Annual Report
2010–2011








bmtpc

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

Annual Report 2010-2011

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Ministry of Housing & Urban Poverty Alleviation, Govt. of India
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FOREWORD

I have great pleasure in presenting the Twenty-first Annual Report of the Building Materials & Technology Promotion Council for the year 2010-2011.

Since its inception in 1990, BMTPC has been into promotion of cost effective, eco friendly and disaster resistant construction technologies, primarily based on local available materials and local skills. BMTPC has the distinction of successfully transferring number of building materials and building components from laboratory to field level applications. However, in the context of ever changing urban scenario and housing shortage specially in urban areas, BMTPC, in recent years, has made concerted and rejuvenated efforts for spreading awareness and disseminating cost effective technologies. The ground example of use of BMTPC's technologies in mass housing projects has been right in Delhi by DSIIDC in their JNNURM projects for providing EWS housing.

Any advocacy is incomplete without actually demonstrating it in the field. BMTPC has initiated model demonstration work in different parts of India and also imparted onsite training not only to engineers including students of architecture and engineering colleges but also to artisans and policy makers. These demonstration projects stand a testimony of cost effectiveness and sustainability of technologies being promoted under the umbrella of BMTPC. The projects undertaken are construction of 24 demonstration houses including onsite infrastructure at Amethi, Sultanpur, U.P., Multi-facility two-storeyed Community Centre with facilities such as Community Hall, dispensary, crèche, library, green room, office, etc. at Village Khojkipur-Naggal, Haryana, construction of 24 demonstration housing project including community centre and multi-purpose meditation room at Pinjore, Distt. Panchkula, Haryana and Model Informal Market in Vishakhapatnam, Andhra Pradesh.

It has been realized that the technologies being promoted by BMTPC has restricted use and there is crying need to embrace industrialized technologies suited for mass housing. There have been number of technologies from abroad as well as few from India which are being studied by BMTPC for suitable adaptation in Indian conditions. BMTPC also initiated construction of Demonstration houses using Rapidwall technology, an emerging new technology based on phosphogypsum - a byproduct of fertilizer industry, in Mumbai for industrial workers. In order to promote local material such as use of bamboo in housing construction, the Council also continued its thrust on promotion of bamboo based building technologies by setting up Bamboo Mat Production Centres and construction of demonstration structures in North Eastern Region.

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 Jawaharlal Nehru National Urban Renewal Mission (JNNURM) by way of appraising and monitoring the projects under BSUP and IHSDP. The Council also involved itself in capacity building of the municipal functionaries of ULBs in Project Development and review of Third Party Inspection & Monitoring (TPIM) reports for BSUP and IHSDP under JNNURM.

The Council 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 stakeholders and the common man. With the objective of demonstrating retrofitting technologies, BMTPC completed seismic strengthening of two more MCD school buildings in Delhi region. During the year, the Council brought out revised Guidelines for Improving Earthquakes, Wind/Cyclones and Flood Resistance of Housing and Manual for Restoration and Retrofitting of Buildings in Uttarakhand and Himachal Pradesh.

In order to provide guidance to common man for constructing their houses, the Council has started a series of House Building Digest (Aam Aadmi Series) during last year. During the year, three booklets on various themes were brought out under Aam Aadmi Series. The Council also brought out the Training Manual for Ductile Detailing. With regular updation, the website of the

Council is being visited frequently by professionals of various disciplines globally and is being used as a reference source in the area of innovative building materials and construction technologies.

Like preceding years, on the occasion of World Habitat Day 2010, the Council brought out the Special Issue of "Nirman Sarika" on the theme "Better City Better Life" chosen by the UN-Habitat for the year. On this occasion, the Council organized a painting competition for Differently Abled Children and the winners were felicitated during the World Habitat Day celebrations.

With the emergence of new building materials, advancement of technologies and the need for disaster resistant construction to mitigate the effect of natural disasters, it is important that working professionals regularly update their knowledge and the construction workforce is provided hands-on training. BMTPC continued its efforts in organizing structured training programmes on subjects related to advancement in the area of building materials for working professionals and construction workforce on regular basis.

With a focus on development and promotion of innovative building technologies, specific projects have been undertaken such as Upgradation of facility for manufacture of Bamboo mat Ridge Cap, Project on Improvement of Earthquake Resistance Capacity of Circular Columns, Development of the Building Components from Sponge Iron Wastes, Utilization of Industrial Waste Materials as Inexpensive Absorbents having Applications in Building Materials, Cost Effective Value Added Thermal Insulation Tiles for Insulation Purpose, Preparation of Seismic Design Manuals for Earthquake Disaster Mitigation, etc.

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

I would also like to place on record my deep appreciation of the cooperation of our officers and staff members in implementing 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), established in 1990, is an autonomous 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 innovative building materials and disaster resistant construction technologies.

In its endeavour, BMTPC initiated several activities for the accomplishment of its multi-faceted objectives, enshrined in the mandate of the Council and looking at the aspiration of the construction sector. Over the years, the Council has been focussing on the promotion of the innovative, cost-effective, environment-friendly and energy-efficient alternate building materials and technologies. The Council has also embarked upon the field level application of alternate building materials and technologies by way of construction of model demonstration housing 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 set up Bamboo Mat Production Centres to make available the quality 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 and guidelines/manuals on disaster resistant construction, the Council also assisted a number of State Governments in modifying their Building Bye-laws for safety against natural hazards in order to strengthen techno-legal regime in the country. In order to take retrofitting technologies of life-line structures further, the Council has undertaken retrofitting of few 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 Jawaharlal Nehru National Urban Renewal Mission (JNNURM). The Council in recent years has reoriented its approach towards promotion and marketing of sustainable technologies through intensive evaluation, dissemination.

Objectives

- To promote development, production, standardization and large-scale field application of cost-effective, innovative building materials and construction technologies in housing and building sector.
- To promote new waste-based building materials and components through technical support and encouraging entrepreneurs to set up production units in different urban and rural regions.
- To develop and promote methodologies and technologies for natural disaster mitigation, vulnerability & risk reduction and retrofitting/ reconstruction of buildings and disaster resistant planning of human settlements.
- To provide support to professionals, construction agencies and entrepreneurs in selection, evaluation, upscaling, skill-upgradation, and marketing for technology transfer from lab to land in the area of building materials and construction.

Thrust Areas

- Improving the policy environment for sustained growth of cost-effective building materials, production and availability.
- Promotion of production units of building materials/components based on Flyash, Redmud, Phosphogypsum, agricultural residues and other wastes and by-products.
- Modernisation of small scale and village level building materials production units in rural and urban areas.
- Promoting economy in construction costs.
- Formulation of standards for local building materials.
- Strengthening industrial extension services for attracting more investment in building materials sector by working with national and international agencies.
- Upscaling of technologies, know-how acquisition, absorption and dissemination.
- Assessing vulnerability and risk in natural disaster prone areas.
- Promoting disaster resistant construction technologies.
- Global technology search and encouraging joint ventures in building materials and construction sector.

MAJOR INITIATIVES AND ACTIVITIES DURING THE YEAR 2010-2011

I. DEMONSTRATION BUILDINGS USING COST-EFFECTIVE TECHNOLOGIES

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

The Council has made visible strides in the demonstration housing projects undertaken at various locations to showcase the effective use of cost effective building materials and disaster resistant technologies.

Demonstration Housing Project at Amethi, Uttar Pradesh

Using alternate building materials and techniques such as rat-trap bond in bricks for walling, filler slabs for roofing, RCC doors/ window frames, precast sunshades, staircases, lintel etc; BMTPC has constructed 24 dwelling units at Amethi, Sultanpur, U.P. having carpet Area – 27.15 sqm. with separate kitchen, bathroom, toilet and 15% green area.

The housing units and the infrastructure work have been completed. This demonstration project focus at promoting innovative technologies in the region. Documentation of the project is also being undertaken. The cost saving compared to conventional construction is about 15%.

The handing over ceremony of demonstration houses using cost effective technologies in Amethi was organized on 8th February, 2011 by the Council. The programme was graced among other persons by Shri Rahul Gandhi, Hon'ble M.P. Amethi, Smt. Anita Singh, Hon'ble MLA and Chairperson, Nagar Panchayat. About 200 people including family members of the beneficiaries were present. Beneficiaries, identified by local Panchayat were handed over the keys by Hon'ble M.P., Amethi through draw system.

The project has been appreciated for its planning and quality of construction by general public and dignitaries. BMTPC's technical support for cost effective technologies has been sought by local MLA for assistance in future projects in the region. For the benefit of general public, an exhibition on the activities of BMTPC was also organized.

Construction of Community Building using alternate construction technologies at Village Khojkipur-Naggal, Ambala

Construction of the Community Centre with facilities of a Community hall, dispensary, cretch, library, green room, office etc., initiated on the request of the Haryana State

Demonstration Houses constructed by BMTPC at Amethi, Sultanpur, Uttar Pradesh

The handing over ceremony of demonstration houses in Amethi organized on 8th February, 2011 by BMTPC. Shri Rahul Gandhi, Hon'ble M.P. Amethi, presided over the function.

Demonstration Community Centre constructed by BMTPC at Village Khojkipur-Naggal, Haryana

Government, is nearing completion at Village Khojkipur-Naggal, Ambala.

In this Centre, varieties of alternate cost effective technologies like rat trap bond in bricks; interlocking type compressed earth blocks; flyash bricks; modular bricks for walling; RCC planks and joists; prefabricated panels; prefab brick arch panels; RCC filler slab; doubly curved shell for roofing; precast concrete door/window frames; precast sunshades, lintels, staircases, etc. have been used so that local community visiting the Centre have exposure to such technologies.

The project also includes plinth protection, boundary wall, rainwater harvesting and external development work. A few training programmes were organised at the site for the prospective architects and engineers of nearby colleges. Also several interactive meetings with State Engineers were held at the site. The project is being documented for its cost effectiveness and other features.

Demonstration Housing Project at Pinjore, Distt. Panchkula, Haryana

The Council is constructing 24 demonstration houses with community centre & multi-purpose meditation room at Bitna Road, Pinjore, Distt.Panchkula, Haryana.

The construction work of ground floor has been completed. The work has been started on the first floor after completion of roof of ground floor. The technology being used are rat-trap bond in bricks, RCC filler slab, precast concrete door/window frames, etc. The documentation of the project is being undertaken.

In the Community Centre and multi-purpose meditation room, the technology being used are concrete blocks for walling, filler slab for roofing, micro concrete roofing tiles, precast concrete door/window frames etc.

Construction of Model Informal Markets in Vishakhapatnam, Andhra Pradesh

Apart from demonstration housing projects, the Council is also propagating the concept of Informal Market initiated in JNNURM projects. In this effort, the Council recently initiated the construction of model Informal Market at Vishakhapatnam, Andhra Pradesh. The necessary infrastructure such as water supply, electricity and other public amenities required in the premises will be provided by the State authorities.

The construction work of Informal Market at Viskhapatnam has been started. After completion of market shed, work on the open theater and park area has also been completed.

2. Construction of Demonstration Structure using Rapidwall Panels

BMTPC visited Rashtirya Chemicals & Fertilizers (RCF) Ltd. to study the production of Rapidwall panels for its usage in mass-scale construction of housing projects. Possibility of putting up demonstration structures using the panels was discussed with CMD, RCF. The RCF has agreed to provide land and infrastructure. An MoU has been signed with M/s RCF for construction of 32 demonstration houses using rapidwall technology at Chembur, Mumbai on cost sharing basis (BMTPC 75: RCF 25) as approved by the Executive Committee. The drawings and estimates have been finalised for construction of demonstration houses.

Rapidwall panels are prefabricated panels manufactured using calcined phosphogypsum (a waste product of fertilizer company and glass raving). Panels have been tested at SERC Chennai & IIT, Chennai for various performance parameters including structural strength, water resistance, thermal behaviour etc. The system has also been tested against hazardous forces for safety against earthquake. Complete design manual for the system were also developed with the help of IIT Chennai.

Based on the test reports of manufactured panels in RCF Mumbai, design manual and design of the proposed structure is ready. Also panels are covered under PACS certification scheme of BMTPC. It is envisaged to start the construction work at the earliest.

II. DISASTER MITIGATION - REPAIR, RECONSTRUCTION AND RETROFITTING

1. Demonstration of Retrofitting Techniques for Seismic Strengthening in MCD School Buildings

After completion of retrofitting of five MCD schools, the Council has initiated retrofitting of two more MCD school buildings on the basis of provisions of Indian Standard IS 13935-1993 Guidelines for Repair and Seismic Strengthening of Buildings. Retrofitting plan and estimates were prepared for two schools i.e. MCD schools at Vivek Vihar and Lajpat Nagar. For liquefying property of soil, necessary soil testing were also undertaken. The agency for carrying out the retrofitting work under the guidance and supervision of BMTPC were finalized through open tenders.

The seismic features recommended and being carried out in the retrofit solution encompasses:

Demonstration Houses being constructed by BMTPC at Bitna Road, Pinjore, Distt.Panchkula, Haryana

Model Informal Market constructed by BMTPC at Vishakhapatnam, Andhra Pradesh

Retrofitting work being undertaken at MCD School, Lajpat Nagar, Delhi

Retrofitting work being undertaken at MCD School, Vivek Vihar, Delhi

1. Lintel level seismic belt in all walls on both side
2. Sill level seismic belt on one face of the walls
3. Connections between seismic belts
4. Door and window encasement
5. Masonry pier encasement
6. Vertical single bars at wall corners and T junction
7. Vertical seismic strap
8. Strengthening of parapet

In addition, from safety point of view, additional doors have been provided in each of the class rooms. The retrofitting work in both the schools is nearing completion.

2. Guidelines on Earthquake, Flood and Cyclone resistance of Housing

With the recurrent disaster striking Indian sub-continent, it has been realized that disaster resistant construction should be amalgamated with any conventional or innovative construction methodology or technology. Also there has been series of Indian Standards available on various natural hazards such as earthquakes and cyclones. Further, it has been found difficult by practicing engineers to comprehend these Standards and therefore, BMTPC has been publishing a sort of running commentary along with detailed explanation on various Indian Standards so as to make them simple and easy to implement.

With this background, BMTPC published its first Guidelines on Earthquake and Cyclones in 2000. However, since the publication of these guidelines, there have been changes in relevant IS Codes and also experience have been gained during recent past disaster studies. This necessitated the revision of the guidelines.

BMTPC has published three guidelines namely Guidelines for Earthquake Resistance of Housing, Guidelines on Improving Wind/Cyclone Resistance of Housing and Guidelines on Improving Flood Resistance of Housing after the peer review. BMTPC has the distinction of the first ever guidelines on flood resistance in light of disaster caused by Kosi floods.

3. Study and Retrofitting of Bara Hindu Rao Hospital in Delhi

A request was received from Municipal Corporation of Delhi for retrofitting of existing hospital building of Hindu Rao Hospital. In this connection, several meetings were held with MCD and Medical Superintendent of the hospital. Based on the priority of the hospital authorities, study of 250 bedded ward was taken up in association with Earthquake Engineering Department of IIT Roorkee.

In this connection necessary study including non-destructive tests have been performed in the building. The Retrofitting Plan has been prepared and is under finalization.

4. Technical Workshop on Model Building Byelaws

As a follow up of preparation of Model Amendments in Town and Country Planning Act, Zoning Regulation, Development & Control Regulation and Building Regulation for safety against natural hazards by Expert Group set up by MHA, one-day Technical Workshop, sponsored by Ministry of Home Affairs, was organized in Kavaratti, Lakshadweep on August 4, 2010. So far, the Council had organized technical workshops in 24 States and UT's.

III. ACTIVITIES IN NORTH-EASTERN REGION

1. Significant Activities in North-Eastern Region through Demonstration Structures

BMTPC is actively involved in developing and promoting bamboo based technologies in the North-Eastern Region and other bamboo growing areas, by 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 in processing of bamboo and making them aware regarding bamboo based construction. The progress of the various activities in the North Eastern Region are:

- Setting up of a Bamboo Mat Production Centre at Nongchram, East Garo Hills, Meghalaya has been initiated. An MoU has been signed between BMTPC and local agency for implementation of the project. The construction of shed for the Centre has been completed. The machines required for the Centre has been identified and the tenders have been invited for procurement of the machines. The agency has been finalized for procurement of machines and orders have been placed. The required machines are under fabrication.

- For establishing Bamboo Mat Production Centre in Arunachal Pradesh, the State Government of Arunachal Pradesh has identified the site at Mopaya Village and has agreed to provide shed and infrastructure facility for the Centre. The implementing agency has been identified by the State

Technical Workshop on Amendments in Model Building Byelaws for safety against natural hazards, organized by BMTPC in Kavaratti, Lakshadweep on August 4, 2010, sponsored by Ministry of Home Affairs

Inauguration of Facility for production of Bamboo Mat Ridge Cap at Byrnihat, Assam on 19 July 2010 setup by BMTPC jointly with IPIRTI, Bangalore.

Govt. and the revised MoU has been sent the agency for their consent. Response is awaited from the implementing agency.

- The Council organized a two weeks Residential Training Programme on Bamboo Housing Technologies jointly with CBTC at Majuli, Jorhat District, Assam. During the Training Programme a small Post Office is being constructed using bamboo based technologies.

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 2010 celebrated by the Ministry of Housing & Urban Poverty Alleviation on 4th October, 2010, BMTPC brought out a Special Issue of its Newsletter "Nirman Sarika" on the theme "Better City Better Life", 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 Kumari Selja ji, Hon'ble Minister for Housing & Urban Poverty Alleviation and Tourism during the celebration ceremony of World Habitat Day 2010.

