



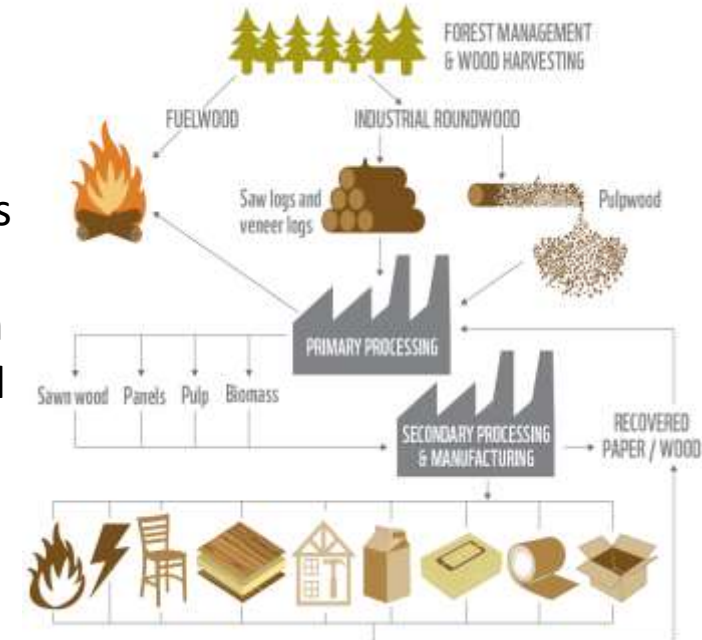
# Capacity Building for Entrepreneurship Centered Around Trees Outside Forests

Module 1: Market opportunities of tree-based products  
Lecture 1: Timber-based products and their market trends

# Introduction



- The total tree cover of the country as per ISFR 2023 has been estimated as which includes 11,724 km<sup>2</sup> tree cover for the trees 5 to 10 cm dbh and 4,085 km<sup>2</sup> bamboo cover.
- Tree based product can be divided into timber and non-timber products of forest.
- Timber products are those which are particularly obtained from the wood of the tree, whereas non-timber can be any products from tree from leaves to roots.
- Timber is the processed and unprocessed wood used for various purposes.
- The major consumption of wood in India is still in the form of fuel wood accounting for 75 % in the rural areas and 21.7 % in the urban areas (NSSO). It is estimated that about 270 million tons of fuel wood, 280 million tons of fodder, over 12 million cubic meter (cum) of timber and a range of non-wood forest products are extracted from the forests of India annually.
- India has made impressive economic growth in recent times, as evident from the rise in income of people. This growth is leading to increase in consumption of wood and wood products. Reducing supplies from natural forests and rising demand of wood products has caused a large gap between demand and supply.
- To reduce pressure on forests and to meet the needs of the people in respect of wood and wood products there has been focus on 'Trees Outside Forests' (ToF), particularly agroforestry,





