AGROBIOGENICS TECHNOLOGY aims to enhance farming values, converting all available biomass generated within farm regions (both agriculture and other wild growths such as weeds/ shrubs/ grasses and animals reared) into food/ energy/ engineered products/ bio-petrochemicals/ bio-fertilizer/ carbon sunk engineered products/ bio-water – creating over 25 times current Farm-produce values.

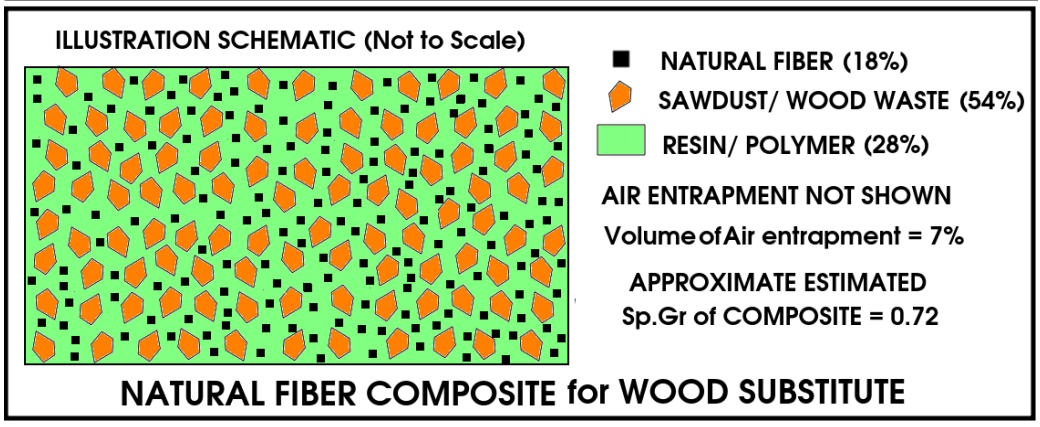
ESTIMATE OF WOOD SUBSTITUTE PRODUCTION POSSIBILITY IN INDIA

AN IDEA OF WOOD/ TIMBER USAGE IN INDIA

	Production quantity (x 1000 m^3)	Imports quantity (x 1000 m^3)	Domestic consumption (x 1000 m^3)
Logs (Ind. Roundwood)	49 517	4 383	53 881
Sawnwood	6 889	869	7 744
Veneer	295	415	702
Plywood	2 537	141	2 627

ITTO (2019), data 2017

https://www.timbertradeportal.com/countries/india/



NATURAL FIBER COMPOSITE for WOOD SUBSTITUTE

Total wood consumption in various forms are estimated @ 65 Mn Cu.M (approximate weight @ 0,6 Sp.gr = 39 Mn Tons). There are other unused wood based vegetation @ not less than about 10 Mn T, at all-India level. If 25% form the total processing wastes, India now is seen to have an estimated 19.75 Mn Tons in the form of various Wood wastes (including Sawmill/ Plywood plants based sawdust).

POTENTIAL WOOD SUBSTITUTE PRODUCTS

Wood substitute systems are designed as Sawdust/ Wood-wastes + Natural Fiber + Polymer/ Resin systems. We shall generally name these as **NATURAL FIBER POLYMER COMPOSITES** (**NFPC**). It is possible to design and construct a variety of NFPC (basic systems), having Sp. Gr ranging from about 0.6 to 0.85. Usual "Medium Density) NFPC Sp. Gr would be in the range of 0.72 to 0.85; High Density would be in the range 0.86 to 1.0; Extra-High Density range would be 1.1 to 1,25; Super Density would be above 1.26

The illustration on the left shows a Medium Density NFPC system as a general Wood substitute. Were we to consider this as the main wood substitute product system, India can generate about 36.5 Mn Tons (replacing about 51 Mn Cu.M wood) of NFPC wood substitute products, using Waste wood as the starting point. One additional aspect is that, as this NFPC system incorporates 18% Vegetation/ Bio Fibers, Farmers can sell not less than 73 Mn Tons (based on 9% dry weight of fibers, per T of Agrowaste Agrowastes. At Rs.3,000 per ton, it would fetch them a total value (All India) of Rs.219 Bn.

The Photo illustration here is a hand molded NFPC wood substitute Door (it can also be Machine molded).

(NOTE: In order that such a High value conversion of Bio-Fibrous matter is made possible, we need to design a special VALUE FARM MODULE (VFM) manufacturing system where the Plant/ Agrowastes could be converted into Bio-Fibrous matter and Bio-Sludge matter. Average Bio-Fiber (dry weight) would be 9% by weight of total biomass. The sludge matter (with 90% water recovered) would constitute 80%. The Processes would convert Biomass into Methane gas based Energy and Engineered products such as Molded Doors, Tableware/Crockery etc. Each T of prime biomass could be converted into 0.5 T Molded wood substitute products, valued Rs.100,000 to Rs.150,000 or more)

SOME HIGHLIGHTS

COCNUT TREE LEAF SPLINTER IS A HIGH STRENTH ENGINEERING NATURAL FIBER

1. On the basis of each VFM unit processing 18,000 T Biomass/ Agrowastes, annually, it is an estimated 9,000 T Wood substitute products, per unit (Here we are looking at the 0.72 Sp. Gr NFPC system, illustrated above).
2. India can have between 4,000 to 4,100 units, at All-India levels, using wood-wastes.
3. Each unit could offer full time works to 600 local people (male/ female).
4. The average business value per VFM unit would be Rs.225 Cr, with All-India business volume @ Rs.9.12 Tr.
5. as we could have variety of NFPC systems for Wood substitute, it is possible to design other VFM unit systems, using those different varieties, adding up with the wood-waste based NFPC products. (See Picture above, right)

Conclusion: India has huge potentials for NFPC Wood substitute products units and many other Engineered products of value (over Rs.10 Tr).

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