



भारतीय प्रौद्योगिकी संस्थान दिल्ली
Indian Institute of Technology Delhi

Challenges and Path ahead to Establish Bamboo as a proper Civil Engineering Material

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Assam type house/ with Modern Ekra wall

- ✓ Widely adopted in many **north-eastern Indian** states & been a part of **lower to high economy status** of people.
- ✓ Commonly known as **Assam-type houses/Ekra wall/Ikra wall**.
- ✓ Name **derived** from the locally available **reed** known as **ekra/ikra reed**. used widely in walls and roof.
- ✓ Many government buildings, hospitals, schools, private residence etc. been constructed using this technique.



Modern Ekra House in Assam



Modern Ekra House in Shillong



Modern Ekra House in Sikkim

Larger Panels



(a) Making of 2133 X 2743 mm² and 609 X 1828 mm² wall panel



(b) Panel with intermediate bamboo

(c) Four Chambered Panel



(d)

(e)

(f)

(g)

Bigger size Bamboo Wall Panel



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- I would like to thank NITI Aayog for inviting us to this presentation.

NITI Aayog is to Transform India.

- So, I would like to take the opportunity to talk to NITI Aayog about a few issues which will not only help bamboo, but also rest of the education world.

Concrete as a material

It took hundreds of years to come to this stage and it is still developing.

So there is no short cut to establishing a developed product.

The National conferences and Journals are the place where these all can come together.

Producers

Researchers



Contractors

We require participation of researchers, bamboo producers and bamboo contractors.



• At present we in education lagging a lot because we have to publish in big journals which are mostly Elsevier and other international journal.

• Some journals even ask for the money to publish our Work. So, we are at the mercy of International journals.

• So, we require journals in India which are supported by the Indian Government.
• These journals should be financially supported by Indian Government.

• Then only our research will be accessible to our Indian researchers.

• This is what I am requesting NITI Aayog to transform India by creating Indian Journals.

• We require made in India, for India.

Case study of Japan



JAPAN



Japan Concrete Institute

Journal of JSCE
Japan Society of Civil Engineers



Bamboo structures using some curved members



GOOD STRUCTURES:

Utilizing the flexibility of bamboo as a curved member

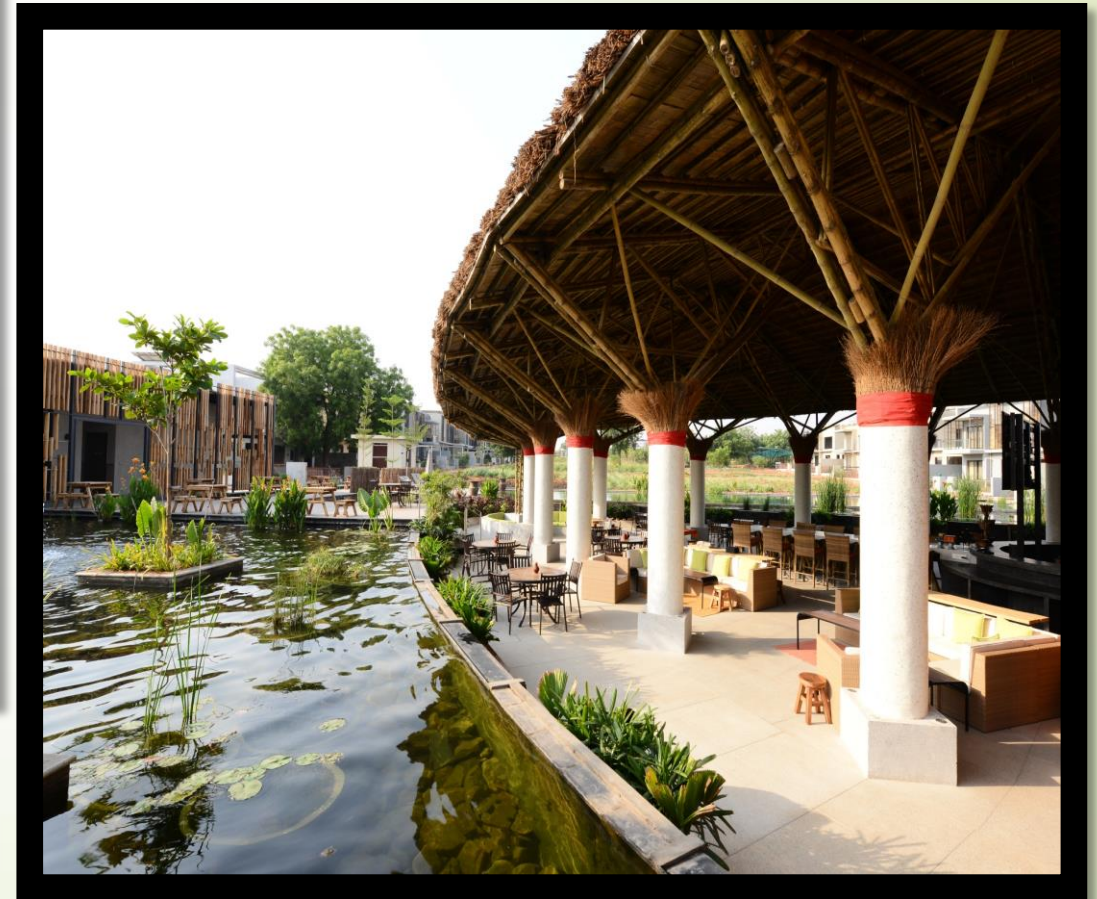


Truss girder using bamboo:

