

BAMBOO NEWS

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EDITORIAL

The author of this article, Shri. K. P. Murthy, one of the members of National Governing Council of Bamboo Society of India has enlisted various 'Engineering Applications of Bamboo as a Key Sustainable Material which offers a great scope for innovation in its engineering application and utilization.

It is mentioned by the author that Bamboo excels 35% more oxygen than other plants and it sequesters Carbon dioxide many times saving human beings from pollution. He has also emphasized that the Mahanagara Palikes & Municipalities have to consider the capability of Bamboo as a major resource to set up Oxygen Parks in city parks. Bamboo is a good source of food and also used in Medicine so as to keep Blood Pressure and Sugar under control.

Bamboo Society of India compliments the author for his views on Bamboo uses in the present day today life of human being. We wish the author all the best.

Sd/-

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Engineering applications of bamboo as a key sustainable material

Bamboo is a light weight, biodegradable, sustainable and renewable material and is the Gift of God to mankind. Bamboo is a wonder material which offers a great scope for innovation in its engineering application/ utilization. General Public is to be informed beyond a normal perception of basket, Hut, agarbathi with Bamboo.

Oxygenation and health

Bamboo produces 35 % more oxygen than other plants, the need of the hour in this pandemic, as well it sequesters CO₂, many times saving us from pollution. Researchers have to work on replacing Lithium Zeolite as sieve material with Bamboo carbon fibre composite molecular sieve in Oxygen concentrators with Electrical swing adsorption. Air purifiers and Ionizers are other areas to look at seriously with bamboo activated Charcoal for neutralizing Indoor positive disease Ions. We need to encourage setting up Bamboo TUNNELS in all Institutions and colleges so that anybody can go there and fill up their lungs with oxygen since these tunnels can boost Oxygen to even 30% in the surrounding air from a normal level of 19%. Municipal authorities have to consider the capability of Bamboo as a major resource to set up Oxy Parks. Bamboo Activated Charcoal (BAC) is well known for controlling odor and toxins in indoors, in kitchens bathrooms and like. It is interesting to know that the Surface area of BAC goes up to 1200 Square meters per gram or in other words one teaspoon of BAC has an area of one football ground. This great quality of BAC is to be understood by all researchers. Nano Bamboo Charcoal as a belly good band for women after Caesarean section and other medical applications. Needless to mention the good health benefits of Bamboo shoots for BP and Sugar control and several other diseases.

Mechanical Engineers to please note the Ethanol production capabilities of Bamboo for a clean fuel for a clean air that outperforms sugar cane and Corn. Our Union government is looking at a 15 billion Rupees Economy boost with Bamboo ethanol. BMW uses Bamboo in Steerings. Bamboo composite washers are being preferred over metal washers. Bamboo boards are again a preference for floorboards in automobiles for weight reduction. Rural transport can effectively use bamboo structural frames in Solar powered medium load carriers/ rickshaws. Even Airbus is researching on the long fibres of bamboo floor Aircraft. Power Gasifiers using bamboo as a bio feedstock under pyrolysis is another major area for a standalone power generation in the Rural Areas, not to depend on the grid in remote places. Bamboo composites are highly potential for carbon fibre, steel replacements, Plastic replacements and Central Air conditioning Ductings replacing Galvanized steel.

Electrical Engineers Need to look at Bamboo Anode graphite capabilities for quick charging advantage in lithium-ion batteries insulation properties thin panel designs. Energy saving Innovations with weight reductions, composites application. Odour Control / management is another major area for application.

Rural Development

BLA Bamboo leaf ash helps in improving the compressive strength when mixed up to 10% in cement by volume

BRCC Bamboo reinforced cement concrete application in pillars, beams, slabs for small and medium spaces like 1/2 BHK. Other applications include some structures in Temples, Rural Drains, Rural Roads with Bamboo grids as load distributors, small water tanks. You can target a cost savings upto 30% and reduced temperature in BRCC/ grid applications. See pictures attached from IPIRTI, IIT Kharagpur and real time buildings at Vinukonda AP. Small vegetable storage Bins for villages with BAC wet Pads on principle of evaporative.

Cooling to save their vegetables from getting spoilt, for few days. The list is longer and a great scope exists for INNOVATIONS with Bamboo. We need to take the help of foresters and other Professionals to bring awareness and benefits of Bamboo to Public.



Fig. 1 : Chemically treated bamboo reinforced bar used in column



Fig. 2 : A model 2 BHK bamboo reinforced concrete house constructed in school premise near IIT in 2014



Fig. 3 : Security Service room at Hostels of IIT Kharagpur in 2015



Fig. 4 : Plate in the house mentioning STEEL free construction

Bamboo Slab Houses



Bamboo reinforced beam at Vinukonda, Andhra Pradesh



Bamboo bicycle

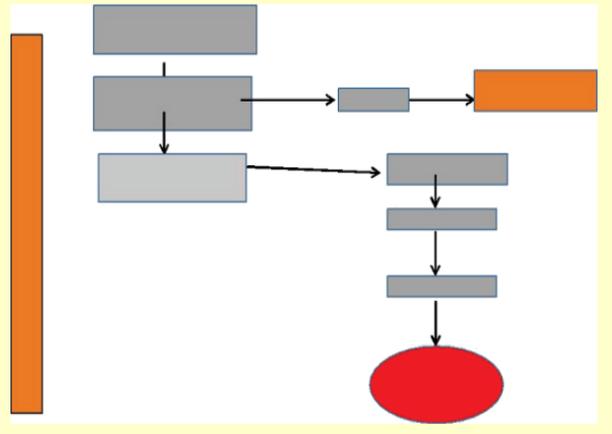
Engineering fraternity and Researchers are requested to work on PILOTS/startups to build an awareness of the successes that Bamboo can make for sustainability and GDP of our country



Construction at IPIRTI, Bangalore with Bamboo reinforcement



1st floor construction with bamboo reinforcement at Mehaboobnagar, Telangana



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