2. House Building Digest – Aam Aadmi Series

In order to provide easy-to-understand concept of various housing & construction technologies, disaster resistant features etc. the Council decided to bring out "Aam Aadmi Series" in simple booklets format. The Council brought out following publications in the series both in Hindi and English during the current year:

Series 10: Water Supply

The booklet deals with various aspects of water supply both in urban and rural areas. For urban areas, it includes information regarding daily water requirement, water distribution system, plumbing, water supply connection for the house, type of pipes, fittings, fixtures, appliances, storage tanks besides giving information on contamination of water and testing of water. For rural areas, various sources of water supply such as groundwater, water wells, dug wells, driven wells, drilled wells, hand pump, etc. have been covered.

Series 11: Sanitary and Drainage

The booklet includes information on sanitary and drainage systems. Various aspects such as sewage, sewer lines, house drainage, essentials of a drainage system, plumbing systems for houses, various types of pipes used for drainage system, sanitary fittings and fixtures, house drainage plumbing system, installation and testing of house drain, disposal of sewage and plumbing regulations have been covered.

Series 12: Prevention of Dampness

The booklet provides information regarding prevention of dampness in a house. Various defects caused by dampness and sources of dampness have been illustrated in the booklet besides providing information on various methods of damp-proofing, damp-proof treatment in houses, treatment of flat roofs, treatment of parapet and roof joints, khurra and water proofing of wet areas.

Booklets on other aspects of house construction are being brought out and efforts are continuing in this direction by BMTPC.

3. Publication of Guidelines on Improving Earthquake Resistance of Buildings

The earthquake hazard has been well addressed by Committee CED:39 of Bureau of Indian Standards and the standards such as IS:1983-(Part I) 2002, IS:13920-1993, IS:4326-1993, IS:13828-1993, IS:13827-1993, IS:13935-1993 are available. These standards taken together cover the professional design and construction requirements of buildings quite adequately. BMTPC, however, considered the need to prepare a brief guideline to explain the terms and principles underlying the occurrence of earthquakes, their effects on ground and buildings, and highlight the minimum safety provisions in buildings of various types commonly used for housing and built by people without involvement of engineering design and supervision. Obviously, the recommendations have to be made in line with those in the above standards and proper reference to them has to be made as necessary. Accordingly, these guidelines had first been prepared in 1998 and published in 1999-2002 for use by the people particularly those using the Vulnerability Atlas of India.

During the period 1999 to 2006, three major damaging earthquakes occurred in India namely, Chamoli (Uttranchal) 1999, Bhuj (Gujrat) 2001, and Kupwada (Jammu and Kashmir) 2005, as a result of which the main earthquake Code, IS: 1893 underwent major revision. The seismic

zoning map was amended to reduce the number of Zones from 5 to 4 with many changes in the design seismic forces. Also, the categorization of the buildings was accordingly changed in IS: 4326. This first revision of the BMTPC guidelines incorporates all such modifications as a measure of updation. Besides, an earthquake safe construction technology, called as Confined Masonry Construction, has been included as an annexure, taking into view that inclusion of this technology is under consideration in the revision of IS: 4326.

The Guidelines was released by Kumari Selja, Hon'ble Minister for Housing & Urban Poverty Alleviation and Tourism, on 4th October, 2010 on the occasion of World Habitat Day 2010 at New Delhi.

4. Publication of Guidelines on Improving Flood Resistance of Buildings

Flood damage to housing, infrastructure, and agriculture has been occurring in India since long times and the problem attracted great attention since independence. However, the causes and nature of damage to housing was not studied systematically, nor methods regarding flood safety of housing given due attention.

After the severe floods in Punjab, Haryana and Delhi in 1995, the opportunity of first hand study of building performance during these floods was utilized by commissioning a study by Building Materials and Technology Promotion Council. TARU for Development were assigned the task, who submitted their report titled "Flood Damage Assessment for the North-West Indian Flood of September, 1995" to BMTPC in March 1996. The observations, damage assessment and suggestions contained in the report were used to prepare a preliminary set of guidelines.

Since then floods have been occurring almost every year in Brahamputra & Barak valleys in Assam, the northern river plains in Bihar and Eastern river plains in Uttar Pradesh in which lakhs of poor man's huts and homes have been destroyed. The worst floods were caused in five districts of Bihar in 2008 due to the bursting of embankment of River Kosi and diversion of the river flow into an old abandoned course. The safety of the flood impacted population will need reconstruction of houses which should not only be safe against flood damage to foundations due to scouring and settlement, and the walls of mud or bamboo, but will also be able to withstand the severe damage under future earthquakes.

The guidelines are written in simple and easy to understand language and can easily be implemented at field. The publication is the updated version of BMTPC's earlier version of the guidelines which was drafted by Padamshree Prof. Anand S. Arya.

These guidelines not only provide design and construction details of small houses but also include recommendations for specifying appropriate clauses in the Building Bylaws. The design of a simple, economical and safe house for construction in flood-cum-earthquake prone areas is presented with sufficient details for easy adoption by governments, NGOs and people themselves.

The Guidelines was released by Kumari Selja, Hon'ble Minister for Housing & Urban Poverty Alleviation and Tourism, on 4th October, 2010 on the occasion of World Habitat Day 2010 at New Delhi.

5. Publication of Guidelines on Improving Wind/Cyclone Resistance of Buildings

For determining the wind forces on buildings and structures, Indian Standard 875-1987 (3) lays down the wind velocity zoning map of India, method of computing wind pressures on various surfaces, and various design factors to be taken into consideration. The cyclone affected coastal areas are also fully covered so far as wind effects are concerned. These principles and data could be used by engineers using usual methods of structural analysis and design of buildings and structures.

But there are numerous details found necessary to be adopted in construction which are not yet covered in any standard. Then there are various types of the so called non-engineered buildings particularly housing, which are traditionally built by people in cyclone prone as well as other high wind velocity areas in which severe damage occurs under wind hazard occurrences. The Expert Group constituted in 1994 by the then Ministry of Urban Development had also examined the related standards, codes and other national and international publications with a view to prepare suitable guidelines covering the general principles for safety of housing from wind hazard and detailing for minimising damage in engineered as well as non-engineered buildings. Ideas, as available, in national as well as international publications were adapted to the Indian situations and covered in the Guidelines published by BMTPC in 1999-2000 with the same title.

In this revised edition, two new chapters have been added besides editorial improvement in the document. The first

chapter now gives basic information for understanding characteristics of cyclones and their classification according to Indian and U.S. scales. The number of cyclones and 'severe' cyclones occurred in each latitude of Indian coasts as well as storm surge heights observed at several points at the coasts are shown in maps for ready reference. The last chapter deals with the design considerations for construction of cyclone shelters, as drafted by Dr.A.S.Arya as National Seismic Advisor under GOI-UNDP DBM Programme.

This document would serve as an explanatory handbook on the various clauses of Indian Standards on Wind resistant design of new buildings or improving resistance of existing building stock. Also, through these guidelines, it is envisages to pass on knowledge and expertise to planners, engineers and architects and above all to the common people of India.

The Guidelines was released by Kumari Selja, Hon'ble Minister for Housing & Urban Poverty Alleviation and Tourism, on 4th October, 2010 on the occasion of World Habitat Day 2010 at New Delhi.

6. Publication of Training Manual for Ductile Detailing

The recurrent earthquakes in the urban centers of India in last two decades have reminded us about the vulnerability of our urban constructions. In particular, the Bhuj earthquake was the revelation, the way RCC buildings are being constructed in India. There has been utter disregard to even simple detailing principles of reinforced concrete constructions such as splicing, lap & development lengths, bending of hooks, absence of reinforcement at critical tension zones and so on and so forth. It has been found that besides quality, if simple rules of detailing as taught in engineering and architectural colleges are followed, innumerable lives lost on account of collapse of RCC buildings could have been avoided.

Therefore, BMTPC collated the information relating to detailing of reinforcement for earthquake resistant construction commonly known as ductile detailing in one publication entitled Manual on Basics of Ductile Detailing. The clauses from various Indian Standards have been extracted and a simple interpretation along with how to execute them in the field is provided. The publication would be a useful tool for all the designers and field engineers who find it difficult to incorporate ductile detailing provisions in the structural design. A few very interesting sections on commonly committed mistakes in the field while placing reinforcement and Do's and Don'ts of detailing are also

included in the publication. The manual would also dispel the misconcepts of practical difficulties being faced by site engineers while implementing the ductile detailing in the field.

The Manual was released by Kumari Selja, Hon'ble Minister for Housing & Urban Poverty Alleviation and Tourism, on 4th October, 2010 on the occasion of World Habitat Day 2010 at New Delhi.

7. Publication of Manual for Restoration and Retrofitting of Buildings in Uttarakhand and Himachal Pradesh

The Himalayan region has witnessed frequent earthquakes in the past. They have demonstrated that the majority of buildings in this region are vulnerable. In the aftermath of the recent earthquakes, serious issues have surfaced concerning the vulnerability of the buildings in the face of potentially destructive natural phenomena and the safety of the occupants of these buildings.

This manual is prepared for the restoration and vulnerability reduction through retrofitting of the existing buildings in Uttarakhand and Himachal Pradesh situated in the Western Himalayan belt of India. It covers the most popular building systems other than the reinforced concrete frame, which the people are likely to continue using for decades to come. It includes the local natural hazards, primarily earthquake, along with cyclone and flood that could be withstood through retrofitting of the existing building.

The document is based on (a) Studies that were undertaken immediately after the earthquakes of 1991 and 1999 by a team of experts from TARU, New Delhi, commissioned by BMTPC; (b) The retrofitting work carried out by the NCPDP team in Uttarakhand at different periods in 1999, 2000, 2002, 2008 and, most recently, in 2009; (c) A three part series of guidelines brought out by BMTPC in the aftermath of Chamoli Earthquake of 1999; and finally (d) the relevant IS Codes for "Repair, Restoration and Retrofitting of Masonry Buildings".

This guide will provide valuable information to those who want to repair their houses and to those who want to strengthen their existing buildings for ensuring their safety against future earthquakes. This will help them save their scarce resources. In addition, this will help those who, for mere want of safety, are ready to replace their comfortable traditionally built houses with not-so-comfortable houses built with modern technology.

The manual was released by Kumari Selja, Hon'ble Minister for Housing & Urban Poverty Alleviation and Tourism, on 4th October, 2010 on the occasion of World Habitat Day 2010 at New Delhi.

8. 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 source 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.

The website of the Council is regularly updated to effect latest information such as hire and purchase requirements, Tender Notices, training programmes, Right to Information Act and others as required from time to time. On seeing the impressive response on website in the form of general enquiry about product and services, the sections such as "Compendium of Technologies for Common Man" and "Pick your construction technologies as per your region", are being updated regularly.

9. 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.

Performance Appraisal certificates (PAC) for the 14 products have been issued so far covering various items viz. Wooden/FRP/PVC Doors, Gypcrete Wall Panel, Block Making Machine, Pan Mixer, Recron Fibre, Plastocrete/Insulated Panels, Underground water Storage Tanks. Applications have been received for another 13 following products:

Deep Penetrating Sealer: Deep Penetrating Sealer is a non-toxic, non-flammable, odorless, clear water soluble liquid compound. This can be used on walls & floors for waterproofing and preserving concrete etc.

Marble Slurry Based Binder: Low Cost Binder is made from recycling marble slurry waste, fly ash and hydrated lime.

Rapidwall (GFRG) Panel: Rapidwall Panel is a building panel product made of calcined gypsum plaster reinforced with glass fibres for mass-scale building construction.

Aluminium Formwork: Aluminium Formwork made of aluminium extruded sections welded to alloy sheet is the system by which the formwork for all the components of the structure is erected at one time.

Veneer Laminated Lumber: Veneer Laminated Lumber is made from rubber wood and is used for making doors, windows and ventilator shutters/ frames.

Underground Septic Tanks: Underground septic tanks are made of polyethylene. These are suitable for houses, schools & hospitals, etc.

Continuous Sandwich Panels: Continuous Sandwich Panels are formed by plain Pre-coated sheet in between foamed with Polyurethane foam (PUF) along with corrosion resistant metallic facing.

FRP Manholes: FRP Manholes can be used in underground sewer pipe lines, storm water pipe lines and water pipe lines.

uPVC Windows: uPVC Windows are made out of extruded uPVC multi-chamber hollow profiles and reinforced with galvanized steel.

Monolithic Formwork: Monolithic Formwork is the system by which the formwork for all the components of the structure is erected at one time.

Monolithic Concrete Construction: Monolithic Construction is a method by which walls and slabs are constructed together giving the structure a complete box like shape.

Marshal Doors: Marshal Door Shutters are made out of G I Precoated Sheet on both sides with core of the shutter filled with High Density Polyurethane foam.

Copper Slag: Copper Slag is produced during the manufacture of Copper. Copper Slag can be used as replacement for sand in concrete and mortar.

Since the Scheme is operated for the product/system where no relevant Indian Standard is available, it is required to first work out the desired specifications for Performance Appraisal. For the items under considerations, International

procedures have been studied. In few cases the specifications recommended by the manufacturers have been modified based on international practices. One such item is Underground Septic Tank where specification & performance is modified based on Australian/ New Zealand Standard. Another item is Deep Penetrating Sealer which is an imported material for which no testing facilities are available in India.

One of the constrains faced for evaluation is lack of proper testing facilities in Accredited independent laboratories. For this, facilities available with the firms are being utilized. Third party agencies having adequate exposure & experience are being involved for in-house testing wherever laboratory testing is not operational.

The latest Status Report of the applications received is as follows:

I. Products for which draft Performance Appraisal Certificates (PAC) has been approved by the Technical Assessment Committee (TAC) in its meeting held on 24th March 2011:
   - Glass Fibre Reinforced Gypsum Building Panels
   - Marble Slurry based Binder
   - Continuous Sandwich Panels
   - Marshal Doors
   - uPVC Windows
   - FRP Manholes
   - Underground Septic Tanks
   - Monolithic Formwork
   - Monolithic Concrete Construction

II. Inspection of premises & drawl of samples carried out for *Veneer Laminated Lumber*

III. Inspection of the premises & drawl of the samples to be carried out for *Deep penetrating Sealer*

IV. Detailed Application Forms (DAF) under process for *Aluminium Formwork*

V. Preliminary Applications under process for *Copper Slag*

VI. Durability study of copper slag is under progress.

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. Brain Storming Sessions on Cost Effective Building Materials and Construction Technologies : Problems & Prospects with Builders & Real Estate Developers

As per directions of M/o HUPA, the Council organized Brain Storming Sessions with builders & real estate developers on 26th August and with faculty members and scientists from academic institutions and CSIR laboratories on 27th August, 2010 respectively on Cost Effective Building Materials and Construction Technologies : Problems & Prospects.

Over the years, it has been realized that cost effective technologies could not find wide application with real estate developers, builders & contractors. It raises serious questions about the efficacy of cost effective technologies as to whether construction sector is really in need of these technologies or not.

As a result of detailed deliberations during the Brain Storming Sessions, it emerged that BMTPC should work for standardization of products developed and promoted by the Council, nomenclature, give specifications, economy as well as cost analysis in the form of a document easily available and accessible. It was also emphasized that there is need to further consolidate inner strength of these technologies emphasizing them as proven technologies for higher production for mass housing construction.

2. Brain Storming Workshop on "Seismic Retrofitting Policy"

In view of recurrent disasters in Indian sub-continent and the kind of repair & rehabilitation being undertaken afterwards, it has been realized that there is a need to have some concrete policies about the retrofitting and should formulate a seismic retrofitting policy on the lines of housing policy. With this in mind, BMTPC in association with Indian Institute of Technology, Gandhinagar organised a Brain Storming Workshop on "Seismic Retrofitting Policy" on 22nd October, 2010 at IIT Gandhinagar, Ahmedabad under the Chairmanship of Prof. S.K. Jain who is one of the leading technocrat and academician in the area of earthquake risk management.

There is a fair amount of confusion in the country on the need and approach for seismic retrofitting. For instance, every time there is a discussion on improvement of codes, many experts express the concern that an increase in seismic provisions will necessitate massive retrofitting of the existing stock of structures. Further, it is not clear how

Brain Storming Session with Builders & Real Estate Developers and Faculty Members & Scientists from Academic Institutions and CSIR Laboratories on cost effective building materials and construction technologies: problems & prospects organised by BMTPC on 26 - 27 August, 2010

The Ministry of Housing & Urban Poverty Alleviation, Govt. of India nominated BMTPC to attend the programme "Affordable Housing & Construction Related Industries" organized by Confederation of Indian Industries (CII) and Euro India Centre from 20 - 26 June, 2010 in France and Spain

exactly to approach the issue of retrofitting of huge building stock, and many times, unrealistic expectations are made wherein the entire stock of say schools (or hospitals) are to be seismically retrofitted din a couple of year.

The workshop was envisaged to be a step towards developing a National Policy on Seismic Retrofitting. The deliberation of the workshop focused on:

1. Review the "practices" on seismic retrofitting policy in India versus those in seismic countries overseas.
2. Review of the status of technical documents available for seismic assessment and retrofitting of buildings, gap areas, identify documents/guidelines that need to be developed.
3. Elements of Seismic Retrofitting Policy for India.
4. Roadmap for development the above documents.

This workshop was attended by leading experts in the field of earthquake engineering. Based on the deliberations, a draft for the National Policy on Retrofiting Policy has been prepared jointly with IIT Gandhinagar.

3. Conference on "Preparing for an Urban future: Resilience, Sustainability and Leadership" at New Delhi

As a part of World Habitat Day 2010 celebrations, the Council organized a Conference on "Preparing for an Urban future: Resilience, Sustainability and Leadership" on 1st November, 2010 at New Delhi jointly with TERI. The Conference revolved around three selected themes, which inform UN HABITAT's Better City, Better Life theme:

- Resilience,
- Sustainability and
- Leadership.

