Bihar Govt.	Organization of Training of Trainer Programmes for engineers and architects of Bihar Govt.	Capacity building of engineers and architects in earthquake resistant techniques	
22	[3.2.1] Preparation of remaining Earthquake Hazard Maps for 11 States/UTs	Preparation of updated Earthquake Hazard Maps for National Disaster Management Authority	Preparation of updated Earthquake Hazard Maps for National Disaster Management Authority	Preparation of maps	
23	[4.1.1] Submission of Appraisal Reports	Appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes	Appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes	No. of projects appraised	
24	[4.2.1] Submission of Monitoring Reports	Appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes	Appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes	No. of projects monitored	
25	[4.3.1] Submission of TPIM Review Reports	Appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes	Appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes	No. of TPIM reports reviewed	
26	[4.4.1] Organization of capacity building programmes in different States	Capacity Building programme on quality assurance & TPIM	Capacity Building programme on quality assurance & TPIM	Capacity building	

Section 5: Specific Performance Requirements from other Departments

Location Type	State	Organisation Type	Organisation Name	Relevant Success Indicator	What is your requirements from organisation	Justification for this requirement	Please quantify your requirement from this organisation	What happen if your requirement is not meet
Central Government		Other	Other	[1.2.1] Organization of two brain storming sessions for possible areas of cooperation with R&D institutions both India & abroad	Active participation alongwith willingness to work with BMTPC in the areas of common interest for promotion of alternate technologies	Pioneering R& D institutions in the relevant areas	Full support	Shortfall in achieving target
				[1.2.2] One to one meetings for preparation of strategy & methodologies and finalisation of Memorandum of Understanding				
				[1.2.3] Selection and initiation of R&D projects				
				[1.3.1] Approval of identified emerging technologies				
				[1.3.4] Identification and Evaluation of additional emerging technologies (2 nos.) apart from 8 already identified technologies				
				[1.4.1] Organisation of one exhibition during IITF or any other location				
				[1.5.1] Establishment of Centre				
				[3.2.1] Preparation of remaining Earthquake Hazard Maps for 11 States/UTs				
				[4.4.1] Organization of capacity building programmes in different States				
State Government	All States			[1.3.3] Interactions with State Govt. and Real Estate Developers/ Builders jointly with the Technology Providers				
	All States			[2.3.1] Pilot Studies on Rejuvenation and Strengthening of the National Network of Building Centres				
	All States			[3.1.1] Organisation of TOT Programmes				

Location Type	State	Organisation Type	Organisation Name	Relevant Success Indicator	What is your requirements from organisation	Justification for this requirement	Please quantify your requirement from this organisation	What happen if your requirement is not meet
	All States			[4.1.1] Submission of Appraisal Reports				
	All States			[4.2.1] Submission of Monitoring Reports				
	All States			[4.3.1] Submission of TPIM Review Reports				

Section 6: Outcome/Impact of Department/Ministry

Outcome/Impact of Department/Ministry	Jointly responsible for influencing this outcome /impact with the following department (s) /ministry(ies)	Success Indicator	unit	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14
1. Construction of Demonstration Housing Project at Rae Bareli	State Government of Uttar Pradesh	Completion of the project	Date			31/12/2013		
2. Cooperation with R&D and Academic Organizations in the area of New and Emerging Building Materials and Construction Technologies	R&D institutions/IITS, NGOs and experts in the field	Organization of two brain storming sessions for possible areas of cooperation with R&D institutions both India & abroad	Nos.			1	2	2
		One to one meetings for preparation of strategy & methodologies and finalisation of Memorandum of Understanding	Date			31/12/2013	31/12/2014	31/12/2015
		Selection and initiation of R&D projects	Nos.		3	2	3	3
3. Promotion of New and Emerging Building Materials and Construction Technologies	CSIR Labs/Testing labs, Academic institutions, experts in the field	Approval of identified emerging technologies	Nos.			2	3	3
		Preparation of Technology Profiles including cost analysis	Nos.			2	3	3
		Interactions with State Govt. and Real Estate Developers/ Builders jointly with the Technology Providers	Nos.			1	2	2
		Identification and Evaluation of additional emerging technologies (2 nos.) apart from 8 already identified technologies	Nos.			1	2	2
4. Organisation of Exhibition for promotion of emerging/ cost effective technologies	HUDCO, ITPO and building industry	Organisation of one exhibition during IITF or any other location	Nos.			1	1	1
5. Establishment of Permanent Display Centre at venue provided by HUDCO at New Delhi	Ministry of HUPA, HUDCO	Establishment of Centre	Date			31/01/2014		
6. Implementation of Performance Appraisal and Certification Scheme	Experts in the field, Entrepreneurs, Manufacturers, Technology Providers/Suppliers	Organization of national level seminar on PACS	Date			31/01/2014	31/01/2015	31/01/2016
		Evaluation of products/systems under PACS	Nos.			4	5	5
		Award of PACS	Nos.			4	5	5
7. Dissemination of information through print & electronic media including website upkeep	Experts in the field, DAVP and entrepreneurs	Periodic sharing of information through journals, magazines, website, advts. and preparation of display material	Date			31/03/2014	31/03/2015	31/03/2016

