

Special Issue

# निर्माण सारिका

A Newsletter of BMTPC

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## BMTPC

निर्माण सामग्री एवं प्रौद्योगिकी संवर्द्धन परिषद्  
आवास एवं शहरी गरीबी उपशमन मंत्रालय, भारत सरकार

**BUILDING MATERIALS & TECHNOLOGY PROMOTION COUNCIL**  
Ministry of Housing & Urban Poverty Alleviation, Government of India

“Creating Enabling Environment for Affordable Housing for All”



## CONTENTS

From the Desk of Executive Director	2
Concept of Public Spaces for All in Sustainable and Smart Cities	8
Swachh Bharat Abhiyan: The Sulabh Perspective	12
Innovative Design Solutions for Affordable Housing – Housing for All with Public Spaces for All	15
Agent for Change: Urban Public Spaces	19
Space Planning for Thermal Comfort House	23
Bamboo Toilets for Swachh Bharat (Clean India): Any takers??	27
Public Spaces for All	31
Facilitating Sustainable Housing Technologies	34
सुसंगत और लक्ष्य-आधारित नगरीय स्थानों का विकास	36
Benchmarking and Objective Selection of Technologies for Housing in India	40
Embodied Energy – a future way to quantify Sustainability	46
Glimpses of Great Indian Public Spaces	49
Development of Advanced Cement Free Fly Ash based Geopolymer Green Concrete	56
Demonstration Housing Projects using Emerging Technologies	60
Performance Appraisal Certification Scheme (PACS)	66
Decentralized Waste Water Treatment System (DEWATS)	70
Publications of BMTPC	79

## From the Desk of Executive Director

**B**MTPC is releasing its special newsletter Nirman Sarika on the theme Public Spaces for all designated by United Nations for World Habitat Day 2015. World habitat day reminds us of our collective responsibility to lead our cities towards sustainable & resilient path by taking all together especially poorest of the poor. The theme of Public Spaces for All is a welcome step by UN as most of the time, these open spaces are taken for granted on as & where basis. These social places which are generally open & accessible to people are in the state of utter neglect and not given priority in the development of a city. It is time that public spaces are made integral part of master plan of the city and we need to draw development plan for these places as they project the image of the city.

Public spaces embrace a wide array of spaces, from old city centres to new suburbs. Their form, uses and maintenance raise a host of imperative questions regarding urban planning from the local urban to metropolis scale. They shall be considered as assets for urban renewal, new developments, public health & well-being, mobility & happiness. The proposed sustainable development goals put Public spaces as a key and important topic and it is targeted to provide universal access to safe, inclusive and accessible green & public spaces, in particular for woman and children, older persons and persons with disabilities by 2030.

BMTPC is part of the celebrations held on World Habitat Day by Ministry of Housing & Urban Poverty Alleviation, Govt. of India. We work hand in hand with Ministry to realise its goals towards urban renewal. Recently Housing for All (Urban) Mission is launched by the Ministry and we are given an important task to create a favourable eco-system for states which will facilitate use of new housing technologies which are sustainable, safe & quick. The conventional construction practices make use of materials & systems which are based on natural resources, energy & labour intensive and, therefore, world over industrialized housing technologies which are not only energy efficient but also based on renewal resources are being practiced. BMTPC is studying these and trying to bring them for Indian construction industry. The target of building 20 million houses by 2022 is stiff one and cannot be accomplished unless fast track sustainable construction practices are introduced into our conventional construction system.

As regards, our newsletter, it is a quarterly magazine with a special publication on this day. Through our newsletter, we constantly sensitize the masses regarding the latest know how in the field of housing construction. It is our constant endeavour to educate at the grass root level regarding good construction practices which are safe & sustainable so that the housing stock being added put less pressure on our mother earth and we have clean, green & safe habitat.

Any suggestion to improve our newsletter is welcome.



(Dr. Shailesh Kr. Agrawal)

# Bamboo Toilets for Swatch Bharat (Clean India): Any takers??



*Kamesh Salam\**

**G**overnment of India is laying emphasis on:

- a) Construction of individual sanitary latrines for households below the poverty line with subsidy (80%) where demand exists.
- b) Conversion of dry latrines into low-cost sanitary latrines.
- c) Construction of exclusive village sanitary complexes for women providing facilities for hand pumping, bathing, sanitation and washing on a selective basis where there is not adequate land or space within houses and where village panchayats are willing to maintain the facilities.
- d) Setting up of sanitary marts.
- e) Total sanitation of villages through the construction of drains, soakage pits, solid and liquid waste disposal.
- f) Intensive campaign for awareness generation and health education to create a felt need for personal, household and environmental sanitation.

According to recent UN statistics, half of India's population does not have access to toilets, with the condition even more dismal in rural areas where around 60% of the population still defecates in the open. Poor and inadequate sanitation accounts for various health-related issues causing economic and social losses. It is estimated that 1.01 lakh government schools do not have toilets for girls, 1.52 lakh schools do not have toilets for boys and a 1.64 lakh schools have dysfunctional toilets. Poor sanitation facilities lead to drop out from schools, especially among girls in the 5-14 age brackets. Retention of the girl child in schools has increased by 30% in schools with access to proper sanitation facilities.