These themes comprise crucial elements required for sustainable cities and in support of the UN World Habitat Day theme. The specific objectives for organization of the Conference were:

1. Outline a strategy to integrate sustainable building materials and technologies into India's national sustainable cities programs.
2. Create a dialogue among stakeholders – experts, policy makers, architects, planners – about the benefits and impact of environmentally sustainable materials and practices.
3. Share experiences and best practices from across India and the world as they relate to the three identified themes: resilience, sustainability and leadership.

The Conference was inaugurated by the Secretary, Ministry of Housing & Urban Poverty Alleviation, Government of India. The Conference was attended by government officials, policymakers, architects, planners, experts and stakeholders deliberating their vision for a sustainable urban future and the urgent need to establish and recognize crucial links between habitat and quality of life in growing cities.

4. International Summit on Emerging Trends in Low Cost Construction Technologies at Bodh Gaya, Bihar

BMTPC and International Centre for Advancement of Manufacturing Technology (ICAMT-UNIDO) jointly organized the International Summit on Emerging Trends in Low Cost Construction Technologies at Bodh Gaya, Bihar from January 4-5, 2011. The International Summit focused on innovative building materials & manufacturing technologies and cost effective construction techniques.

The objective of the program was to discuss global and Indian perspective on cost effective housing technologies and also to present the innovative technologies for manufacturing precast building components. The program received a very good response from the target delegates. Thrust in the summit was given on dissemination of up-to-date information, knowledge and experience on design, production, certification and application of cost effective and innovative building materials.

The Summit was inaugurated by the Joint Secretary (Housing), Ministry of Housing & Urban Poverty Alleviation, Government of India. More than 60 delegates participated in the programme. The media also covered the Summit extensively.

5. Training Programme on "Building Maintenance – Water Proofing and General Repairs" at New Delhi

The country, as it stands today, requires unprecedented levels of infrastructure development with diverse types of construction to meet the needs of burgeoning population. India also has the problem of aging infrastructure & the obsolete and decaying facilities, all of which call for innovative & immediate rehabilitation. Professionals in the field of construction are, therefore, faced with the challenges of leading the future development in a way that protects & conserves energy & environment quality on one hand & ensures structural renewal and durability on the other. This objective brought BMTPC and Dr. Fixit Institute-SPR together to build up & popularize the global standards &

International Summit on Emerging Trends in Low Cost Construction Technologies organised by BMTPC and ICAMT-UNIDO at Bodh Gaya, Bihar, January 4-5, 2011

Training Programme on "Building Maintenance - Water Proofing and General Repairs" from 12 - 13 August 2010 at New Delhi organised by BMTPC jointly with Dr. Fixit Institute.

National Workshop on "Seismic Retrofitting Policy" on 22 October, 2010 at Ahmedabad organised by BMTPC alongwith IIT, Gandhinagar

practices of building maintenance, Repair & Rehabilitation technologies through knowledge sharing in various platforms for last two years.

In the series, the Council organized Training Programme on "Building Maintenance – Water Proofing and General Repairs" from 12 – 13 August 2010 at New Delhi in association with Dr. Fixit Institute. The various topics covered in the Training Programme were:

- Leakage, Cracking & Manifestation of Distress
- Advanced Waterproofing Materials
- Modern Repair Materials & Repair Methodologies
- Structural Health Monitoring
- Case Studies
- Maintenance Schedules & Strategies

The programme was attended by around 25 participants from various organizations such as RITES, NCCBM, CSIR, Haryana Housing Board, Tata Housing Development Co. Ltd, Urban Administration and Development Division, Madhya Pradesh, Ultra Tech Cement Limited etc. The overall programme was well appreciated by participants and requested Council to organize such programmes in future also. The faculty was distinguished experts from the field with years of experience in practical field also.

6. Study of Affected Area of Leh due to Cloud Burst

A cloud burst occurred on the 5th and 6th of August 2010 in the Leh Valley causing colossal damage to life and property of the area. As per assessments made by the District Administration the number of houses damaged in various blocks of Leh District are as under:

		Fully damaged houses	Partially damaged houses
1.	Leh Block	520	376
2.	Khaltsi Block	97	152
3.	Nubra sub-division	10	14
4.	Nyoma sub-division	7	95
	Total	634	637

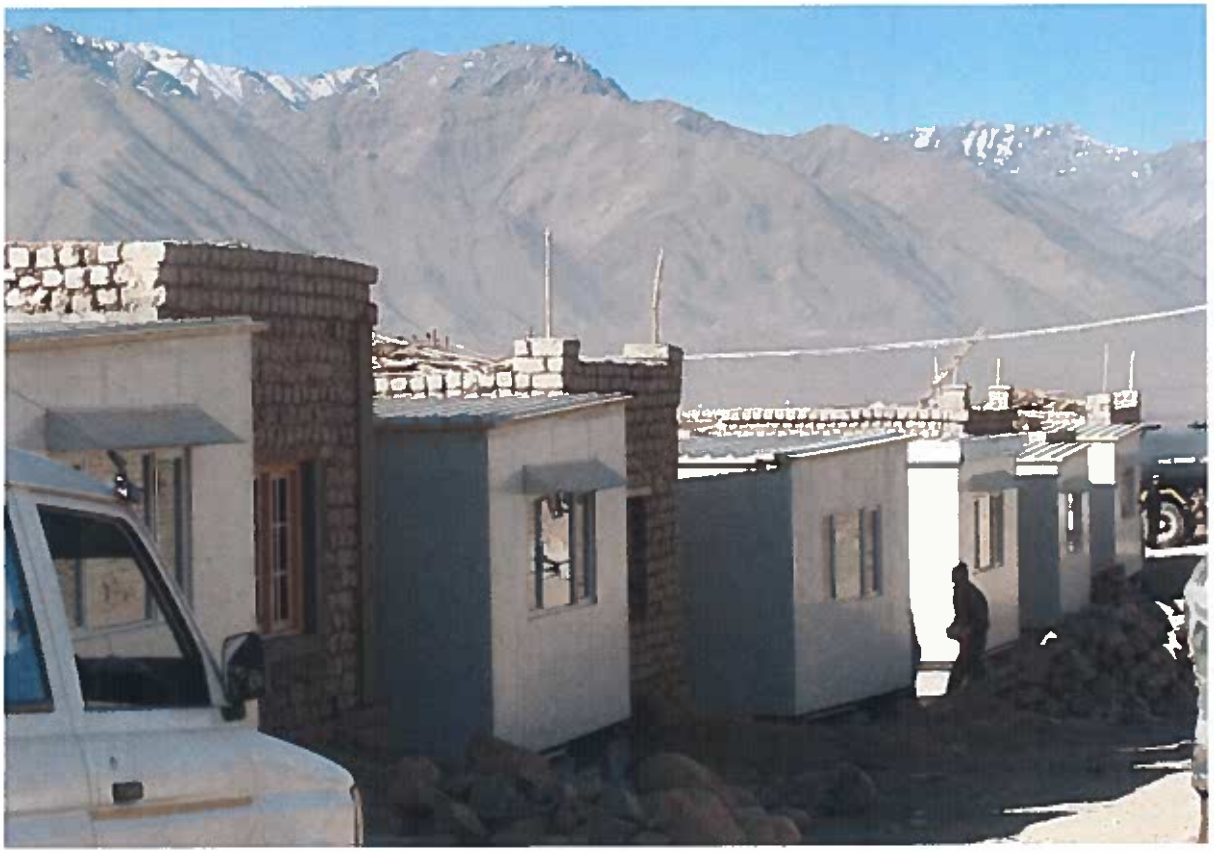
As a part of the initiative to rehabilitate the affected peoples of Leh District, the Ministry of Housing and Urban Poverty Alleviation advised the organizations attached to the Ministry of HUPA viz. BMTPC, HUDCO and HPL to visit the site for preliminary assessment. The team visited the affected areas at length from 3rd to 5th September, 2010 in close coordination with the local authorities from the Office of the Dy. Commissioner, PWD, Ladakh Hill Development Council, Tourism Dept., Block Panchayat Office. The team interacted with local affected people in the affected areas of Choglamsar which is one of the worst affected area.

Since the aim of the team was to explore the possibility of construction of houses in the flash flood affected area of Leh in synchronization with the traditional architectural style, a reconnaissance survey was carried out to understand the size of the dwelling units, social and living needs of the people. Accordingly, a few houses of local residents were visited and the layout proposed by the Engineering Department of the Local Administration was discussed threadbare. The team suggested that the layout and the proposed plan of DUs should also take care of the site conditions such as existing geological strata and hydrological formations. After holding several meetings with the public administration, affected people and public representatives, the plan of individual Dwelling Units was frozen. As regards the layouts, since the allotments of parcels of lands were under way in accordance with needs of the locals, it is felt that the proposed layout by the administration should be adopted as it is.

However, the following emerged out of the visit:

1. It was agreed that the working season available for undertaking the rehabilitation work is upto the end of October 2010 and at best extendable to 15th of November ie before the onset of winter. Therefore anything that has to be built has to be provided before the above said date.
2. After this natural disaster, majority of the labour has moved out of Leh and as on date, the labour force is more or less nil and whatever labour is available demands a premium wages as the harvesting season is in progress.
3. As the disaster has affected a larger belt of Leh Valley, the natural resources like stone, mud, cement and steel which are the basic building materials are in high demand and scarce. If at all they are available, they are at far away places and hence need to be transported over long distances.
4. The local authorities taking care of infrastructure works are engaged in meeting the day to day emergency requirements of providing basic amenities like drinking water, electricity, road network, education and health facilities.
5. In line with the vernacular architecture in mind, the dwelling unit plan which was decided to be provided would take at least about 6 to 8 months for completion. These would have traditional specifications ie random rubble masonry in foundation, compressed earth blocks in walling and roof made out of wooden ballies with mud mortar and suitable roofing top.
6. As the execution in local style would take time,

Rehabilitation work being undertaken in flash-flood affected area of Leh. A Technical Team comprising of BMTPC, HUDCO and HPL surveyed the affected area with respect to damage to housing and studied the housing typology and living pattern.



whereas the harsh winter during which construction may not be possible in just two months, it was deliberated to adopt a combination of pre-fab and construction with local materials to meet both the short term and long term relief measures. The short term objective is ie providing basic accommodation of one room of 14 x 12 ft size with local architectural features over the windows and roof with minimum slope before the onset of winter. The long term objective is to construct the agreed dwelling unit by adding rooms to the single room being provided initially blending the local architecture with the pre-fab structure during the next season by the affected households themselves. Community toilet facilities would also be provided as per the requirements.

7. Certain technologies which can withstand the prevailing temperatures in Leh which vary between – 25 to +30 deg. Centigrade and have been constructed in the ITBP and Army areas are PUF injected insulation panels for walling and roofing with the inner structure of steel or timber.

7. Technical Cooperation Programme between India and Africa Countries in the field of Housing & Human Settlements

To strengthen the South-South cooperation, a Project Proposal for India-Africa Technical Cooperation Programme in the field of Housing and Human Settlements was prepared and submitted to Ministry of External Affairs by Ministry of Housing & Urban Poverty Alleviation, Government of India. The project envisages implementation of cooperation programme between India and five African countries.

The major components of the project are :

1. Establishment of Human Settlement Centre (Regional Centre).
2. Establishment of Technology Demonstration and Diffusion Centre (Sub Centre).
3. Adaptation of technologies, R&D for adaptation, testing, certification, prototype development and batch production
4. Facilitation for technology transfer including support to the professionals, students, delegations for training
5. Organisation of Seminar/Exhibition across the region including public private partnership
6. Construction of 40 demonstration houses
7. Construction of 400 houses with the funding support of Govt. of India's contribution of 10% and 90% by the host country (OPTIONAL)

8. Training of engineers, skilled & semi-skilled workers, small entrepreneurs, project managers both in India and host country.

Detailed action plan and schedule for implementation have also been prepared and submitted to Ministry of External Affairs for consideration. The following MoU's to be signed between the different agencies have also been prepared and submitted to Ministry of External Affairs :

i. Government of India and the African Union
ii. Ministry of Housing & Urban Poverty Alleviation and five member states of African Union
iii. Ministry of External Affairs and Ministry of Housing & Urban Poverty Alleviation

The following Countries have been identified by Ministry of External Affairs for implementation of plan:

i. Togo
ii. Mauritania
iii. D. R. Congo
iv. Kenya
v. Zambia

The detailed questionnaires seeking appropriate information for establishment of Human Settlement Centre has been prepared for all 5 selected Countries and have been forwarded to respective Countries by Ministry of External Affairs.

Three countries namely, D.R. Congo, Kenya and Togo, have responded to the questionnaires and are ready to undertake the project in their respective countries. The MoU for these countries have also been prepared and submitted to MEA.

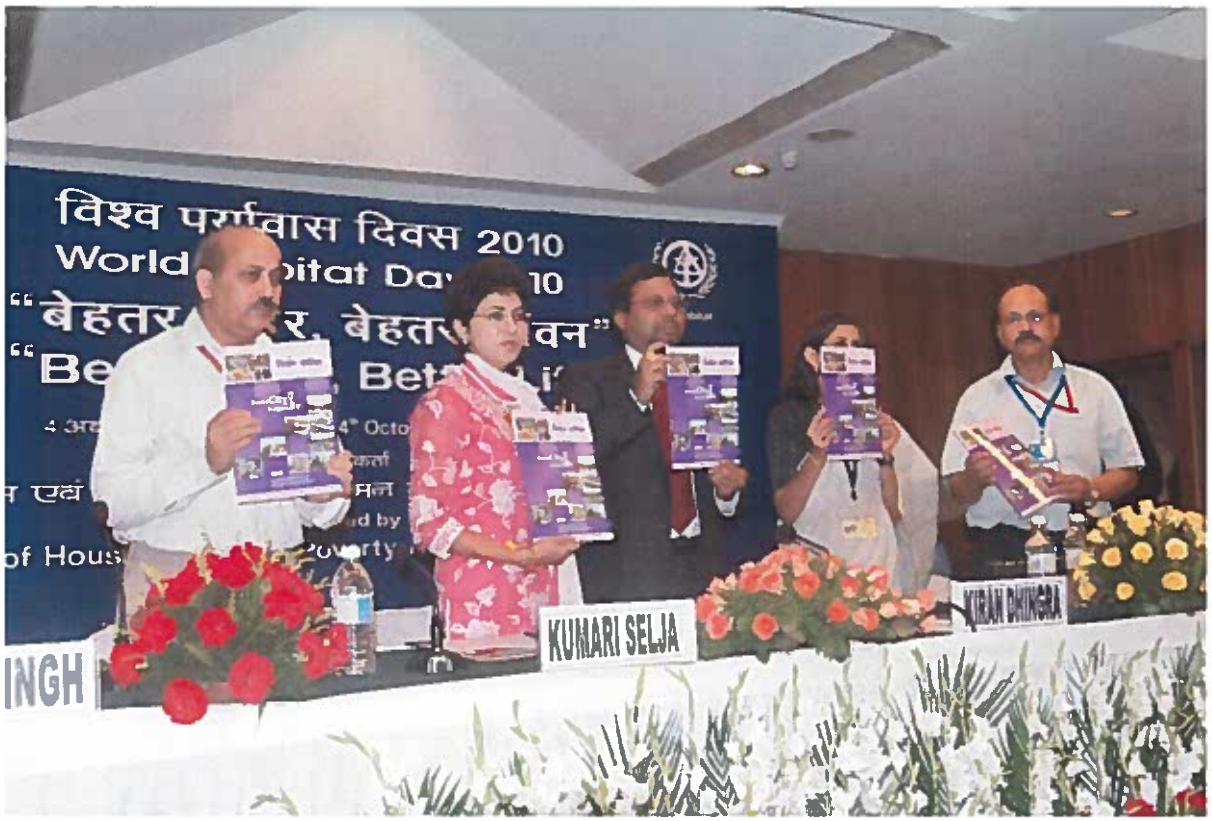
BMTPC will implement this programme as per the direction of the Ministry of HUPA and MEA.

8. Celebrations of World Habitat Day 2010

On the occasion of World Habitat Day 2010, the Council undertook the following activities:

Painting Competition for Differently Abled Children

Organised Painting Competition for Differently Abled Children on the theme: "Better City Better Life". These children included special children (under 15 years of age) in the categories namely (i) Mentally Challenged. (ii) Visually impaired, (iii) Hearing Impaired and (iv) Autistic children at 12 schools in Delhi. The Council received 79 entries in the competition. The prizes were awarded to winning entries by



Kumari Selja, Hon'ble Minister of Housing & Urban Poverty Alleviation, releasing the Special Issue of "Nirman Sarika" during the World Habitat Day on 4th October, 2010

Hon'ble Minister of Housing & Urban Poverty Alleviation, Kumari Selja releasing the Guidelines on Improving Earthquakes, Wind/Cyclones & Flood Resistance of Housing during the World Habitat Day on 4th October, 2010

Kumari Selja, Hon'ble Minister of Housing & Urban Poverty Alleviation, releasing the Training Manual on Ductile Detailing during the World Habitat Day on 4th October, 2010

Kumari Selja, Hon'ble Minister of Housing & Urban Poverty Alleviation, releasing the Manual for Restoration and Retrofitting of Buildings in Uttarakhand and Himachal Pradesh during the World Habitat Day on 4th October, 2010

Conference on "Preparing for an Urban future: Resilience, Sustainability and Leadership" organised by BMTPC jointly with TERI on 1 November, 2010 at New Delhi as a part of World Habitat Day 2010 celebrations

Dr.Shailesh Kr. Agrawal, Executive Director, BMTPC giving away the prizes to the award winers of Painting Competition for Differently Abled Children organised by BMTPC during World Habitat Day 2010

the Hon'ble Minister for Housing & Urban Poverty Alleviation & Tourism during the celebrations of World Habitat Day on 4th October, 2010 at New Delhi.