Outcome/Impact of Department/Ministry	Jointly responsible for influencing this outcome /impact with the following department (s) /ministry(ies)	Success Indicator	unit	FY 09/10	FY 10/11	FY 11/12	FY 12/13	FY 13/14
		Preparation of publications	Nos.			2	3	3
8. Participation in important Exhibitions related with Building Materials & Construction Technologies	Public and private insitutions, Chambers of Commerce, entrepreneurs	Participation in seminars/ workshops/ exhibitions	Nos.			4	5	5
9. Organisation of training programme for engineers, architects and masons on field level application of cost effective technologies at ongoing project at Rae Bareli, UP	State Government, experts in the field	No. of engineers and architects trained	Nos.			20	25	25
		Nos. of masons trained	Nos.			30	40	40
10. Organisation of training programmes for artisans on already developed training modules	Experts in the field	Organisation of training programmes	Nos.			3	4	4
11. Implementation of Project on "Rejuvenation and Strengthening of the National Network of Building Centres – Pilot Studies" – sponsored by HUDCO under CSR	HUDCO, Building Centres	Pilot Studies on Rejuvenation and Strengthening of the National Network of Building Centres	Nos.			8		
12. Organization of Training of Trainer Programmes for engineers and architects of Bihar Govt. through BIPARD	State Government, BIPARD, Experts in the field	Organisation of TOT Programmes	% of request received			90		
13. Preparation of updated Earthquake Hazard Maps for National Disaster Management Authority	NDMA, Survey of India, Census of India, Experts in the field	Preparation of remaining Earthquake Hazard Maps for 11 States/UTs	Date			31/10/2013		
14. Appraisal of projects under JNNURM / RAY	State/UT Governments, Ministry of HUPA	Submission of Appraisal Reports	% of project received			90	100	100
15. Monitoring of project sites under JNNURM / RAY	State/UT Governments, Ministry of HUPA	Submission of Monitoring Reports	% of project			90	100	100
16. TPIM Review	State/UT Governments, Ministry of HUPA	Submission of TPIM Review Reports	% of project			90	100	100
17. Capacity Building programme on quality assurance & TPIM	State/UT Governments, Ministry of HUPA	Organization of capacity building programmes in different States	% of request from Mission Direct			90	100	100

PERFORMANCE EVALUATION REPORT AND CORRESPONDING ACHIEVEMENTS FOR THE YEAR 2013-14

S. No.	Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value					Achievement	Performance		
							Excellent	Very Good	Good	Fair	Poor		Raw Score	Weighted Score	As Approved by HPC
							100%	90%	80%	70%	60%				
1	Building Materials & Construction Technologies: To promote development, standardisation, mechanisation and large scale field application of proven innovative and emerging building materials and technologies in the construction sector.	60	Construction of Demonstration Housing Project at Rae Bareli	Completion of the project	Date	12	30/11/2013	31/12/2013	31/01/2014	28/02/2014	31/03/2014	31/01/2014	80	9.6	31/01/2014
			Cooperation with R&D and Academic Organizations in the area of New and Emerging Building Materials and Construction Technologies	Organization of two brain storming sessions for possible areas of cooperation with R&D institutions both India & abroad	Nos.	2	2	1				2	100	2	2
			One to one meetings for preparation of strategy & methodologies and finalisation of Memorandum of Understanding	Date	1	30/11/2013	31/12/2013	31/01/2014	28/02/2014	31/03/2014	31/03/2014	60	0.6	31/03/2014	
			Selection and initiation of R&D projects	Nos.	3	3	2	1				2	90	2.7	2
			Promotion of New and Emerging Building Materials and Construction Technologies	Approval of identified emerging technologies	Nos.	6	3	2	1				4	100	6

S. No.	Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value					Achievement	Performance		
							Excellent	Very Good	Good	Fair	Poor		Raw Score	Weighted Score	As Approved by HPC
							100%	90%	80%	70%	60%				
				Preparation of Technology Profiles including cost analysis	Nos.	3	3	2	1		2	90	2.7	2	
				Interactions with State Govt. and Real Estate Developers/ Builders jointly with the Technology Providers	Nos.	2	2	1			2	100	2	2	
				Identification and Evaluation of additional emerging technologies (2 nos.) apart from 8 already identified technologies	Nos.	3	2	1			3	100	3	3	
				Organisation of Exhibition for promotion of emerging/ cost effective technologies	Nos.	5	1				1	100	5	1	
				Establishment of Permanent Display Centre at venue provided by HUDCO at New Delhi	Date	2	31/12/2013	31/01/2014	28/02/2014	31/03/2014		N/A	N/A		
				Implementation of Performance Appraisal and Certification Scheme	Date	3	31/12/2013	31/01/2014	28/02/2014	31/03/2014		23/08/2013	100	3	23/08/2013
					Nos.	3	5	4	3	2	1	6	100	3	6
					Nos.	3	5	4	3	2	1	6	100	3	6
				Dissemination of information through print & electronic media including website upkeep	Date	4	31/03/2014					31/03/2014	100	4	31/03/2014
					Nos.	4	3	2	1			4	100	4	4