# Wood based products



Bamboo charcoal

coconut shell charcoal

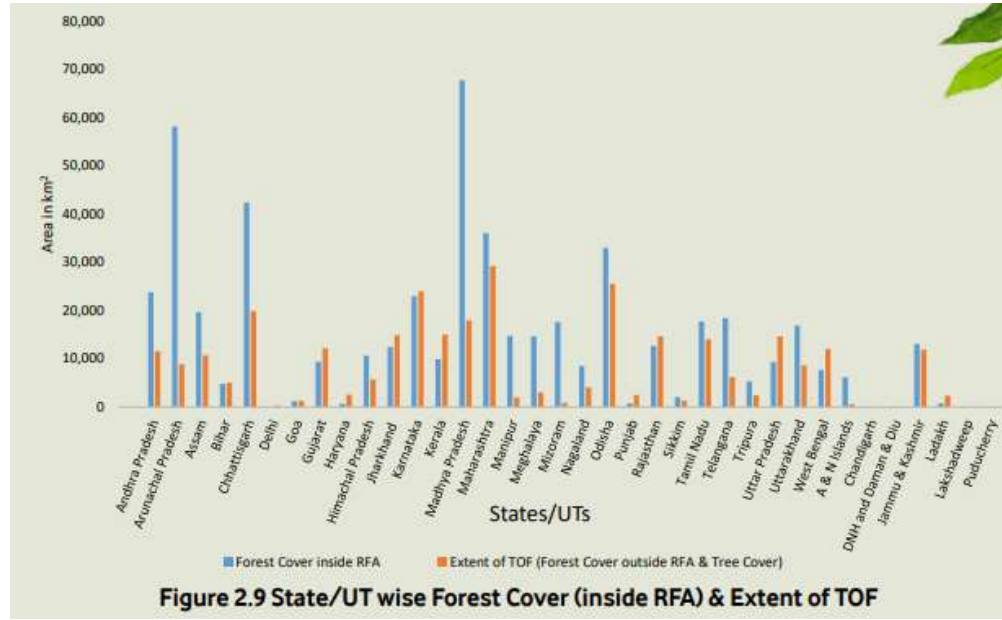
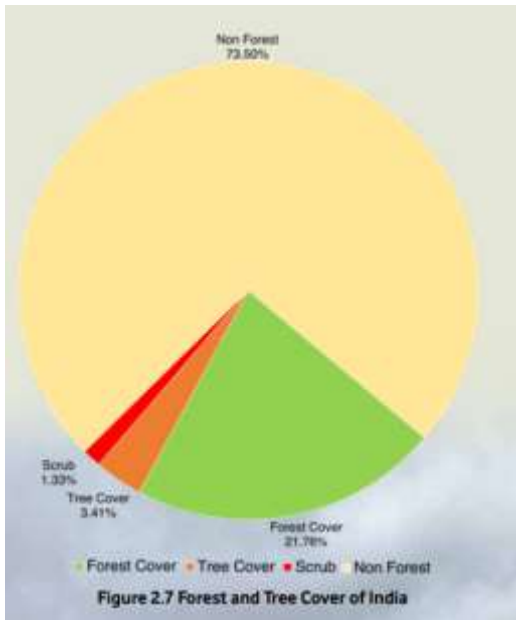
coffee nutshell

Wood briquette charcoal

wood powder charcoal

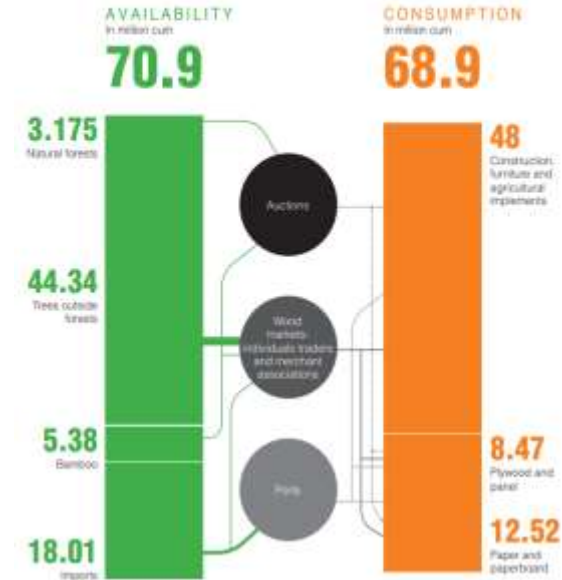
wood branch charcoal





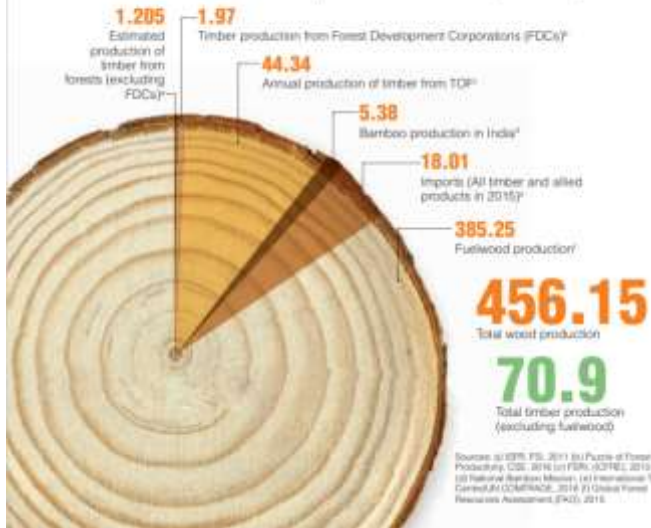
## TOTAL WOOD AND BAMBOO BALANCE

Flow diagram of annual timber availability and consumption in India



According to the FAO's 2015 report on Global Forest Assessment, the total wood extracted in India in 2011 was 434.77 million cum, out of which the fuelwood volume was 385.25 million cum or 201.15 million tonnes.\*