Release of Publications

i. Special issue of Newsletter of BMTPC "Nirman Sarika"
ii. Improving Earthquake Resistance of Housing – Guidelines
iii. Improving Flood Resistance of Housing – Guidelines
iv. Improving Wind/Cyclone Resistance of Housing – Guidelines
v. Training Manual for Ductile Detailing in Hindi
vi. Manual for Restoration and Retrofitting of Buildings in Uttarakhand and Himachal Pradesh

These publications were released by Kumari Selja, Hon'ble Minister of Housing & Urban Poverty Alleviation & Tourism during the celebrations of World Habitat Day 2009.

9. Participation in India International Trade Fair, 2010, Pragati Maidan, New Delhi from 14-27 November 2010

BMTPC put up a Technology Show on Cost Effective and Emerging Building Materials and Housing Technologies during India International Trade Fair (IITF) from 14-27 November, 2010. BMTPC stall attracted large number of professional, VIPs, foreign delegation and general public which evinced interest in the various innovative building materials and technologies being promoted by the Council. Large number of foreign delegations visited BMTPC stall.

VI. TECHNOLOGY DEVELOPMENT, DIFFUSION AND TRANSFER

1. Upgradation of Facility for Commercialization of Bamboo Mat Ridge Cap

The Council has earlier developed the technology for Bamboo Mat Corrugated Roofing Sheet (BMCS) in association with IPIRTI and commercialized the same through a private entrepreneur in Byrnihar, Meghalaya. The entrepreneur is producing BMCS on large scale and supplying to the various Government departments.

The Council in association with Indian Plywood Industries Research & Training Institute (IPIRTI), Bangalore, undertook a project for Upgradation of Facility for Commercialization of Bamboo Mat Corrugated Sheet (BMCS) with addition of Bamboo Mat Ridge Cap (BMRC). The main objectives of the project were:

1. Design and development of moulded dies for ridge cap for commercialization

2. Installation and commissioning of BMRC Hydraulic hot press with moulding dies.
3. Trial runs to produce the Ridge Cap and to carry out improvements and modifications if necessary.
4. Performance evaluation.

The Hydraulic Hot Press required for manufacturing of Bamboo Mat Ridge Cap has been installed at Byrnihat, Meghalaya. After the successful completion of trial runs, the facility was inaugurated on 19-20 July 2010.

The Council has also initiated a study on "Energy Auditing & Carbon in manufacture of Bamboo Mat Corrugated Sheets and Bamboo Mat Ridge Cap" in association with Indian Plywood Industries Research & Training Institute (IPIRTI), Bangalore on the advice of Executive Committee, which is under advance stage of completion.

2. Project on Improvement of Earthquake Resistance Capacity of Circular Columns

The Council is undertaking a project on Improvement of Earthquake Resistance Capacity of Circular Columns in association with IIT Roorkee. The primary objective of the project is to understand the behaviour of the circular RCC columns incased in PVC tubes subjected to axial compression till failure. With the help of this study, following will be investigated and addressed;

- Effect of diameter/ wall thickness (D/t) ratio on load carrying capacity of column.
- Effect of thickness of tube and reinforcement mesh on strength of columns.
- Effect of load carrying capacity of column, when (a) only concrete loaded (b) both tube and concrete loaded.
- Effect of greasing between tube and concrete interfaces on strength of columns.
- Effect of process parameters on confinement of concrete.
- Analysis of the load compression behaviour to estimate the energy-absorbing capacity.

The traditional Circular RCC columns do not absorb reasonable amount of earthquake energy released during the occurrence of earthquake due to their lower shear resistance. Circular RCC columns incased in PVC pipes could be a good alternative of traditional circular RCC columns. The PVC provided on the periphery of the column shall not only give confinemenet to the concrete but also increase its shear capacity. To keep these extra properties of RCC columns incased by PVC tube in mind this project has been undertaken.

On the basis of the study an alternative to the RCC Columns shall be provided for the low cost housing at the places where earthquake forces are predominant. This study is confined to the provisions of columns in two to three storied low cost buildings.

The following work has been undertaken under the project:

- Preparation of specimens made up of concrete filled PVC pipe columns.
- Testing of specimens

Specimens were tested using two approaches. In first approach the samples were tested by simultaneous loading of all the constituent materials in a particular cross section so that the composite behaviour of the specimens could be studied under different configurations of the constituents. In second approach the specimens were tested by loading concrete only so that the confinement generated by the UPVC tube could be studied for various failure modes and strength capacities.

3. Development of the Building Components from Sponge Iron Wastes

The Council has undertaken a project for "Development of the Building Components from Sponge Iron Wastes" in association with Central Building Research Institute (CBRI), Rookee. The objective of the project is to develop building bricks utilizing sponge iron waste. Sponge Iron contains 8-10% unburnt carbon. This unburnt coal can gainfully be used in the manufacturing of fired clay bricks. It is expected that addition of optimized quantity of sponge iron in clay will add to huge quantity fuel saving required for the manufacture of burnt clay bricks.

The interim progress report has been received wherein the following areas have been covered:

- Raw materials and their availability
- Availability of Sponge Iron in India
- Survey and collection of sponge iron waste soil samples
- Utilization Prospects of Sponge iron in developing building products and components.
- Physio-chemical properties of various types of sponge iron wastes.
- Characterization of the Sponge iron waste & clay sample and determination of particle size, mechanical composition, plasticity properties and chemical properties is reported in the report.
- Environmental hazards such as pollution due to road side disposal of the waste and air pollution during the process of the sponge iron is reported.

4. Utilization of Industrial Waste Materials as Inexpensive Absorbents having Applications in Building Materials

The Council in association with CBRI Roorkee is undertaking a project entitled "Utilization of Industrial Waste Materials as Inexpensive Adsorbents having Applications in Building Materials". The aim of this project is to develop low cost adsorbent from waste materials for removing aqueous pollutants from water and waste water. The following are the expected outcome of this study:

- To develop effective adsorbents from waste products viz. flyash, red mud, blast furnace slag, dust, sludge etc.
- To study kinetics and capacity of such adsorbents for removing important aquatic pollutants (viz. toxic metal ions, dyes, phenols, pesticides etc.) from natural and wastewater.
- To perform pilot studies
- To develop a model for simulating and predicting adsorption column performance
- To carry out immobilization and leaching studies with pollutants-laden adsorbents by fixing them into cement or building materials.

The following work has been undertaken so far under the project:

- Source and Probable Hazardous Effects of Heavy Metal Ions
- Adsorption of Heavy Metal Ions from waste water
- Solidification/ Stabilization of Hazardous Metal Waste
- Effects of Heavy metals on Human Health
- Chemical Composition of Flyash and Slag
- Analysis of waste from Nickel, Brass & Copper Plating Industry
- Analysis of the Composite waste water from Raw Hide to Chrome Tanning Finished Leather
- Solidification/Stabilization of Cr(VI) using OPC and Red Mud
- Physico-chemical Analysis of Cement, Chemical Analysis of Red Mud
- Solidification/Stabilisation of Pb(II) and Zn (II) using OPC and Red Mud
- Determination of Consistency
- Consistency of Control Mix
- Determination of Setting time
- Solidification/Stabilisation Studies
- Leaching Studies

- Setting time of cementitious binders without (controls) and with Cr(VI), Pb(II) and Zn(II)
- Compressive strength solidified cementitious binders without (controls) and with Cr(VI), Pb(II) and Zn(II)
- Bulk density of solidified cementitious binders without (controls) and with Cr(VI), Pb(II) and Zn(II)
- Leachability Cr(VI), Pb(II) and Zn(VI) from solidified samples in Acidic Medium

5. Cost Effective Value Added Thermal Insulation Tiles for Insulation Purpose

The Council has undertaken a project on 'Cost Effective Value Added Thermal Insulation Tiles for Insulation Purpose" in collaboration with Central Building Research Institute, Roorkee. The objectives of the project are:

- To develop roofing tiles using exfoliated vermiculite, cement and polymer binder.
- Characterization and optimization of develop tiles as per IS specifications.
- Optimization of operating parameters and to make prototype for field trials.

It is proposed in the project to work for achieving the following targets:

- Product i.e. Thermal insulated tiles
- Process know-how for commercialization
- Research papers and patent

The following work has been completed under the project:

- Procurement of raw materials – Raw materials such as vermiculite, polymer and cement has been procured.
- Fabrication of moulds of different sizes required for casting tiles from local market
- Characterization of raw materials – The characterization of cement, polymer and vermiculite has been done.
- Use of Vermiculite plaster and its advantages
- Physical and Chemical Properties
- Vermiculite concrete roof deck systems
- Vermiculite Industrial Applications etc.
- Present scenario and Industrial applications such as Vermiculite concrete, insulating material, plaster and its application in the various air conditioning plant.
- Various optimized parameters of cement, vermiculite and polymer composition under various pressing and curing conditions. The properties of the prepared compositions were also examined by plotting graphs for the composition varying for 5-15% of polymer. The physico-mechanical properties as per IS-3346 of the developed tiles were also determined.

- The various methods of moulding the samples under different conditions as per ASTM C-196.

6. Preparation of Seismic Design Manuals for Earthquake Disaster Mitigation

The Council has undertaken a project for preparation of Seismic Design Manuals for Earthquake Disaster Mitigation in association with IIT Roorkee. Under the project following three manuals were prepared:

1. How to make a Dream House Earthquake Resistant
2. How to Analyze, Design, Evaluate and Retrofit Multistoried RC Framed Construction for Earthquake Forces
3. How to ensure the Seismic Safety of Multistory Reinforced Concrete Buildings

The first manual entitled "**How to make a dream house earthquake safe**" is a guideline to construct a masonry house consisting of brick, block, stone, adobe etc. with mortar. Such type of construction is called load bearing walls construction. Most of the Indian population is living in this type of constructions. Past earthquakes in India reveal that most of the causalities have occurred only due to collapse of these constructions. Therefore, it is necessary to reduce earthquake disaster in a common man's house making it seismically safe.

The second manual entitled "**How to ensure the seismic safety of multistory reinforced concrete buildings**" encompasses buildings in which people live in flats i.e. frame construction with beam, columns, shear wall etc. This type of construction is safer than the first type of construction if it is made on the basis of IS code recommendations. Two BIS codes namely IS 1893 and IS 13920 are generally used for the earthquake resistant construction of multi-storey framed buildings. These codes are not easily to understand for our design professional and architects since they are accustomed to the conventional design but not earthquake resistant design. The main reason is that, earthquake engineering in the past was available only at a few places and most of the engineering colleges either did not include earthquake engineering in their curricula or at the most one or two optional courses. Therefore, the graduates of civil engineering either had no idea about earthquake engineering or only a little bit which was not sufficient for a design professional. However, after the Bhuj earthquake on January 26, 2001 there have been number of technical programmes or schemes launched by different ministries with the help of technical institutions on earthquake engineering education in the form of short term courses.

The final and third manual entitled **"How to Analyze, Design, Evaluate and Retrofit Multistoried RC Framed Construction for Earthquake forces"** is useful for those professionals who have interest in seismic analysis and design of multi storey reinforced concrete buildings. This manual will help to analyze the structure for earthquake loads as per IS 1893 and design the same with the help of IS 13920. A number of practical examples have been given so that one can easily understand the clauses of these codes.

These manuals not only cover the details of earthquake safe construction but also provide direction to evaluate the seismic capacity and vulnerabilities of a house/building for future earthquake. If the house/building is found seismically deficient, a number of techniques have been suggested to increase/upgrade their seismic capacity for the future earthquake. These techniques are called retrofitting measures. These manuals also suggest measures to repair and retrofit an earthquake damaged house/building. In short, these manuals have covered all the details to make earthquake safe construction (new or existing) of a house or multistory reinforced concrete buildings.

VII. JAWAHARLAL NEHRU NATIONAL URBAN RENEWAL MISSION (JNNURM)

1. 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). The activities undertaken by BMTPC in implementation of the JNNURM are as given below:

Appraisal of Detailed Project Reports (DPRs)

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.

During the year, the Council appraised 18 DPRs of BSUP projects received from Rajasthan (2), Delhi (7), Karnataka (4), West Bengal (2), Andhra Pradesh (2) and Jharkhand (1). The proposals worth Rs. 2464.91 crores with Government of India share of Rs. 1185.44 crores and covered 82359 Dwelling Units were appraised.

The Council appraised 17 DPRs of IHSDP projects received from Punjab (11), Bihar (5) and Jammu & Kashmir (1). The proposals were worth Rs. 419.49 crores with Government of India share of Rs. 176.03 crores and covered 11314 Dwelling Units and other infrastructure services such as roads, water supply, sewerage, storm water drains, community facilities, health centres, education facilities etc. were appraised.

The appraisal activity also included framing of Administrative & Technical Check lists, DPR Preparation formats etc. and extensive discussion/ interaction with State Government officials on regular basis to ensure that the DPRs submitted were in compliance with Mission Guidelines.

Monitoring of BSUP and IHSDP Projects

The Council is also being designated as a 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. During the period, monitoring visits were undertaken at the following sites:

S. No	State	City/Town	Location	No. of Projects
1	Andhra Pradesh	Visakhapatnam	Aganampudi	5
			Kommadi	
			Paradesipalemin, Sy. No.178	
			Paradesipalemin, Sy.No. 179	
			Parwada	
2	Maharashtra	Nagpur	Nagpur west	4
			Nagpur Jattarodi	
			Nagpur – IV	
			Nagpur SRA (PPP)	
		Thane	Kalyan Dombivili	1
3	Uttar Pradesh	Kanpur	Kanpur	1
		Meerut	Meerut	1
			Kashi	7
			Nangla Tashi	
			Noor Nagar	
			Fatehullah Pur	
			Lakhwaya	
			Shobhapur	
			Lohia Nagar	
		Mathura	Gopal Nagar	3
			Laxmi Nagar	
			Radhey Shyam Colony	
		Varanasi	Varanasi	8
4	Karnataka	Bangalore		4
5	Delhi	Delhi	Bawana, Narela & Bhorgarh (Bawana - II)	1
6	Himachal Pradesh	Shimla	Shimla	1
Total No. of Mission Cities Visited				*10*
Total No. of BSUP Project sites monitored				*36*

S. No	State	City/Town	Location	No. of Projects
1	Andhra Pradesh	Andhra Pradesh	Mahaboobnagar	4
			Suryapeta	
			Miryalguda	
			Nalgoda	
2	Madhya Pradesh	Orchha	Tikamgarh	1
3	Maharashtra	Buldana	Khamgaon	1
4	Uttar Pradeh	Bithoor	Bithoor	4
		Shivrajpur	Shivrajpur	
		Gorakhpur	Gorakhpur	
		Azamgarh	Azamgarh	
		Aligarh	Jamalpur Maufi	2
			Laxmi Nagar	
		Lucknow	Malihabad	3
		Sitapur	Biswan	
		Barabanki	Ram Nagar	
		Muradabad	Bhattwali	3
			Thakurdwara	
		Rampur	Rampur	
		Saharanpur	Saharanpur	2
		Muzzaffarnagar	Muzzaffarnagar	
		Fatehpur	Fatehpur	1
		Banda	Naraina	2
			Bisanda	
		Jalaun	Orai	3
			Kadura	
			Kalpi	
		Pratapgarh	Belha	1
5	Karnataka	Dharwad	Hubli	5
			Hubli Ph-II	
		Gadak	Gajendragada	
			Betagiri	
		Koppal	Koppal	
6	Himachal Pradesh	Parwaano	Parwaano	1
7	Orissa	Jharsuguda	Brajrajnagar	1
8	Tripura	Tripura-West	Ranibazar	1
Total No. of Towns Visited				*28*
Total No. of IHSDP Project sites monitored				*35*

Review Meetings

During the year, the Council participated in the number of Regional Review meetings organized by the Ministry of Housing & Urban Poverty Alleviation for BSUP/IHSDP projects at various places such as Bangalore, Karnataka and Panji, Goa.

The Council alongwith JNNURM Officials visited Rajkot and Mumbai on 20-23 January, 2011 to redress grievances of Hon'ble Member of Parliament at Rajkot and to monitor progress of on-going projects in Mumbai.

The Council alongwith JNNURM Officials, DFID official and Experts visited Meerut on 24th January, 2011 for carrying out monitoring and redressal of complaint at Meerut.

Review of TPIM Reports

The Council is 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	No. of Review Reports of BSUP/IHSDP projects Submitted to Mission Directorate
1	Andhra Pradesh	40
2	Gujarat	8
3	Karnataka	34
4	Uttar Pradesh	84
5	West Bengal	33
6	Tamilnadu	49
7	Maharashtra	7
8	Kerala	12
9	Madhya Pradesh	12
10	Rajasthan	4
11	Chandigarh	1
12	Puducherry	1
13	Punjab	1
14	Haryana	7
	Total	**293**

Capacity Building Programme on "Quality Assurance and TPIM of BSUP & IHSDP project under JNNURM"

On behalf of the Mission Directorate, JNNURM, Ministry of Housing & Urban Poverty Alleviation, Government of India, a number of Capacity Building Programmes on "Quality Assurance and TPIM of BSUP & IHSDP project under JNNURM" was organized by BMTPC. These include:

- Bhopal, 19th - 20th August, 2010
- Agra (U.P), 13th - 14th August, 2010
- Chennai, Tamil Nadu, 1st – 2nd December 2010
- Hyderabad during 11th – 12th November 2010
- Trivandrum, Kerala, 1st - 2nd February, 2011
- New Delhi, 27th October, 2010

The objectives of these programmes were to enhance the capacity of the technical personnel of SLNA, ULB, PMU, PIU and representatives of State and Central TPIM agencies through presentations on various aspects of Quality Assurance during execution of Housing and infrastructure works. The programme also includes orientation of TPIM agencies and interaction with the State Govt. officials and field engineers on Quality Assurance and TPIM.