S. No.	Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value					Achievement	Performance		
							Excellent	Very Good	Good	Fair	Poor		Raw Score	Weighted Score	As Approved by HPC
							100%	90%	80%	70%	60%				
			Participation in important Exhibitions related with Building Materials & Construction Technologies	Participation in seminars/ workshops/ exhibitions	Nos.	4	5	4	3	2	1	8	100	4	8
2	Capacity Building and Skill Development: To work as a Training Resource Centre for capacity building and promotion of good construction practices to professionals, construction agencies, artisans and marketing of building technologies from lab to land.	15	Organisation of training programme for engineers, architects and masons on field level application of cost effective technologies at ongoing project at Rae Bareli, UP	No. of engineers and architects trained	Nos.	3	25	20	15	10		70	100	3	70
				Nos. of masons trained	Nos.	3	40	30	20	10		42	100	3	42
			Organisation of training programmes for artisans on already developed training modules	Organisation of training programmes	Nos.	3	4	3	2	1		4	100	3	4
			Implementation of Project on "Rejuvenation and Strengthening of the National Network of Building Centres – Pilot Studies" – sponsored by HUDCO under CSR	Pilot Studies on Rejuvenation and Strengthening of the National Network of Building Centres	Nos.	6	10	8	7	6	5	16	100	6	16

S. No.	Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value					Achievement	Performance		
							Excellent	Very Good	Good	Fair	Poor		Raw Score	Weighted Score	As Approved by HPC
							100%	90%	80%	70%	60%				
3	Disaster Mitigation & Management : To promote methodologies and technologies for natural disaster mitigation, vulnerability & risk reduction and retrofitting/reconstruction of buildings and disaster resistant planning for human settlements.	6	Organization of Training of Trainer Programmes for engineers and architects of Bihar Govt. through BIPARD	Organisation of TOT Programmes	% of request received	3	100	90	80	70	60	100	100	3	100
			Preparation of updated Earthquake Hazard Maps for National Disaster Management Authority	Preparation of remaining Earthquake Hazard Maps for 11 States/UTs	Date	3	30/09/2013	31/10/2013	30/11/2013	31/12/2013	31/01/2014	30/09/2013	100	3	30/09/2013
4	Project Management & Consultancy: To undertake project management and consultancy services including appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes.	8	Appraisal of projects under JNNURM / RAY	Submission of Appraisal Reports	% of project received	2	100	90	80	70	60	100	100	2	100
			Monitoring of project sites under JNNURM / RAY	Submission of Monitoring Reports	% of project monitored	2	100	90	80	70	60	100	100	2	100

S. No.	Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value					Achievement	Performance		
							Excellent	Very Good	Good	Fair	Poor		Raw Score	Weighted Score	As Approved by HPC
							100%	90%	80%	70%	60%				
			TPIM Review	Submission of TPIM Review Reports	% of project reviewed	2	100	90	80	70	60	100	100	2	100
			Capacity Building programme on quality assurance & TPIM	Organization of capacity building programmes in different States	% of request from Mission Direct	2	100	90	80	70	60	0	0	0	0
*	Efficient Functioning of the RFD System	3	Timely submission of Draft RFD (2013-14) for approval	On-time submission	Date	2	15/05/2013	16/05/2013	17/05/2013	20/05/2013	21/05/2013	15/05/2013	100	2	
			Timely submission of Results for RFD (2012-13)	On-time submission	Date	1	01/05/2013	02/05/2013	05/05/2013	06/05/2013	07/05/2013	30/04/2013	100	1	
*	Administrative Reforms	4	Implement ISO 9001 as per the approved action plan.	% Implementation	%	2	100	95	90	85	80	0	0	0	
			Prepare an action plan for Innovation	On time submission	Date	2	30/07/2013	10/08/2013	20/08/2013	30/08/2013	10/09/2013	12/06/2013	100	2	12/06/2013
*	Improving Internal Improving Internal Efficiency /responsiveness /service delivery of Ministry / Department	4	Implementation of Sevottam	Independent Audit of Implementation of Citizen's Charter	%	2	100	95	90	85	80	100	100	2	
				Independent Audit of implementation of public grievance redressal system	%	2	100	95	90	85	80	100	100	2	100
* Mandatory Objective(s)												Total Composite Score : 90.6 PMD Composite Score : 89.6			