### Annual estimated wood production in India (in million cum)



### Annual estimated wood consumption in India (in million cum)



### Furniture market by type of material

Furniture material	2010-11 (₹ crores)	2014-15 (₹ crores)	2019-20 (₹ crores)	CAGR (projected) 2014-20 (%)
Wood	281	468	936	14.9
Plastic	33	65	136	16
Cane and bamboo	13	29	91	25.9
Metal	72	122	272	17.3
Others*	21	36	75	15.8
<b>Total</b>	<b>420</b>	<b>720</b>	<b>1510</b>	<b>16</b>

Source: MCG estimate, 2016

## Species-wise volume of trees and number of stems under agroforestry systems in India

Species-wise volume of trees under agro-forestry systems in India			Species-wise number of stems under agroforestry system in India (number in thousand)				
Species	Total volume (in million cum)	Percentage	Diameter class (cm)			Total	Percentage
			10-30	30-50	50 +		
<i>Mangifera indica</i>	149	13.3	255,815	60,917	28,323	345,055	9.2
<i>Azadirachta indica</i>	76	6.8	176,671	27,952	3,844	208,467	5.6
<i>Borassus flabelliformis</i>	64	5.7	18,551	74,411	1,276	94,238	2.5
<i>Madhuca longifolia</i>	64	5.7	6,573	6,467	11,546	24,586	0.7
<i>Cocos nucifera</i>	60	5.3	168,423	43,238	101	211,762	5.7
Rest of the species	711	63.2	2,526,692	267,703	52,867	2,847,262	76
<b>Total</b>	<b>1,124</b>	<b>100</b>	<b>3,152,725</b>	<b>480,688</b>	<b>97,957</b>	<b>3,731,370</b>	<b>100</b>

Source: India State of Forest Report, FSI, 2013

## Consumption of timber under three major categories\*

State/ Union Territory	House construction	Furniture	Agricultural implements	Total	Percentage
Andhra Pradesh	23.4	3.2	2.1	28.6	6.8
Arunachal Pradesh	0.7	0.1	0	0.8	0.2
Assam	7.7	2.8	0.5	11	2.6
Bihar	9.2	3.0	0.3	12.5	3
Chhattisgarh	12.0	0.9	0.9	13.8	3.3
Gujarat	27.5	2.4	0.3	30.2	7.2
Haryana	5.9	1.5	0.5	7.9	1.9
Himachal Pradesh	5.7	0.5	0.1	6.3	1.5
Jammu and Kashmir	5.3	1.1	0.1	6.4	1.5
Jharkhand	4.9	0.9	0.3	6.1	1.5
Karnataka	17.9	1.9	2.6	22.5	5.3
Kerala	15.2	3.3	NA	18.5	4.4
Madhya Pradesh	26.3	1.8	1.8	29.8	7.1
Maharashtra	55.6	4.6	5.1	65.3	15.5
Odisha	7.1	1.3	0.4	8.8	2.1
Punjab	9.2	3.4	0.8	13.4	3.2
Rajasthan	10.4	1.6	0.7	12.6	3.0
Tamil Nadu	18.5	2.5	0.2	21.1	5.0
Uttar Pradesh	42	15.1	4.3	61.4	14.6
Uttarakhand	4.8	0.5	0.1	5.4	1.3
West Bengal	14.6	4.1	0.5	19.2	4.6
Northeastern states	5	1.1	0.0	6.1	1.5
Union Territories	11.6	0.9	0.0	12.6	3.0
<b>Total</b>	<b>340.2</b>	<b>58.5</b>	<b>21.6</b>	<b>420.3</b>	<b>100</b>