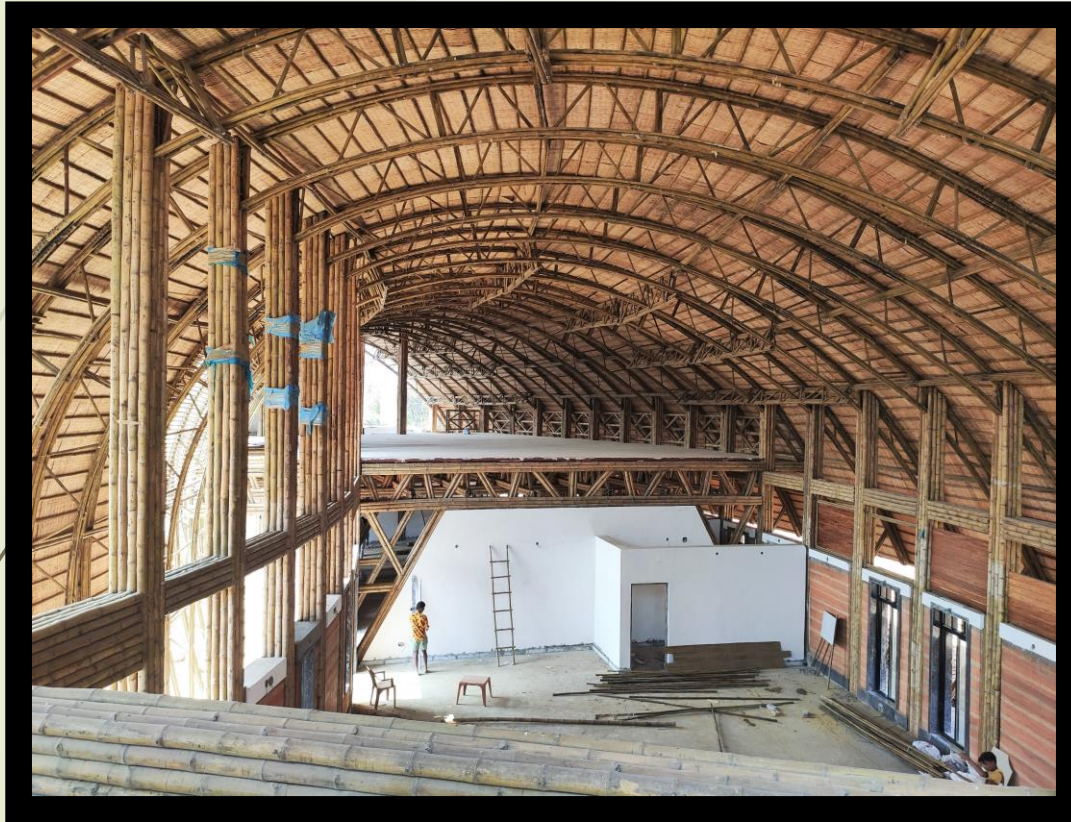


Indian innovative bamboo structures

India's largest bamboo structure at Hyderabad



Continue.....



SRI KAILASH ASHRAMA KALYANA MANDAPAM:



Continue.....



Some of the extra ordinary bamboo structures:

THE FISH-SHAPED BAMBOO PAVILION, CHINA.


- Open exhibition hall with floor area of 288 square metres.

The whole structure is divided into three systems:

- Main pillars
- Subsidiary pillars
- Purlins.





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- All over the world the people are constructing these beautiful structures.
 - However, these structure are not analyzed realistically and people just building it.
 - This makes the structure very massive costly.
 - Therefore in India we should make a committee which decides the structures that are important.



We need to organise a Government Body to unite the
Bamboo world



Decide what issues that Academic Researchers are
expected to address

Provide funds for this purpose

Hold National Conferences and Publish Journals which
is accessible to Indian people

Make a Portal to ensure bamboo quality and supply is ensured





Bamboo Portal

To bring in bamboo farmers and producers, bamboo traders and consumers at one interface.

To make an easy gateway for trading and buying construction bamboo.

To provide recognition to all the bamboo growers in the country.

To encourage sustainable development in construction industry.

To provide quality material to the contractors and customers

To acknowledge bamboo at best price to the farmers.



Thank you