BMTPC Monitoring Teams visiting various BSUP and IHSDP project sites under Jawaharalal Nehru National Urban Renewal Mission (JNNURM)

Organized Capacity Building Programme on Quality Assurance and TPIM for BSUP and IHSDP Projects under JNNURM on 19-20 August, 2010 in Bhopal

Organized Capacity Building Programme on Quality Assurance and TPIM for BSUP and IHSDP Projects under JNNURM on 27 August, 2010 in New Delhi

Organized Capacity Building Programme on Quality Assurance and TPIM for BSUP and IHSDP Projects under JNNURM on 11-12 November, 2010 in Hyderabad

Organized Capacity Building Programme on Quality Assurance and TPIM for BSUP and IHSDP Projects under JNNURM on 1-2 December,2010 in Chennai

VIII. NEW INITIATIVES

1. Global Expression of Interest (EOI) for Introducing Alternate/ Emerging Housing Technologies in Different Parts of India

BMTPC has been promoting cost-effective, environment-friendly, energy-efficient and disaster resistant technologies developed in India. In order to bring in speed, quality and durability in the construction, it has been felt that there is a need to identify and adopt well proven emerging technologies available within and outside the country. BMTPC 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 construction of demonstration houses at various parts of the country. The Global EOI has been invited in two stages. The first stage of Global EOI includes selection and evaluation of suitable technologies which the technology developers/providers are willing to bring to India for mass housing, as a cost effective substitute for conventional system. The technologies/systems is being evaluated by a Committee of Experts. After evaluation the technologies will be ranked for suitability in Indian condition for mass housing. The second stage includes construction of demonstration houses using selected technologies/ systems in different parts of country.

The Council has received the expression of interest from the 12 agencies for different technologies and systems. After preparation of the summaries of the received offers, the Technology Advisory Group was constituted by the Executive Committee of BMTPC for identification, evaluation and selection of the suitable technologies.

The first meeting of the Technology Advisory Group (TAG) was held on 14th January, 2011. Based on the information given by the bidders through their individual presentations before the TAG for their respective technologies/systems with respect to material and structural details, status of evaluation, actual construction carried out in India or elsewhere and their performance, economic scale of construction, status of transfer of the technology to India, suitability for mass construction in urban areas, durability & speed of construction, cost effectiveness, innovation in technology, ease of working & adaptability in Indian condition, etc. and considering the broad parameters decided by the TAG and also the emergent need for mechanisation for faster construction to cater to the need of the mass housing shortages in the country; the TAG shortlisted following technologies/systems for further evaluation:

- M-2 EMMIDUE panel building system using steel mesh, polystyrene core and chipping concrete
- JK Structure technology using expanded steel mesh panels, polystyrene beads & alleviated concrete
- Prestressed precast prefab technology using hollow core slab, beams, columns, solid walls, stairs, etc.
- Monolithic concrete system using plastic formwork
- Monolithic concrete construction using aluminium formwork
- Precast concrete panels system using concrete, welded mesh and plates, polystyrene core
- Industrialized 3-S system using cellular light weight concrete slabs & precast columns

2. Preparation of "Design Package on Alternate House Building Technologies" for various regions of the country

The Council has initiated development of Design Packages using alternate building materials and construction technologies in different geo-climatically conditions which consists of a cluster of 60 houses, community centre, school and shops/kiosks. Once developed, the Design Package will be submitted to State Governments for their commitment to take it forward through demonstration construction by BMTPC. The design packages will be developed for following zones:

- Western/Central Zone
- Northern Zone (Plain)
- North-Eastern Zone
- East Zone
- South Zone
- North Zone (Hilly)

The council also sought assistance from experts in the field for preparation of design packages. The design concepts for different geo-climatic region broadly covering following parameters are being prepared:

- Single storey or G+3/multi-storeyed structures or both features that would be kept in mind in finalizing Design concepts would include the requirement of Green Buildings;
- The dimensional requirement laid down in National Building Code 2005;
- Multi-hazard resistance and the structural and fire requirement of NBC 2005, as applicable;
- At least two habitable rooms, separate kitchen and bathroom with minimum carpet area of $25m^2$;
- Aesthetics, ventilation and adequate storage space.

The design packages for different geo-climatic regions being prepared have broadly the following salient features:

North Zone

Load bearing structural frame with following technologies:

- *Flyash bricks*
- *RCC Planks and Joists for roof*
- *RCC door & window frames*
- *Precast lintels, sunshades and staircases*
- *Plastering on internal and external walls*

Western/Central Zone

Option – 01

Load bearing structural frame with following technologies:

- *Rat trap bonds in clay bricks*
- *Filler slabs for roof*
- *RCC door & window frames*
- *Precast lintels, sunshades and staircases*
- *Plastering on internal and external walls*

Option – 02

Structural scheme with RCC Frame having following technologies:

- *Interlocking type compressed earth blocks*
- *RCC planks and joists*
- *RCC door & window frames*
- *Precast lintels, sunshades and staircases*
- *Plastering on internal and external walls*

Option – 03

Load bearing structural frame with following technologies:

- *Random rubble masonry foundation*
- *Cast-in-situ stone filler concrete blocks*
- *RCC rafters and purlins with tiles*
- *RCC Door & window frames*

East Zone

Structural scheme with RCC Frame having following technologies:

- *Rat trap bond in bricks*
- *Filler slab for roof*
- *RCC door & window frames*
- *Precast lintels, sunshades and staircases*
- *Plastering on internal and external walls*

South Zone

Option – 01

Load bearing structural frame with following technologies:

- *Rat trap bond in flyash bricks*
- *Precast joist and prefab brick panels*

- *RCC door & window frames*
- *Precast lintels, sunshades and staircases*
- *Plastering on internal and external walls*

Option – 02

Load bearing structural frame with following technologies:

- *Random rubble masonry foundation*
- *Stabilized mud blocks for walling*
- *Wooden rafters and purlins using locall available wood with mangalore pattern tiles*
- *Precast lintels, sunshades and staircases*
- *Plastering on internal and external walls*

North Zone (Hilly)

Load bearing structural frame with following technologies:

- *Bricks/precast PCC blocks/Stone faced blocks*
- *RCC planks and joists for intermediate floors*
- *GI Sheet for roof*
- *RCC door & window frames*
- *Precast lintels, sunshades and staircases*
- *Plastering on internal and external walls*

North-Eastern Zone

Option – 01

Load bearing structural frame with following technologies:

- *Bamboo posts and bamboo crete walls*
- *Bamboo Mat Corrugated Roofing Sheets with Ridge Cap*
- *Door & window frames with locally available wood.*

Option – 02

Structural scheme with RCC Frame having following technologies:

- *Ferrocement walling panels*
- *Filler slab for roofing*
- *RCC door & window frames*
- *Precast lintels, sunshades and staircases*
- *Plastering on internal and external walls*

Option – 03

Load bearing structural frame with following technologies:

- *Compressed earth blocks*
- *Filler slab for roofing in slope*
- *RCC door & window frames*
- *Precast lintels, sunshades and staircases*
- *Plastering on internal and external walls*
- *RCC plinth bands, lintel bands, roof bands and gable bands for earthquake resistance.*

3. Pilot Project on Confidence Building in Alternate Housing Technologies

The Council has prepared a Pilot Project on Confidence Building in Alternate Housing Technologies. BMTPC is involved in promotion of innovative, eco-friendly, cost-effective building materials and construction technologies including disaster resistant construction with necessary S&T intervention, standardization and demonstration, wherever necessary to suit the requirements of housing sector. The Government through the National Urban Housing & Habitat Policy aims to promote development of cost-effective, quality approved building materials and technologies with a view to bringing down the cost of EWS/LIG houses and whereas disaster resistant technology and achieving Green Rating for buildings are mandatory, adoption of alternate, environment-friendly, energy-efficient, cost effective and disaster resistant technologies has become a necessity.

In the context of the massive construction initiatives by the Government of India, State Governments under various programmes as well as shortage of housing in affordable sector, an urgent need is felt around the country to propagate and popularize the cost effective options and introduce appropriate technical interventions so as to close the gap between availability of these technology options and application of the same increasingly in mass housing initiatives.

The Pilot Project on Confidence Building in Alternate Housing Technologies aims to facilitate wide spread dissemination and adoption of both existing proven and emerging cost-effective and sustainable building materials and construction technologies as an alternate to the conventional, in a manner and by a strategy that will promote knowledge, confidence and create enabling environment for the large scale adoption of such materials & technologies in different geo-climatic parts of the country, thus making housing cost-effective, accessible and sustainable.

The implementation of the Pilot Project will be through demonstration construction based on the Design Package developed by BMTPC using cost effective, eco-friendly construction technologies for a cluster of 60 houses with carpet area of 25 sqm. each, community centre (built-up area 300 sqm.), primary school (built-up area 250 sqm.), shops/kiosks ((built-up area 100 sqm.) including on-site infrastructure development for the various regions of the country having different geo-climatic condition and topography (may be changed as per requirement of the State). The demonstration construction of the project would be accompanied by:

(a) Complete documentation of the project giving details of cost of materials, labour, training, vis-à-vis conventional including safety, durability, maintenance, energy aspects to prove their cost effectiveness by demonstration as well as through third party i.e. Academic Institutions identified by the State Government.
(b) Training of trainers for technologies
(c) Capacity Building of artisans through organizing training programmes during construction.
(d) Wider dissemination through website of BMTPC and State Government.
(e) Propagation through print & electronic media.

In addition to the known technologies, new and emerging technologies considered to be cost effective from around the world and assessed as suitable to Indian conditions would be identified, and put through the same process of proving and perfecting for adoption by demonstration in collaboration with the States.

The funding for construction costs of demonstration structures including onsite infrastructure development will be taken up in conjunction with the Centrally funded Schemes such as JNNURM/ RAY/ IAY or any State Govt. scheme, as applicable. In addition, the BMTPC will bear the 25% of the State share under the project for the construction component of the demonstration projects to reduce the State Government share. The rest of the expenditure would be borne by the State Government. For this, BMTPC will assist the State Government to prepare a Detailed Project Report (DPR) based on already developed Design Package. After the preparation of the DPR, the DPR will be submitted to the concerned Committee/Authority of the respective Central/State Schemes for funding by State Govt.

The aim is to establish the cost effectiveness of known and scientifically proven, as well as emerging, building materials and construction technologies and simultaneously to plug the gaps in the process of their adoption by mainstream construction agencies; and to do so with the involvement of the States so as to obtain State's commitment for the adoption of such cost effective materials and technologies in the country by construction agencies and its widespread dissemination.

ORGANISATION

The organizational structure depicting different functional units in the establishment of the Council is shown in form a chart at next page. As on 31st March, 2011 BMTPC had a staff strength 41 comprising 17 officers and 24 support staff and technicians/professionals hired on contract on project basis.

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

- The byelaws of the Council has been amended and implemented in June, 2010. Similarly, Recruitment-cum-Promotion Rules of the Council were revised and implemented w.e.f. October, 2010.
- Constituted a Committee among the SC/ST officers and staff members for the welfare of the individual/people.
- Constituted the following Internal Committee for smooth functioning of the organization:
  - Construction Committee
  - Investment Committee
  - Advertisement Committee
  - Printing Committee
  - Local Purchase Committee
  - Store Purchase Committee
  - Transport Committee
  - Contractual Payment Committee
- BMTPC nominated an officer as nodal officer for implementation of the national IPV6 development road map;
- 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.
- Implementation of reservation roster for SC/ST/ OBC for the Direct Recruitment as well as Promotion Roaster.
- Implementation of RTI Act, 2005
- Setting up of a Committee for Prevention of Sexual Harassment of women at workplace.

BUILDING MATERIALS & TECHNOLOGY PROMOTION COUNCIL

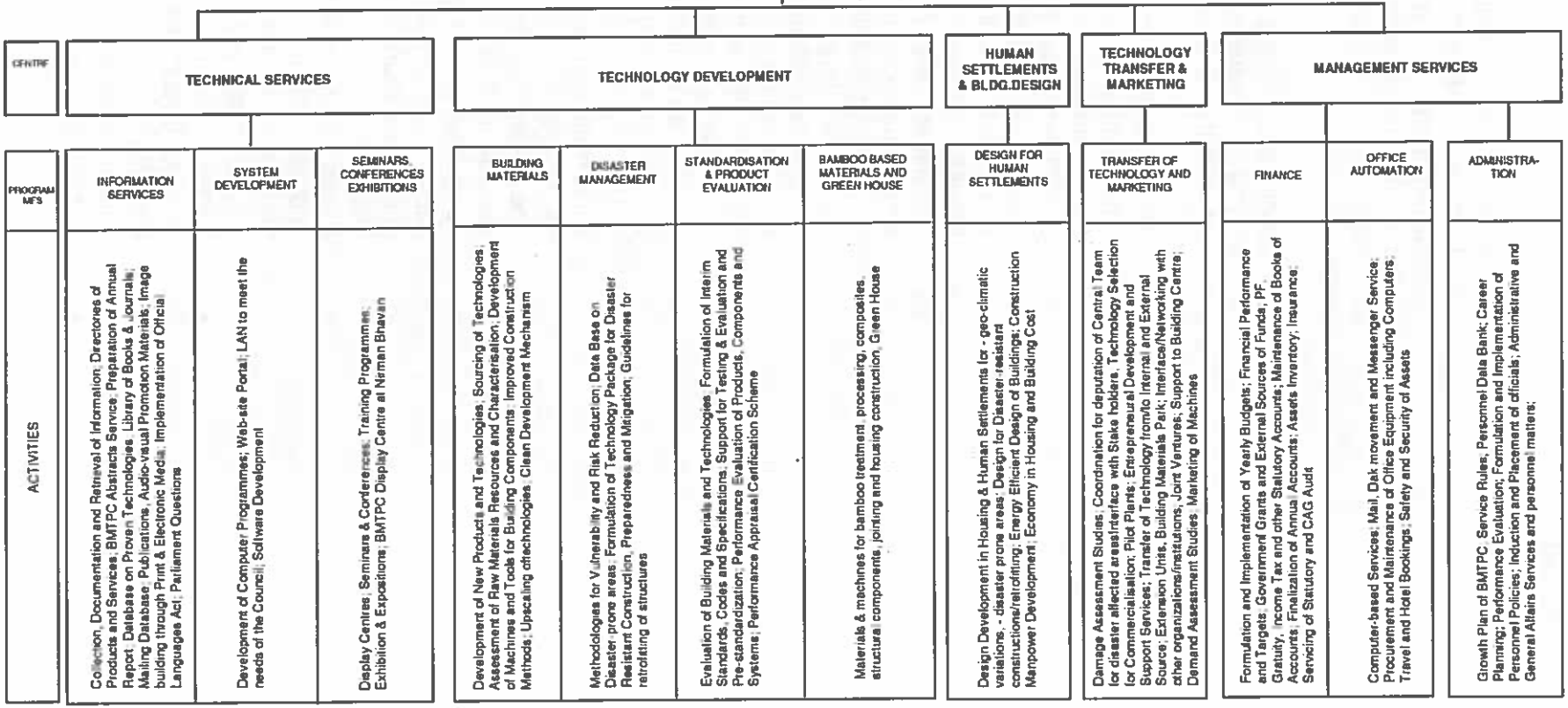
ORGANIZATIONAL STRUCTURE

PRESIDENT
Minister of Housing & Urban Poverty Alleviation

VICE-PRESIDENTS
Minister of State and Secretary, Ministry of HUPA

EXECUTIVE COMMITTEE
Chairman : Secretary, Ministry of HUPA

EXECUTIVE DIRECTOR



STAFF STRENGTH (as on 31.3.2011)

S.No.	Name & Designation	Date of Joining
1.	Dr. Shailesh Kr. Agrawal *Executive Director*	17.01.08
2.	S. Balasrinivasan *Chief-Finance*	08.04.92
3.	J.K. Prasad *Chief-Building Materials*	01.09.03
4.	M. Ramesh Kumar *Deputy Chief-Management Information Systems*	01 .04.93
5.	Arun Kumar Tiwari *Deputy Chief-Standardization & Product Development & Administration*	22.07.03
6.	S. K. Gupta *Deputy Chief- Technology, Demonstration Extension & International Cooperation*	26.10.93
7.	Arvind Kumar *Systems Manager*	15.04.99
8.	Dr. Amit Rai *Development Officer- Building Materials-Product Development*	05.11.98
9.	Chandi Nath Jha *Development Officer- Building Materials -Product Evaluation*	09.09.99
10.	Pankaj Gupta *Development Officer- Engineering Design & Performance Evaluation*	14.10.99
11.	Richpal Singh *Personnel Officer*	23.02.94
12.	Dalip Kumar *Systems Analyst*	04.03.91
13.	Alok Bhatnagar *Library Officer*	05.10.98
14.	Akash Kumar Mathur *Field Officer -Product Evaluation*	01.01.02
15.	S. M. Malhotra *Principal Private Secretary*	09.04.99
16.	Anita Kumar *Sr. Programmer*	03.10.96
17.	M.Ramakrishna Reddy *Liaison Officer* *(On deputation to Ministry of Law & Justice)*	29.10.03
	On Lien D. P. Singh *Development Officer – Demonstration, Construction & Exhibition* *(30.12.2010)*	05.10.98

ACCOUNTS

The Council received grants of Rs.400.00 lakhs from the Ministry of Housing & Urban Poverty Alleviation, Government of India during FY 2010-2011. The Council has also brought forward specific projects fund and grants to the tune of Rs.149.25 lakhs from the previous year.