Source: India State of Forest Report, FSI, 2011

\*Figures in this table do not represent annual consumption

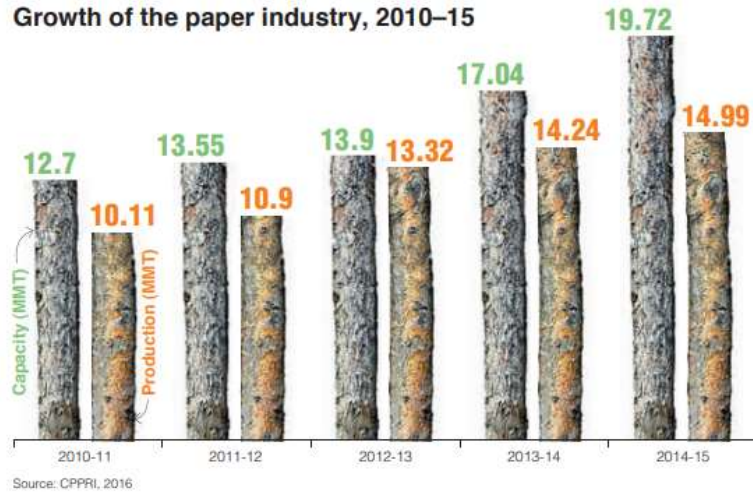




## Varieties of paper made from different raw materials

Type of mills	No. of mills	Raw material	Consumption (million tonnes)	Production (million tonnes)	
Wood-based (large integrated)	31	Wood pulp	8.7	Writing/ printing grade	2.67
				Packaging grade	0.85
				Newsprint grade	0.02
Agro-based (medium-scale)	135	Bagasse	5.8	Writing/ printing Grade	0.54
		Wheat straw		2.6	Newsprint grade
Recycled fibre-based (medium and small-scale)	647	Waste paper	12.5	Writing/ printing Grade	2
				Packaging grade	6.37
				Newsprint grade	1.47
<b>Total</b>	<b>813</b>		<b>29.6</b>	<b>14.99</b>	

## Growth of the paper industry, 2010–15



## Composition of timber imports and exports in 2015

Timber	Per cent imports		Per cent exports	
	By value	By quantity	By value	By quantity
Plywood (HS Code: 4412)	1	0.5	0.8	1.4
Wood logs (Industrial roundwood) (HS Code: 4403)	29.6	37.8	0.7	12.8*
Sawn wood (HS Code: 4407)	2.0	1.1	1.4	1.5
Veneer (HS Code: 4408)	0.9	0.8	1.3	1.3
Fibreboard (HS Code: 4411)	1.2	1.4	0.7	1.1
Particleboard (HS Code: 4410)	0.8	1.0	0.2	0.3
Wood pulp (HS Code: 47)	21.6	34.8	0.2	0.4
Paper and paperboard (HS Code: 48)	36.7	21.2	57.8	64.6
Wooden furniture (HS Code: 94; sub-codes: 9401 and 9403)	4.5	0.6	25.6	8.9
All others (except fuelwood and railway sleepers) (HS Codes: 4418, 4421, 4409, 4415, 4402, 4413, 4416, 4417, 4405, 4420, 4419, 4414 and 4404)	1.6	0.9	11.3	7.7

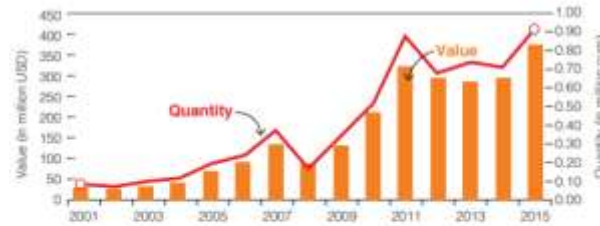
Source: International Trade Centre/UN COMTRADE; CSE Analysis, 2016  
 \*High percentage of wood logs is an aberration here as in 2015 India exported huge volumes of confiscated Red Sanders wood, inflating the total and average of wood log export figures from 2001 to 2015.

## Import and export of timber by India from 2001 to 2015

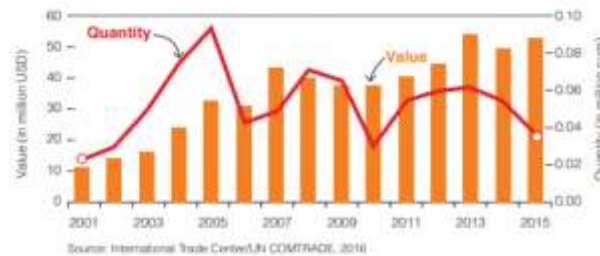


## PLYWOOD AND PANEL

### Imports of plywood and panel from 2001 to 2015



### Exports of plywood and panel from 2001 to 2015



## Imports of wooden furniture from 2001 to 2015



Major export destinations for Indian wooden furniture are USA, Germany, France and UK.