Therefore, adequate and appropriate sanitation facilities are a pre-requisite for the socio-economic development of the country. Today's school children will be tomorrow's leaders, employers and resources and it is imperative to provide basic amenities to them in order to have a healthy, productive workforce.

Bamboo is rightly called the green gold as it qualifies under many of the categories listed for green building materials. Globally, there is a resurgence of interest in Bamboo in this age of information revolution and environmental consciousness. Bamboo is being currently looked upon as an alternate low cost material for the enormous housing problem faced by several developing countries. Bamboo has always been popular as a building material, especially in house-building and is now widely regarded as the super material of the 21st century. It is one of the fastest growing and highest yielding renewable natural resource making it a good substitute to wood in mitigating pressure on natural forests. Bamboo is a family of grass; it matures in as little as 4 to 6 years much faster than hardwood trees which can take 20 years and above to reach maturity. It sends out new shoots after each harvest and has unrivalled capacity to capture carbon. Bamboo has big income generating for people living in rural areas through bamboo cultivation. Its usage needs to be

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promoted – leveraging this super material as a sustainable solution to sanitation challenges in areas that still do not have access to proper toilets will not only help in ‘Clean India Mission’ but also help the cause of leveraging bamboo as an economic tool to drive socio economic development of India, which incidentally also has the second largest bamboo reserves in the world. Bamboo walls & partitions panels, bamboo floors and corrugated bamboo roofing sheets, including Bamboo toilet seats can all be part of such toilets. Bamboo indeed has tremendous potential not only to transform India’s rural economy, but also to contribute to the sustainable development efforts. The BMPTC has supported IPIRTI; Bangalore which has developed technologies for manufacture of several bamboo composites such as bamboo mat board, bamboo mat corrugated roofing sheets, bamboo mat ridge caps, bamboo floor tiles and laminates. Engineering and material properties were studied exhaustively to utilize the full potential of bamboo as an engineering material in housing. Bamboo housing technology clearly demonstrates the engineering application of bamboo in housing. All load bearing and semi load bearing elements have been made either of round or split bamboo in the form of slivers in combination with bamboo based composites like BMB and BMCS for roofing with minimal use of timber and high energy consuming materials like iron, steel and cement. Having successfully developed the technology for construction of bamboo based housing system; the challenge was to develop the technology which is equally viable for other structures, community



centres and utility products like toilets. Supported by BMPTC the South Asia Bamboo Foundation (SABF) has conducted one International and three Regional training programs on Building with Bamboo and construction of Bamboo Toilets for community and public in Kochi, Kerala, Haflong and Dimapur in Assam and Nagaland to enhance local capacity and skills. These were done in jointly with BMPTC, Auroville Bamboo Centre, Pondicherry, Kerala State Bamboo Mission (KBSM), Nagaland Bamboo Development Agency (NBDA), and Forest Department of Dima Haso Autonomous Council, Assam. Dur-

ing the training two types of Toilet modules were constructed using local bamboo. The models are Single toilet for household usages and twin model for community usages like schools and other public places. The Details layouts are attached.

The Bamboo Toilet in Dimapur constructed at the Nagaland Bamboo Resource Centre, was launched by the Governor of Nagaland and Assam Shri PB Acharya on 14th July. Governor PB Acharya who was nominated one of the third group of nine members to form the National Committee on Swachh Bharat Mission (SBM) by

Prime Minister Narendra Modi on December 25, 2014. Also during the event other Swatch Bharat “Ambassadors from Nagaland State attended the function along with high officials of Nagaland Governments.

This is where bamboo can play a lending itself as a cost effective and eco-friendly material to build toilets and thereby play a very important role in ‘Clean India’ mission. The abysmal state of sanitation in India is that only 32% of rural households have their own toilets and that less than half of Indian households have a toilet at home. There were more households with

a mobile phone than with a toilet. Of the estimated billion people in the world who defecate in the open, more than half reside in India. Poor sanitation impairs the health leading to high rates of malnutrition and productivity losses. India’s sanitation deficit leads to losses worth roughly 6% of its gross domestic product (GDP) according to World Bank estimates by raising the disease burden in the country. Children are affected more than adults as the rampant spread of diseases inhibits children’s ability to absorb nutrients thereby stunting their growth. A large part of India’s malnutrition burden is ow-

ing to the unhygienic environment in which children grow up. Poor sanitation and high population density act as a double whammy on Indian children half of whom grow up stunted. The absence of an effective public health network in a densely populated country has resulted in an extraordinarily high disease burden. The initiatives of Government of India’s effort to build toilets under Government funded and CSR funded should be extended to bamboo based toilets for public and community. But issue is “ANY TAKERS”. Ideas are great for bamboo has few takers... in reality.