The total expenditure incurred during the period from April, 2010 to March, 2011 was Rs.704.63 lakhs as detailed below:-

Major Heads	Amount (In Rs.)
• Expenses towards Infrastructure facilities, computers & automation systems	42,859
• Personnel Expenses	3,09,10,346
• Administration and Other Expenses	73,47,787
• 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	49,43,157
• Construction of Demonstration Housing Projects and other Structures in different parts of India including Tripura & under Vambay Scheme, expenditure on Financial Assistance for technology development/application and Sponsored Studies	1,20,89,599
• Expenses towards Appraisal, monitoring, capacity building and training programmes, Monitoring Cell and other activities relating to JNNURM and others	1,51,28,992
TOTAL	**7,04,62,740**

The Accounts have been audited by M/s Matta & Associates, Chartered Accountants, the balance sheet and the statement of accounts of the year 2010-2011 is placed in the report.

MATTA & ASSOCIATES
Chartered Accountants

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Ph. : +91-11-27318905, 27315246-47
matta_ca@yahoo.com
mattaassociates@gmail.com
www.mattaassociates.com

AUDITOR'S REPORT

The Members,
Building Materials & Technology Promotion Council
New Delhi

1. We have audited the annexed Balance Sheet of **BUILDING MATERIALS & TECHNOLOGY PROMOTION COUNCIL'** a Society Registered under the Societies Registration Act, 1860, as on 31st March, 2011 together with the income and Expenditure Account and Receipts & Payment Account for the year ended on that date. These financial statements are the responsibility of the Council's management. Our responsibility is to express an opinion on these financial statements based on our audit.

2. We conducted our audit in accordance with auditing standards generally accepted in India. These standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of materials misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

3. We further report that:
   a. We have obtained all the information and explanations, 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 have been kept by the Council, so far as appears from our examination of the books of the Council;
   c. The Balance Sheet, Income & Expenditure Account and Receipts & Payment Account dealt with by this report are in agreement with the books of account;
   d. In our opinion and to the best of our information and according to the explanations given to us, the said accounts read with the Accounting Policies and Notes forming part thereof give a true and fair view;
      i. In the case of the Balance Sheet, of the state of affairs of the Council as at 31st March, 2011;
      ii. In the case of Income & Expenditure Account of the excess of income over expenditure for the year ended on that date; and
      iii. In the case of Receipt & Payment Account, of the receipts and payments made during the year ended on that date.

FOR MATTA ASSOCIATES
CHARTERED ACCOUNTANTS

(Anil Matta) FCA, Delhi
PARTNER
M. No. 84835
F.R.N: 04259N

PLACE: DELHI
DATED: 14-07-2011

Building Materials & Technology Promotion Council

Ministry of Housing & Urban Poverty Alleviation, Government of India

BALANCE SHEET AS ON 31 MARCH 2011

Amount (₹)

	Schedule	2010-2011	2009-2010
CORPUS/CAPITAL FUND AND LIABILITIES			
CORPUS/CAPITAL FUND	1	1,000,000	1,000,000
RESERVES AND SURPLUS	2	187,032,035	180,555,150
EARMARKED FUNDS	3	8,245,879	6,435,107
CURRENT LIABILITIES AND PROVISIONS	4	2,255,033	16,838,237
TOTAL		**198,532,947**	**204,828,494**
ASSETS			
FIXED ASSETS	5	41,157,818	42,830,755
CURRENT ASSETS, LOANS & ADVANCES ETC.	6	157,375,129	161,997,739
TOTAL		**198,532,947**	**204,828,494**
SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS	15		

(S. Balasrinivasan)
Chief - Finance

(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 : 14.07.2011

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

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31 MARCH 2011

Amount (₹)

	Schedule	2010-2011	2009-2010
INCOME			
Grants / Subsidies	7	48,344,409	46,655,591
Fees/Subscriptions	8	6,967,325	21,372,900
Income from Publications and PAC's Fee etc.	9	1,256,208	539,121
Interest Earned	10	12,967,376	13,002,453
TOTAL (A)		**69,535,318**	**81,570,065**
EXPENDITURE			
Establishment Expenses	11	24,786,277	29,211,685
Administrative Expenses etc.	12	7,210,608	7,878,382
Expenditure on Training Programmes, Seminars/Workshops & JNNURM etc.	13	17,521,273	19,409,155
Expenditure on Financial Assistance, Sponsored Studies etc.	14	11,824,479	24,579,719
Depreciation	5	1,715,796	2,158,182
TOTAL (B)		**63,058,433**	**83,237,123**
Excess of Income/(Expenditure) over Expenditure/(Income) (A-B)		6,476,885	(1,667,058)
Prior Period Adjustments		-	20,000
BALANCE BEING SURPLUS / DEFECIT CARRIED TO BALANCE SHEET		**6,476,885**	**(1647058)**
SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS	15		

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

(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

Matta & Associates Chartered Accountants Delhi

Place : Delhi
Date : 14.07.2011

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

RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31 MARCH 2011

Amount (₹)

	2010-2011		2009-2010	
RECEIPTS				
1 Opening Balance				
Cash Balances in hand		206,106		304,678
Bank Balances				
With Scheduled Banks:				
- On Deposit Account	111,719,834		120,990,004	
- On Savings Accounts:				
- Canara Bank (Parliament Street)	448,718		11,634,092	
- Canara Bank (Hauzkhas)	3,319,483		21,375	
- Canara Bank, Bangalore	269,771		276,048	
- Canara Bank Parliament Street (VAMBAY Project)	198,279		2,308,932	
- Canara Bank Tripura	-		505,852	
- State Bank of Hyderabad (Scope Complex)	30,589,439	146,543,522	6,388,917	144,125,220
2 Grants-in-aid from Central Government (Ministry of Housing & Urban Poverty Alleviation)		40,000,000		55,000,000
3 Receipts towards Fees/Consultancy & Training/Conferences/JNNURM		11,717,325		21,872,900
4 Income from Publications etc.		1,256,208		539,121
5 Interest Earned		6,514,856		3,491,603
6 Amount received towards sale of machines / security deposits etc.		-		297,100
7 Loan & advances(Net)		100,779		1,663,860
Total		206,338,796		227,294,582
PAYMENTS				
1 Purchase of Fixed Assets	42,859		1,213,380	
2 Establishment Expenses	30,910,346		25,871,590	
3 Administrative Expenses, etc.	7,347,787		7,536,923	
4 Expenditure on Training Programmes, Seminars/Workshops, etc.	5,043,936		7,919,560	
5 Expenditure on Financial Assistance, Sponsored Studies, etc.	11,829,599	55,174,527	24,574,599	67,116,052
6 Earmarked funds				
Construction of Demonstration Buildings with cost effective technologies and technology Demonstration-cum-Production Centre in Tripura	165,000		284,449	
Construction of Demonstration Houses Under Valmiki Ambedkar Awas Yojana	95,000		1,489,399	
Model amendements in Town and Country Planning Act.,Zonning Regulations	160,189		-	
Capacity Building Training Programme on IPOMS, Quality Assurance and TPIM	1,393,673		-	
Establishment of Bamboo Mat Prpduction in N.E. States	1,009,407	2,823,269	-	1,773,848
7 Expenditure on JNNURM activities		12,018,335		11,655,154
8 Amont refunded towards Security Deposits		547,388		
9 Closing Balance				
Cash Balances in hand		61,949		206,106
Bank Balances				
With Scheduled Banks:				
- On Deposit Account	114,256,576		111,719,834	
- On Savings Accounts:				
- Canara Bank (Parliament Street)	1,720,318		644,995	
- Canara Bank (Hauzkhas)	2,781,984		3,319,483	
- Canara Bank, Bangalore	231,979		269,771	
- State Bank of Hyderabad (Scope Complex)	16,722,473	135,713,330	30,589,439	146,543,522
Total		206,338,796		227,294,582

(S. Balasrinivasan)
Chief - Finance

(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 : 14.07.2011

SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31 MARCH 2011

Amount (₹)

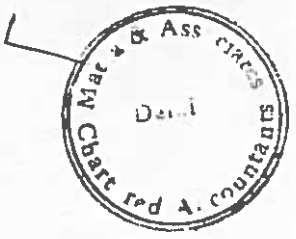
SCHEDULE 1- CORPUS/CAPITAL FUND	2010-2011	2009-2010
Balance as at the beginning of the year	1,000,000	1,000,000
TOTAL	1,000,000	1,000,000

SCHEDULE 2- RESERVES AND SURPLUS		2010-2011		2009-2010
1. Capital Reserve				
Opening Balance	84,945,577		83,752,197	
Addition during the year	42,859		1,213,380	
Less : Prior Period Adjustments	-	84,988,436	20,000	84,945,577
2. Excess of Income over Expenditure				
Opening Balance	95,609,573		98,470,011	
Add : Amount transferred from Income & Expenditure A/c	6,476,885		(1,647,058)	
	102,086,458		96,822,953	
Less transferred to Capital Reserve	42,859	102,043,599	1,213,380	95,609,573
TOTAL		187,032,035		180,555,150

SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31 MARCH 2011

Amount (₹)

SCHEDULE 3- EARMARKED FUNDS	2010-2011		2009-2010	
1 Construction of Demonstration Buildings with cost effective technologies and technology Demonstration-cum-Production Centre in Tripura				
Opening Balance	2,541,776		2,814,181	
Less : Utilisation/Expenditure during the year	165,000	2,376,776	272,405	2,541,776
2 Model amendments in Town and Country Planning Act., Zonning Regulations				
Opening Balance	696,990		696,990	
Less : Utilisation/Expenditure during the year	160,189	536,801	-	696,990
3 Establishment of Bamboo Mat Production Centres in North-Eastern States				
Opening Balance	2,881,998		2,881,998	
Less : Utilisation/Expenditure during the year	1,009,407	1,872,591	-	2,881,998
4 Construction of Demonstration Houses in Mizoram				
Opening Balance		314,343		314,343
5 Capacity Building Training Programme on IPOMS, Quality Assurance and TPIM				
Amount received during the year	4,750,000		-	
Less : Utilisation/Expenditure during the year	1,604,632	3,145,368	-	-
TOTAL		**8,249,878**		**6,435,107**



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

SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31 MARCH 2011

Amount (₹)

SCHEDULE 4- CURRENT LIABILITIES AND PROVISIONS	2010-2011	2009-2010
CURRENT LIABILITIES		
- Outstanding Liabilities	1,503,580	932,729
- Security Deposit	660,777	1,208,165
- Balance of Grants carried forward	-	8,344,409
- Balance of funds received for developing building bye-laws	19,972	19,972
- Construction of Demonstration Houses Under Valmiki Ambedkar Awas Yojana	50,000	145,000
PROVISIONS		
- For Gratuity	20,704	4,851,713
- For Leave Encashment	-	1,336,249
TOTAL	2,255,033	16,838,237

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

SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31 MARCH 2011

Amount (₹)

SCHEDULE 5- FIXED ASSETS							2010-11	2009-10
	GROSS BLOCK			DEPRECIATION			NET BLOCK	NET BLOCK
	Cost as at 1.4.10	Additions	Total	Upto 1.04.10	Current year	Upto 31.03.11	As at 31.03.11	As at 31.03.10
Offce Building at IHC (Lease hold)	34,319,817	-	34,319,817	-	-	-	34,319,817	34,319,817
Furniture and Fixtures	3,312,104	42,859	3,354,963	2,093,294	124,024	2,217,318	1,137,645	1,218,810
Office Equipments	18,979,939	-	18,979,939	15,287,663	553,841	15,841,504	3,138,435	3,692,276
Computers/ Peripherals	15,291,671	-	15,291,671	14,184,857	664,088	14,848,945	442,726	1,106,814
Air conditioners	543,775	-	543,775	414,027	19,462	433,489	110,286	129,748
Fan & Coolers	32,916	-	32,916	30,685	223	30,908	2,008	2,231
TV and VCR	380,450	-	380,450	230,094	22,553	252,647	127,803	150,356
Exhibits, Panels, Display Models	12,084,905	-	12,084,905	9,874,202	331,605	10,205,807	1,879,098	2,210,703
	84,945,577	42,859	84,988,436	42,114,822	1,715,796	43,830,618	41,157,818	42,830,755
Previous Year (2009-10)	83,732,197	1,213,380	84,945,577	39,956,640	2,158,182	42,114,822	42,830,755	-

SCHEDULES FORMING PART OF BALANCE SHEET AS ON 31 MARCH 2011

Amount (₹)

SCHEDULE 6 - CURRENT ASSETS, LOANS, ADVANCES ETC.	2010-2011		2009-2010	
A. CURRENT ASSETS:				
1. Cash in hand		61,949		206,106
2. Bank Balances				
- On Deposit Account	114,256,576		111,719,834	
- On Savings Accounts:				
- Canara Bank (Parliament Street)	1,720,318		446,716	
- Canara Bank (Hauzkhas)	2,781,984		3,319,483	
- Canara Bank, Bangalore	231,979		269,771	
- Canara Bank Parliament Street (VAMBAY Project)	-		198,279	
- State Bank of Hyderabad (Scope Complex)	16,722,473	135,713,330	30,589,439	148,543,522
B. LOANS, ADVANCES AND OTHER ASSETS				
1. Loans to staff		3,228,622		3,834,289
2. Advances and other amounts recoverable in cash or in kind or value to be received				
a. TDS & other advances	861,799		356,911	
b. Security Deposit (Rent)	420,000	1,281,799	420,000	776,911
3. Interest Accured on FDR's		17,089,429		10,836,911
TOTAL (A+B)		157,375,129		161,997,739

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED AS ON 31 MARCH 2011

Amount (₹)

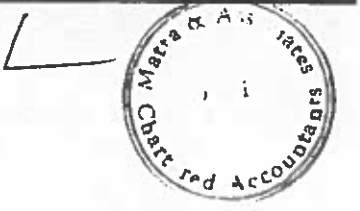
SCHEDULE 7- GRANTS/SUBSIDIES (Irrevocable Grants & Subsidies Received)	2010-2011	2009-2010
Central Government (Ministry of Housing & Urban Poverty Alleviation, Government of India)	40,000,000	55,000,000
Less: Unutilised grant carried forward to FY 2010-11	-	8,344,409
Add: Grants carried forwarded & utilised in FY 2011-12	8,344,409	-
TOTAL	**48,344,409**	**46,655,591**

SCHEDULE 8 - FEES/SUBSCRIPTIONS	2010-2011	2009-2010
1 Seminar/Programme Receipts	1,180,325	314,000
2 a) Appraisal Fees from Ministry of Housing & Urban Poverty Alleviation	5,787,000	9,971,400
b) Monitoring Fees from Ministry of Housing & Urban Poverty Alleviation	-	11,087,500
TOTAL	**6,967,325**	**21,372,900**

SCHEDULE 9- INCOME FROM PACS FEE, PUBLICATION ETC.	2010-2011	2009-2010
Receipts towards sale of publications, PACS etc	1,256,208	539,121
TOTAL	**1,256,208**	**539,121**

SCHEDULE 10- INTEREST EARNED	2010-2011	2009-2010
1 On Term Deposits With Scheduled Banks	11,693,725	12,269,512
2 On savings Accounts With Scheduled Banks	1,218,831	723,106
3 On Loans: Employees/Staff	54,820	9,835
TOTAL	**12,967,376**	**13,002,453**

SCHEDULE 11- ESTABLISHMENT EXPENSES	2010-2011	2009-2010
1 Pay and Allowances	17,986,587	22,730,708
2 Contribution to Provident Fund	1,987,281	1,799,997
3 Gratuity	20,704	2,470,947
4 Earned Leave Encashment	2,629,082	855,711
5 Leave Travel Concession	507,862	294,688
6 Medical Expenses	1,435,520	1,022,134
7 Consultancy/Retainership & Honorarium	219,241	37,500
TOTAL	**24,786,277**	**29,211,685**



SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED AS ON 31 MARCH 2011

Amount (₹)

SCHEDULE 12- ADMINISTRATIVE EXPENSES, ETC.	2010-2011	2009-2010
1. Travel and Local transport	3,275,160	3,403,433
2. Postage, Telephone and Fax	734,710	886,759
3. Office Expenses	279,663	329,070
4. Printing and stationery	235,299	560,436
5. Office maintenance	1,526,275	1,635,688
6. Rates & Taxes	402,342	269,247
7. Professional charges	150,532	73,766
8. Membership Fee	5,515	16,133
9. Office rent	307,384	335,328
10. Electricity Charges	288,981	364,033
11. Bank Charges	4,747	4,489
TOTAL	**7,210,608**	**7,878,382**

SCHEDULE '13' - EXPENDITURE ON DISSEMINATION / SEMINARS/WORKSHOPS, TRAINING PROGRAMMES ETC.	2010-2011	2009-2010
1. Exhibition and publicity & Advertisement	1,225,411	1,975,071
2. Seminar and Conference Expenses	2,239,282	1,024,712
3. Printing & Publication	1,003,812	2,232,139
4. Books and Periodicals	94,689	73,648
5. Technology transfer	202,407	1,164,859
6. Training Programmes	220,652	1,749,244
7. Monitoring and other Expenses for JNNURM Project	12,535,020	11,189,482
Total	**17,521,273**	**19,409,155**

SCHEDULES FORMING PART OF INCOME & EXPENDITURE ACCOUNT FOR THE YEAR ENDED AS ON 31 MARCH 2011

Amount (₹)

	SCHEDULE '14' - EXPENDITURE ON FINANCIAL ASSISTANCE, SPONSORED STUDIES ETC.	2010-2011	2009-2010
1	**SPONSORED STUDIES**		
	Upscaling and modernisation of production technologies for wider application and commercialisation	656,000	1,963,000
	Vulnerability reduction risk assesment and disaster resistant construction technologies	1,891,231	3,915,408
	Development of technology on use of Bamboo in Housing	-	1,751,928
	Standardisation and product evaluation activities	-	178,400
	Strengthening the data base technology dissimination and demonstration capabilities	881,699	2,511,972
	Sub-Total	**3,428,930**	**10,320,708**
2	**FINANCIAL ASSISTANCE FOR TECHNOLOGY DEMONSTRATION AND APPLICATION**		
	Dissmination and demonstration of cost effective technologies	2,949,109	12,736,601
	Promotion of disaster resistant technologies and seismic strenghtening of building	2,467,940	843,989
	Capacity Building of construction professionals and workers	-	678,423
	Promotion and application of bamboo based technologies in housing construction	2,978,500	-
	Sub-Total	**8,395,549**	**14,259,013**
	Total	**11,824,479**	**24,579,719**

Chartered Accountants

SCHEDULE 15: 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) **Foreign Currency Transactions** - Transactions in foreign currency are accounted at the exchange rate prevailing on the date of the transaction in Indian Rupees.
Expenditure incurred equivalent to EURO 2130.12 and US$2029.74 during the year.

e) **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 Coucil 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 Deposits with Banks include a fixed deposit of Rs. 84,236/- pledged with Canara Bank in connection with Bank Guarantee issued by it in favour of Department of Value Added Tax, Govt. of NCT of Delhi.