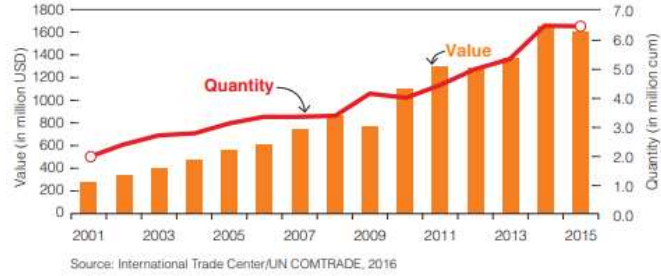
## Exports of wooden furniture from 2001 to 2015



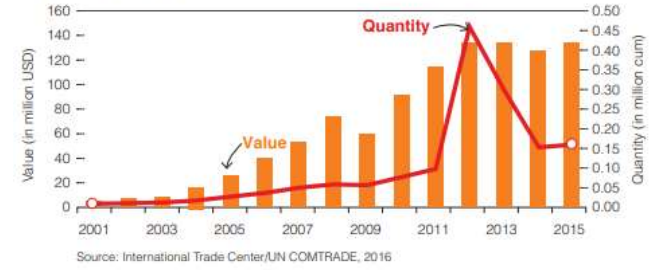
### Imports of paper and paperboard from 2001 to 2015



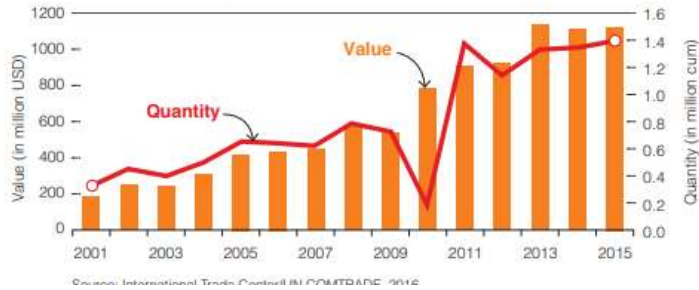
### Imports of wood pulp from 2001 to 2015



### Imports of all other wood (except fuelwood and railway sleepers) from 2001 to 2015



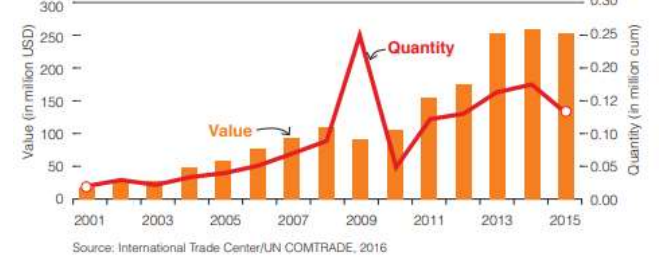
### Exports of paper and paperboard from 2001 to 2015