7 Figures have been regrouped where ever 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)
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 : 14.07.2011

ANNEXURE I

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:

- Exhibition during 8th Infra Educa 2010 from 29th to 30th May, 2010 at New Delhi

- Kumaon Srajan 2010" – An awareness generation campaign for uplifting lives of rural masses specially youths through exhibition cum seminar from 15th to 18th June, 2010 at Munsiyari, Uttrakhand organized by CYME of Social Development.

- 14th National Exhibition on Striving Towards a Glorious India organized by Central Calcutta Science & Culture Organisation for Youth from 3-7 September, 2010 at Koklata.

- 12th World Innovation Summit and Expo "Constru India 2010" from 27-30th October 2010 at Mumbai.

- Technology Show on Cost Effective and Emerging Building Materials and Housing Technologies during 14 - 27 November, 2010 at India International Trade Fair, New Delhi.

- Exhibition during 14th Symposium on Earthquake Engineering held at IIT Roorkee organized by Department of Earthquake Engineering, IIT Roorkee from 17-19 December, 2010.

- Exhibition during International Summit on Emerging Trends in Low Cost Construction Technologies organized by BMTPC in association with ICAMT-UNIDO, India at Bodh Gaya, Bihar, India, January 4-5, 2011.

II SEMINARS/ CONFERENCES/ WORKHOPS/TRAINING PROGRAMMES/ PRESENTATONS etc.

- Methodology for Documenting Housing Typologies in Moderate – Severe Seismic Zones of India organized by IIT Hyderabad, 25-26th April 2010 ...*Dr.Shailesh Kr. Agrawal and J.K.Prasad*

- "World Environment Day" celebration held on 5th June 2010 at Vigyan Bhawan, New Delhi. ...*Dr.Shailesh Kr.Agrawal*

- 16th Annual Convention & National Seminar organized by Indian Building Congress, 17-19th June 2010 at Vigyan Bhawan New Delhi. The Executive Director, BMTPC chaired First Technical Session of "Sustainable Materials"...*Dr.Shailesh Kr. Agrawal*

- Lecture on Environment-Friendly, Cost Effective and Agro-industrial waste based building materials and disaster resistant construction technologies during the Training Programme on Human Resource Management for senior personnel of Housing Cooperatives on 2-3 July, 2010 organised by NCHF at Shimla...*Dr.Shailesh Kr. Agrawal*

- Technical workshop on Model amendments & building bye-laws for Towns & Planning Legislations for safety against natural hazards in the Union Territory of Lakshadweep for their engineers during 3-5th August, 2010 sponsored by M/o Home Affairs. ...*Dr.Shailesh Kr. Agrawal and J.K.Prasad*

- Lecture on Earthquake Resistant Design and Construction on Concrete Day Celebrations organized by ICI Western UP Centre on 15th September, 2010. ...*Dr. Shailesh Kr. Agrawal*

- Lecture on "Alternate housing technologies : A ray towards affordability and sustainability" in the course organized jointly by Institution of Engineers (I), Roorkee and CBRI, Roorkee on 'Earthquake Resistant Design & Construction Practices' on 24th September, 2010. ...*Dr. Shailesh Kr. Agrawal*

- CIB International Conference on "Innovative Building Technologies for Affordable Mass Housing" organized by NBO, M/o Housing & Urban Poverty Alleviation on 28th October, 2010 at New Delhi. ...*Dr. Shailesh Kr. Agrawal, J.K.Prasad, S.K.Gupta, A.K.Tiwari*

- Lecture on New Generation Environment-Friendly Building Materials & Construction Technologies during Session-IV, Green & Intelligent Buildings, CONSTRU India 2010, Mumbai, October 30, 2010. ...*Dr. Shailesh Kr. Agrawal*

- Lecture on Earthquake Resistant Design & Construction at Indian Institute of Public Administration (IIPA), New Delhi, November 23, 2010. ...*Dr. Shailesh Kr.Agrawal*

- Conference on "Innovations in Affordable Housing – India 2010" held on 25-27th November, 2010 at Mumbai and delivered a lecture on establishing innovative ways of utilizing low cost high durability traditional construction materials to drive cost effective & robust structures. ...*Dr. Shailesh Kr.Agrawal*

- National Conference organized by JNNURM Mission Directorate, M/o Housing & Urban Poverty Alleviation on JNNURM Anniversary on 3rd December, 2010. ...*Dr. Shailesh Kr. Agrawal*

- International Summit on 'Emerging Trends in Low cost Housing Construction Technologies' organized by UNIDO in collaboration with BMTPC between 4-5 January, 2011 at Bodh Gaya, Patna. Lecture on Innovative Housing Technologies for Affordable Housing in India was delivered. ...*Dr. Shailesh Kr. Agrawal*

- 10th National Convention on 'Affordable Housing' organized by NAREDCO on 8-9th January, 2011 at Hotel Ashok, New Delhi. ...*Dr. Shailesh Kr. Agrawal*

- Workshop on Result-Framework Document (RFD) – an instrument for Improving Government Performance organized by Cabinet Secretariat Performance Management Division on 23rd February, 2011 at New Delhi...*A.K.Tiwari*

III TECHNICAL COMMITTEE/ WORKING GROUPS /MEETINGS ETC.

- Meeting with representatives of NCPDP and UNDP representatives regarding translation of UNDP publication in regional languages on 1st April, 2010 at New Delhi...*Dr.Shailesh Kr.Agrawal*

- Meeting of the Parliamentary Standing Committee on Urban Development on Oral Evidence for examination of Grants (2010-11) on 1st April, 2010 at New Delhi...*Dr.Shailesh Kr.Agrawal*

- Regional Review Meeting of JNNURM and Road Show of RAY at Bangalore from 8-10th April, 2010 at New Delhi...*Dr.Shailesh Kr.Agrawal*

- 9th Meeting of the BMTPC Board of Management on 12th April, 2010 at New Delhi...*Dr.Shailesh Kr.Agrawal*

- Meeting with IIT professors for use of bamboo in housing construction on 19th April, 2010 at New Delhi...*Dr.Shailesh Kr.Agrawal*

- Monitoring of BSUP projects at Meerut, Muzaffarnagar & Saharanpur from 15-18th April, 2010 ...*Dr.Shailesh Kr.Agrawal, Monitoring Team and Ministry officials*

- Meeting on Methodology for Documenting Housing Typologies in Moderate server Seismic Zones of India on 25-26th April, 2010 at Hyderabad...*Dr.Shailesh Kr.Agrawal*

- Monitoring of on-going JNNURM projects at Rae Bareilly and Amethi on 29th April, 2010 ...*Dr.Shailesh Kr.Agrawal, Monitoring Team and Ministry officials*

- Regional Review of JNNURM Project at Goa for the states of M.P., Chhattisgarh, Rajasthan, Maharashtra, Gujarat, Goa from 1-4th May, 2010 ...*Dr.Shailesh Kr.Agrawal, Monitoring Team and Ministry officials*

- 85th meeting of CSMC (JNNURM) and 82nd meeting of CSC (JNNURM) on 5th May, 2010 at New Delhi...*Dr.Shailesh Kr.Agrawal*

- Monitoring of BSUP & IHSDP projects of JNNURM in and around Varanasi Region of U.P. on 12-13th May, 2010 ...*Dr.Shailesh Kr.Agrawal,. Monitoring Team and Ministry officials*

- Monitoring of BSUP projects of JNNURM in Nagpur area and visit to sites on PPP Model on 19-21st May, 2010 ...*Dr.Shailesh Kr.Agrawal, Monitoring Team and Ministry officials*

- Meeting on 'India's Urban Awakening Bldg.: Inclusive Cities Sustaining Economic Growth' on 25th May, 2010 at NBO Conference Room, New Delhi...*Dr.Shailesh Kr.Agrawal*

- Monitoring of IHSDP projects of JNNURM in Muzaffarnagar and Saharanpur on 26-30th May, 2010 ...*Dr.Shailesh Kr.Agrawal, Monitoring Team and Ministry officials*

- Meeting with Secretary, Deptt of North-East Region, Govt. of India on "Alternate Technology for Building construction Materials in particular reference to the use of Bamboo Materials for housing & other Structures in North-eastern Region", 1st June, 2010 at New Delhi. ...*Dr.Shailesh Kr.Agrawal, S.K.Gupta*

- Meeting on 'Scheme for Confidence Building in Alternate Housing Technologies' presided over by

Hon'ble Minister of HUPA on 8th June, 2010 at New Delhi...*Dr.Shailesh Kr.Agrawal*

Meeting held under the Chairmanship of Joint Secretary (E&SA), MEA regarding Follow-up of India Africa Forum Summit (IAFS) to discuss further steps to ensure expeditious implementation of the projects on 10th June, 2010 at New Delhi. ... *Dr. Shailesh Kr. Agrawal*

- Meeting of the 35th Executive Committee on 15th June, 2010 at New Delhi ... *Dr. Shailesh Kr. Agrawal*
- Meeting with delegation from Mexico regarding Indian building materials and construction technologies on 17th June, 2010 ... *Dr. Shailesh Kr. Agrawal*
- Chaired 1st Session of Sustainable Materials in Indian Building Congress 16th Annual Convention & National Seminar on 18th June, 2010 at New Delhi. ... *Dr. Shailesh Kr. Agrawal*
- Meeting of Expert Group for preparation of "Building Typology Templates" on 25th June, 2010 at NDMA, New Delhi ... *Dr. Shailesh Kr. Agrawal*
- Visit to Model Demonstration Housing Project at Village Khojkipur, Ambala and Chandigarh, CGWEHO Project site along with JS (H) on 6-7th July, 2010. ... *Dr. Shailesh Kr. Agrawal*
- Meeting with Mr. S. Fernandes from USA for evaluation and identification of emerging technologies on 13th July, 2010 at New Delhi... *Dr. Shailesh Kr. Agrawal*
- Meeting with Mr. Vijay Nijhavan regarding technology on concrete wall filled in between two gypsum boards on 13th July, 2010 at New Delhi ...*Dr. Shailesh Kr. Agrawal*
- 87th meeting of CSMC & 84th meeting of CSC of JNNURM on 14th July, 2010 at New Delhi ...*Dr. Shailesh Kr. Agrawal*
- 44th Research Council meeting of Structural Engineering Research Centre, (SERC), Chennai on 15-16th July 2010. ... *Dr. Shailesh Kr. Agrawal*
- Meeting and Inauguration of Hydraulic Hot Press for Bamboo Mat Ridge Cap on 19-20th July, 2010 at Byrnihat, Meghayala. ... *Dr. Shailesh Kr. Agrawal*

- Meeting held under the Chairmanship of Joint Secretary (E&SA), MEA regarding Follow-up of India Africa Forum Summit (IAFS) to discuss further steps to ensure expeditious implementation of the projects on 20th July, 2010 at New Delhi. ... *Dr. Shailesh Kr. Agrawal*

- Technical Workshop on amendments of Model Building Bye-laws on 4th August, 2010 at Lakshadweep... *Dr. Shailesh Kr. Agrawal, J.K.Prasad*

- Workshop on 'Quality Assurance' during implementation of BSUP & IHSDP Projects and TPIM on 13-14th August, 2011 at Agra ... *Dr. Shailesh Kr. Agrawal*

- Mason Certification Programme along with Grasim Industries on 17th August, 2010 at Muradnagar, Ghaziabad. ... *Dr. Shailesh Kr. Agrawal*

- Meeting for evaluation and identification of technology on confined masonry with Prof. S.K.Jain, Director, IIT Gujarat on 19th August, 2010 at New Delhi ... *Dr. Shailesh Kr. Agrawal*

- Capacity Building Programme and visit to JNNURM project sites on 19-20th August, 2010 at Bhopal ...*Dr.Shailesh Kr.Agrawal, Monitoring Team and Ministry officials*

- Meeting of Civil Engineering Divisional Council, 6th September, 2010 at BIS, New Delhi...*J.K.Prasad*

- Visit to Leh along with HPL & HUDCO representatives to access ground realities, housing conditions and feasibility of undertaking construction of houses at Leh which was struck by a natural disaster in the form of cloud burst causing huge losses of life and property on 3-6th September, 2010... *Dr. Shailesh Kr. Agrawal*

- Meeting held under the Chairmanship of Joint Secretary (E&SA), MEA regarding Follow-up of India Africa Forum Summit (IAFS) on 22nd September, 2010 at New Delhi. ... *Dr. Shailesh Kr. Agrawal*

- 90th meeting of CSMC and 87th meeting of CSC of JNNURM on 23rd September, 2010 at New Delhi ... *Dr. Shailesh Kr. Agrawal*

- 91st meeting of CSMC and 88th meeting of CSC of JNNURM on 29th September, 2010 at New Delhi ... *Dr. Shailesh Kr. Agrawal*

- Visit to Leh along with officials of HPL & HUDCO to explore the possibility of Bio-toilets being developed by DRDO for the high altitude area in Leh on 6-8th October, 2010... *Dr. Shailesh Kr. Agrawal*

- Visit of delegation from Nepal to BMTPC. The delegation was shown Slum Relocation Project at Baprola, Delhi on 9th October, 2010. ... *Dr. Shailesh Kr. Agrawal*

- Review meeting of CIB at NBO Conference Room on 12th October, 2010 ... *Dr. Shailesh Kr. Agrawal*

- 92nd CSMC meeting of JNNURM on 12th October, 2010 ... *Dr. Shailesh Kr. Agrawal*

- Brain Storming Workshop on "Seismic Retrofitting Policy" along with IIT, Gandhinagar on 22nd October, 2010 at Ahmedabad... *Dr. Shailesh Kr. Agrawal*

- Visit to Agra along with CIB Board Members on 25th October, 2010 ... *Dr. Shailesh Kr. Agrawal*

- 36th meeting of the Executive Committee of BMTPC on 9th November, 2010 at New Delhi ... *Dr. Shailesh Kr. Agrawal*

- Visit to Leh along with Hon'ble Minister for Housing & Urban Poverty Alleviation and Secretary (HUPA) to review the progress of ongoing construction work of dwelling units by HPL at Leh-Ladakh from 10th to 11th November, 2010... *Dr. Shailesh Kr. Agrawal*

- Interactive session with partner institutions held on 16th November, 2010 in the Ministry of External Affairs wherein a presentation on 'Establishment of Human Settlement Centres and related issues under India Africa Forum Summit (IAFS)' were made before Secretaries General of 8 RECs of Africa during visit of the delegation from 14-16th November, 2010. ...*Dr. Shailesh Kr.Agrawal*

- 94th meeting of CSMC of JNNURM on 2nd December, 2010 at New Delhi ... *Dr. Shailesh Kr. Agrawal*

- Meeting on central support to 13 States on Slum Free City Planning in NBO Conference Room on 7th December, 2010 at New Delhi ... *Dr. Shailesh Kr. Agrawal*

- Meeting held in the Ministry of External Affairs regarding implementation of projects under India-Africa Forum

Summit along with Senior Officers of Ministry on 10th December, 2010 at New Delhi ... *Dr. Shailesh Kr. Agrawal*

- To review 2nd and 3rd installment cases of U.P. under JNNURM visited Lucknow along with OSD (JNNURM) on 11th December, 2010 ... *Dr. Shailesh Kr. Agrawal*

- Participated along with Senior Officers of Ministry in the meeting of the Consultative Committee attached to the Ministry of Housing & Urban Poverty Alleviation and Tourism held on 14th December, 2010 in connection with 'Swarana Jayanti Shari Rozgar Yojana' on 14th December, 2010 at New Delhi ... *Dr. Shailesh Kr. Agrawal*

- 95th meeting of CSMC and 91st meeting of CSC of JNNURM on 14th December, 2010 at New Delhi ... *Dr. Shailesh Kr. Agrawal*

- Visited Rae Bareilly to review the progress of projects under JNNURM along with OSD (JNNURM) on 15th December, 2010 at New Delhi ... *Dr. Shailesh Kr. Agrawal*

- 96th meeting of CSMC of JNNURM held on 24th December, 2010 at New Delhi ... *Dr. Shailesh Kr. Agrawal*

- 97th meeting of CSMC and 93rd meeting CSC of JNNURM held on 30th December, 2010 at New Delhi ... *Dr. Shailesh Kr. Agrawal*

- Presentation made by INSDAG in BMTPC on innovative steel based designs for providing shelters to slum dwellers on 7th January, 2011 ... *Dr. Shailesh Kr. Agrawal*

- 2nd meeting of Standing Committee for Innovative Building Materials, 10th January, 2011 in New Delhi. ...*Dr. Shailesh Kr. Agrawal, J.K.Prasad, S.K.Gupta*

- Meeting on Rajiv Avas Yojana on 12th January, 2011 2011 in NBO Conference Room, New Delhi. ... *Dr. Shailesh Kr. Agrawal*

- Meeting of Technology Advisory Group and with vendors on Global Expression of Interest on 14th January, 2011 at New Delhi...*Dr. Shailesh Kr. Agrawal, J.K.Prasad, S.K.Gupta*

- 98th meeting of CSMC and 94th meeting of CSC of JNNURM on 17th January, 2011 at New Delhi. ... *Dr. Shailesh Kr. Agrawal*

- Meeting on follow up actions of India Africa Forum summit (IAFS) oranised by the Ministry of External Affairs on 19th January, 2011 ... *Dr. Shailesh Kr. Agrawal*

- Visited Rajkot and Mumbai to redress grievances of Hon'ble Member of Parliament at Rajkot and to monitor progress of on-going projects in Mumbai along with OSD (JNNURM & RAY) on 20-23 January, 2011... *Dr. Shailesh Kr. Agrawal*

- Visited Meerut for carrying out monitoring and redressal of complaint at Meerut and visited Rae Bareilly to explore possibilities of setting-up multi purpose Training-cum-Demonstration centre at Rae Bareilly along with OSD (JNNURM & RAY), DFID and other Experts on 24th January, 2011... *Dr. Shailesh Kr. Agrawal*

- Meeting on Annual Plan 2010-11 on 27th January, 2011 at Yojana Bhawan. ... *Dr. Shailesh Kr. Agrawal*

- 99th meeting of CSMC and 95th meeting of CSC of JNNURM on 31st January, 2011 at New Delhi... *Dr. Shailesh Kr. Agrawal*

- 100th meeting of CSMC and 96th meeting of CSC of JNNURM held on 9th February, 2011 at New Delhi... *Dr. Shailesh Kr. Agrawal*

- Visited Kolkata to extend support and help Regional Office HUDCO, Kolkata for appraisal of projects of West Bengal along with OSD (JNNURM & RAY) on 11-12th February, 2011... *Dr. Shailesh Kr. Agrawal*

- 101st meeting of CSMC and 97th meeting of CSC of JNNURM held on 17th February, 2011 at New Delhi... *Dr. Shailesh Kr. Agrawal*

- Meeting with Dr. S. Arunachalam from SERC on 23rd February, 2011 at New Delhi... *Dr. Shailesh Kr. Agrawal*

- Meeting with Ms. Gavin Moore Chairman of Mooreliving International Group Ltd., New Zealand on 24th February, 2011 at New Delhi... *Dr. Shailesh Kr. Agrawal*

- 103rd meeting of CSMC and 99th meeting of CSC of JNNURM held on 25th February, 2011 at New Delhi... *Dr. Shailesh Kr. Agrawal*

- Visited Varanasi for appraisal and on site monitoring of U.P. JNNURM projects along with OSD (JNNURM & RAY) on 26-27th February, 2011... *Dr. Shailesh Kr. Agrawal*

- Visited Ranchi, Jharkhand on for on the spot appraisal of JNNURM Projects for Jharkhand along with OSD (JNNURM & RAY) on 1st March, 2011... *Dr. Shailesh Kr. Agrawal*

- 104th meeting of CSMC and 100th meeting of CSC of JNNURM on 4th March, 2011 at New Delhi... *Dr. Shailesh Kr. Agrawal*

- Meeting with the Director, CBRI to examine the Safety of Low Cost Housing constructed using RC Plank and Joist system at Baprola Project along with the engineers from DSIIDC on 7-8th March, 2011 at Roorkee ... *Dr. Shailesh Kr. Agrawal*

- Meeting under the Chairpersonship of Secretary (HUPA) regarding implementation of Projects/Schemes in North Eastern States on 9th March, 2011 at New Delhi... *Dr. Shailesh Kr. Agrawal*

- 101st meeting of CSC of JNNURM on 10th March, 2011 at New Delhi... *Dr. Shailesh Kr. Agrawal*

- Meeting on Follow up actions of Indo - Africa cooperation in the Ministry of External Affairs along with Senior Officers of Ministry of HUPA on 15th March, 2011 ... *Dr. Shailesh Kr. Agrawal*

- Technical Assessment Committee (TAC) meeting for issuance of PACs to the new materials and technologies at RCF office, Mumbai, March 24, 2011...*Dr. Shailesh Kr. Agrawal, J.K.Prasad, A.K.Tiwari*

- 106th meeting of CSMC and 102nd meeting of CSC of JNNURM on 28th March, 2011 at New Delhi... *Dr. Shailesh Kr. Agrawal*
- 107th meeting of CSMC and 103rd meeting of CSC of JNNURM on 30th March, 2011 at New Delhi... *Dr. Shailesh Kr. Agrawal*

- A series of Meetings on National Bamboo Mission... *Dr. Shailesh Kr. Agrawal, S.K.Gupta.*

IV OTHER ACTIVITIES

- A representative of BMTPC was nominated by the Ministry of Housing & Urban Poverty Alleviation, Govt. of India to attend the programme "Affordable Housing & Construction Related Industries" organized by Confederation of Indian Industries (CII) and Euro India Centre from 20th to 26th June, 2010 in France and Spain. The delegation was led by Chief Secretary, Govt. of Maharashtra. Other delegates included Govt. officials from Maharashtra, Haryana, Karnataka, representatives of HUDCO, Academic institution, construction industry, Builders and Architects. In France, the key stake holders for the Mission were Ministry for Energy, Ecology, Sustainable, Development and the Sea (M.E.E.D.M) and the National Agency for Urban Renewal (ANRU). The key stakeholders in Spain was Promo Madrid, Madrid as well as the Regional Government of Castilla Leon and the Chamber of Construction Industry.

- A visit was undertaken by ED BMTPC alongwith OSD JNNURM, Ministry of Housing & Urban Poverty Alleviation at Raebarely regarding alternate land for the Demonstration Housing project proposed by the Council at Raebarely. The discussions were held with DUDA authorities on 29th April 2010 in this regard.

- The National Institute of Technology Silchar, Assam, forwarded names of four students of their Institute for undertaking practical training on the innovative building materials & disaster resistant construction technologies being promoted by the Council. The students were exposed to the retrofitting work being undertaken at MCD Schools at Vivek Vihar and Lajpat Nagar. In addition, education in the field of technologies being propagated as also how to reduce cost of construction were given to them. The one month training ended in July 2010.

- A number of visits were undertaken by officers of BMTPC to Bitna, Khojipur and Pinjore, Haryana to assess the progress of the Demonstration Housing Projects being implemented there. The Officers also met the concerned authorities as also Surpanch Bitna for extending all necessary help in successful completion of the projects

- The brainstorming with the top management of BMTPC along with Secretary (HUPA), JS (H), Dr. A.S. Arya, Director (NBO), Director (Finance) and DS (AA) was held on 2nd February, 2011 to review the performance of BMTPC. It was decided in the said meeting that while there is a need for continuance of BMTPC, there also a need to widen its mandate and revise its strategies and become a self dependent organization and a detailed paper in this regard needs to be prepared.

- BMTPC Departmental Promotion Committee comprising of technical experts under the Chairmanship of JS (H), M/o HUPA met on 23.03.2011 for adjudging suitability of departmental employees of BMTPC working in the scale of pay of Rs.15600-39100 (PB-3) and 37400-67000 (PB-4) for promotion to the next higher grade of pay and scale of pay against different vacant posts.

ANNEXURE II

SPONSORED STUDIES/PROJECTS UNDERTAKEN DURING THE YEAR

- Upgradation of Facility for Manufacturing of Bamboo Mat Ridge Cap
- Project on Improvement of Earthquake Resistance Capacity of Circular Columns
- Development of the Building Components from Sponge Iron Wastes
- Utilization of Industrial Waste Materials as Inexpensive Absorbents having Applications in Building Materials
- Cost Effective Value Added Thermal Insulation Tiles for Insulation Purpose
- Preparation of Seismic Design Manuals for Earthquake Disaster Mitigation
- Preparation of revised version of the Guidelines on Earthquake, Wind/Cyclone and Flood Resistance of Housing

ANNEXURE III

PAPERS PRESENTED/PUBLISHED

- "Seismic Retrofitting of MCD Schools in Delhi - An Initiative of BMTPC to Spread Retrofitting Awareness" by Dr. Shailesh Kr. Agrawal, Shri J.K. Prasad, Shri Pankaj Gupta and Shri Dalip Kumar presented in National Conference on Repair and Rehabilitation of Concrete Structures, Noida, UP, India organized by Indian Concrete Institute during May 6-7, 2011.
- "Planning Sustainable Building Materials for Our Urban Future" by Dr. Shailesh Kr. Agrawal, during December 2010.
- "New Generation Environment-Friendly Building Materials" by Dr. Shailesh Kr. Agrawal, during December 2010.
- "Showcasing Alternate Technologies through Demonstration Construction" by Dr. Shailesh Kr.Agrawal published in Newsletter brought out by NCHF on the occasion of World Habitat Day - 2010, October 2010.
- "Seismic Strengthening of School Buildings – A Case Study" by Shri J.K.Prasad published in Special Issue of Nirman Sarika on the occasion of World Habitat Day - 2010, October 2010.
- "RCC Dhancho ki Punrasthapana – Vastvikta se Kitne Dur" by Dr. Shailesh Kr.Agrawal and Shri A.K.Tiwari published in Special Issue of Nirman Sarika on the occasion of World Habitat Day - 2010, October 2010.
- "Jawaharlal Nehru National Urban Renewal Mission (JNNURM) – Role of BMTPC" by Shri C.N.Jha published in Special Issue of Nirman Sarika on the occasion of World Habitat Day - 2010, October 2010.
- "Options for Solid Waste Management in Cities" by Dr.Amit Rai published in Special Issue of Nirman Sarika on the occasion of World Habitat Day - 2010, October 2010.
- "Reinforced Interlocking Hollow Block System for Earthquake Resistant Construction using Industrial Waste – BMTPC Initiative" by Shri D.P.Singh published in Special Issue of Nirman Sarika on the occasion of World Habitat Day - 2010, October 2010.

ANNEXURE IV

PUBLICATIONS BROUGHT OUT DURING THE YEAR

1. Training Manual for Ductile Detailing
2. Manual for Restoration and Retrofitting of Buildings in Uttarakhand and Himachal Pradesh
3. "Nirman Sarika" – Special Issue of Newsletter highlighting issues related to the theme, "Better City, Better Life" of World Habitat Day 2010.
4. Guidelines on Improving Earthquake Resistance of Housing
5. Guidelines on Improving Flood Resistance of Housing
6. Guidelines on Improving Wind/Cyclone Resistance of Housing
7. Under 'Aam Aadmi Series' brought out following Housing Building Digest both English and Hindi:
   i. Series 10: Water Supply
   ii. Series 11: Sanitary and Drainage
   iii. Series 12: Prevention of Dampness

ANNEXURE V

ACTION PLAN FOR THE YEAR 2011-12

BUILDING MATERIALS & TECHNOLOGY PROMOTION COUNCIL (BMTPC)

ANNUAL ACTION PLAN 2011-2012

VISION, MISSION, OBJECTIVES AND FUNCTIONS

Vision:

To be world class knowledge and dissemination hub for sustainable building materials, appropriate construction technologies & systems including disaster resistant construction.

Mission:

To work towards the widespread and popular use of building materials & technologies including emerging and locally available materials proven to be cost-effective, energy-efficient, environment-friendly and disaster resistant.

Objectives:

1. Building Materials & Building Technologies : To promote development, standardisation, mechanisation and large scale field application of proven innovative and emerging building materials and technologies in the construction sector.
2. Skill Upgradation : 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. Consulting Unit : To undertake project management and consultancy services including appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes.

Functions:

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.

ANNUAL ACTION OF BMTPC FOR FY 2011-12
(IN RFD FORMAT)

Column 1	Col 2	Column 3	Column 4		Col 5	Column 6					Budget Estimate (Rs. In lakhs)
						Target / Criteria Value					
Objective	Wt.	Actions by Outputs	Success Indicators	Unit	Rt Wt.	Excel.	V.G	Good	Fair	Poor	
						100%	90%	80%	70%	60%	
1. To promote development, standardisation, mechanisation and large scale field application of proven innovative and emerging building materials and technologies in the construction sector.	30	**Action 1** • Evaluation of emerging technologies suitable for Indian geo-climatic conditions (continuing process)	• Four number of emerging technologies for mass housing	Nos.	6	4	3	2	1	-	10.00
		Action 2 • Sensitization of Local Administration for undertaking the demonstration housing project using Design Packages developed by BMTPC.	• Signing of MOA to take proven technologies to the field through major agencies by States	Nos.		8	7	6	5	4	13.00
		Action 3 • Construction of demonstration cluster comprising of 60 houses, community centre, school and kiosks in each cluster incl. infrastructure development including strengthening the production base at the site of construction at 5 locations, if required	• Starting work on the ground	Nos.	10	5	4	3	2	1	200.00
		Action 4 • Monitoring, Quality Control and	• Selection of Technical Expert	Nos.	4	5	4	3	2	1	50.00

Column 1	Col 2	Column 3	Column 4		Col 5	Column 6					Budget Estimate (Rs. In lakhs)
Objective	Wt.	Actions by Outputs	Success Indicators	Unit	Rt Wt.	Target / Criteria Value					
						Excel.	V.G	Good	Fair	Poor	
						100%	90%	80%	70%	60%	
		Action 2 • Training Programme on Bamboo based technologies in North Eastern Region including establishment of Bamboo Mat Production Centre	• Establishment of additional Bamboo Mat Production Centre alongwith training (Fully functional with production of bamboo mat)	Nos.	2	1	1	-	-	-	28.00
		Action 3 • Pilot Training Programme (3 months duration) for BMTPC-Indian Concrete Institute (ICI) Certification Scheme for Field and Lab Technicians – Cost sharing basis (50:50) with Indian Concrete Institute	• Publication of 1 Model Training Manual	Date	2	31.7.11	31.8.11	30.9.11	31.10.11	30.11.11	5.00
			• Organisation of 2 Training Programmes on pilot basis	Date	2	30.11.11	31.12.11	31.1.12	29.2.12	31.3.12	
3. To promote methodologies and technologies for natural disaster mitigation, vulnerability & risk reduction and retrofitting/	20	**Action 1** • Organisation of Training Programmes for professionals	Organisation of 2 Training Programmes	Nos.	6	2	1	-	-	-	5.00
		Action 2 • Documentation of	Documentation of 2	Nos.	6	2	1	-	-	-	3.00

MTPC

Column 1	Col 2	Column 3	Column 4		Col 5	Column 6					Budget Estimate (Rs. In lakhs)
Objective	Wt.	Actions by Outputs	Success Indicators	Unit	Rt Wt.	Target / Criteria Value					
						Excel.	V.G	Good	Fair	Poor	
						100%	90%	80%	70%	60%	
reconstruction of buildings and disaster resistant planning of human settlements.		Projects on Retrofitting	projects								
		Action 3 • Retrofitting of a Ward of Bara Hindu Rao Hospital	Starting work at ground level	Nos.	3	1	-	-	-	-	15.00
		Action 4 • Publication of Manuals and Guidelines through Peer Group	Publication of 3 Manuals/Guidelines	Nos.	5	3	2	1	-	-	5.00
4. To undertake project management and consultancy services including appraisal, monitoring and third party inspection of housing projects under the various Central/State Schemes.	20	**Action 1** • Monitoring of BSUP project sites under JNNURM	Submission of Monitoring Reports	Nos.	5	75	65	55	45	35	75.00
		Action 2 • Monitoring of IHSDP project sites	Submission of Monitoring Reports	Nos.	5	150	120	90	60	30	75.00
		Action 3 • TPIM Review	Submission of TPIM Review Reports	Nos.	5	1000	800	600	400	200	75.00
		Action 4 • Capacity Building programme on quality assurance & TPIM	Organization of capacity building programmes in different States	Nos.	5	10	9	8	7	6	25.00

Column 1	Col 2	Column 3	Column 4		Col 5	Column 6					Budget Estimate (Rs. In lakhs)
Objective	Wt.	Actions by Outputs	Success Indicators	Unit	Rt Wt.	Target / Criteria Value					
						Excel.	V.G	Good	Fair	Poor	
						100%	90%	80%	70%	60%	
5. Activities on continuing basis		Dissemination of information through print & electronic media including website upkeeping	Periodic sharing of information through journals, magazines, website and press releases	Nos.		6	5	4	3	2	30.00
		Dissemination of information through participation in seminars/ workshops/ exhibitions	Participation in seminars/ workshops/ exhibitions	Nos.		8	7	6	5	4	20.00
		Updating of display panels, exhibits and publications of Council including printing	Preparation of Display Panels, Exhibits, Models	Date		30.9.11	31.10.11	30.11.11	31.12.11	31.1.12	20.00
			Preparation of Publications	Nos.		5	4	3	2	1	
		Committed Liability on ongoing projects									250.00
		Staff Salary and Establishment Expenses including upgradation of library and computer centre									410.00
										Total	1425.00