### Exports of wood pulp from 2001 to 2015

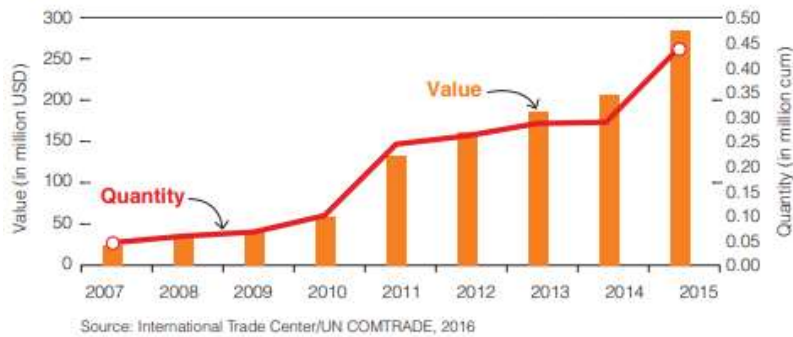


### Exports of all other wood (except fuelwood and railway sleepers) from 2001 to 2015

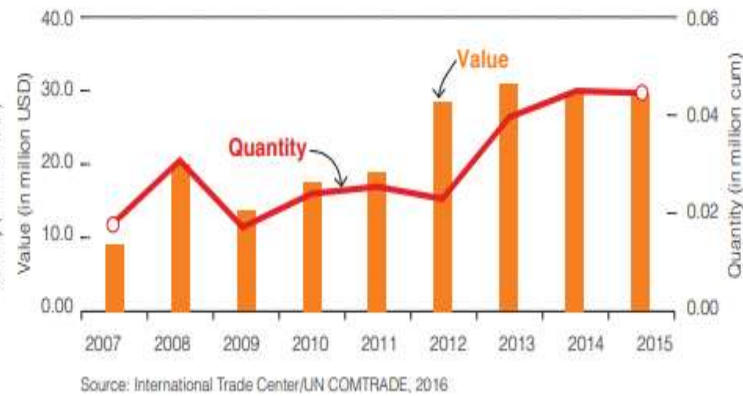


# SAWNWOOD

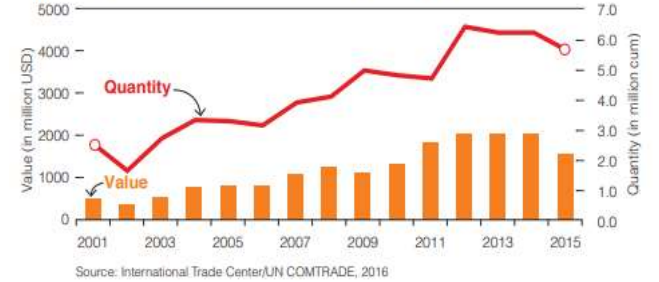
### Imports of sawnwood from 2007 to 2015



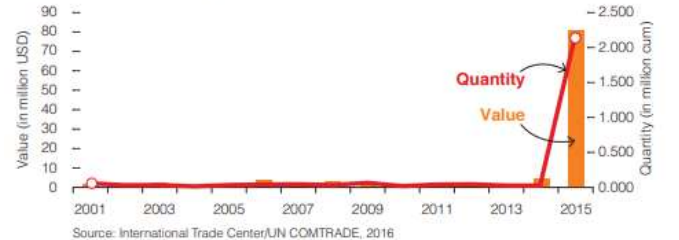
### Exports of sawnwood from 2007 to 2015



### Imports of wood logs (industrial roundwood) from 2001 to 2015



### Exports of wood logs (industrial roundwood) from 2001 to 2015



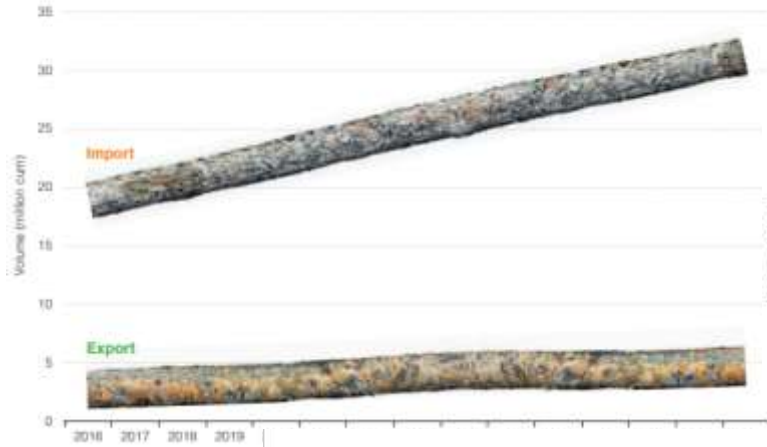


**Table 5.5 State/UTs wise Annual Potential Production of Industrial Wood from TOF Area with % Standard Error**

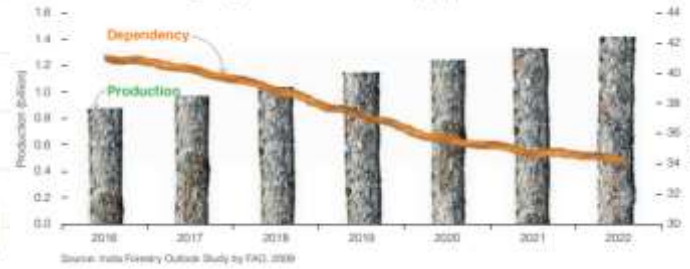
Sl. No.	State/UTs	Annual potential production of Industrial wood (M m <sup>3</sup> )	Standard Error (%)
1	Andhra Pradesh	2.77	3.67
2	Arunachal Pradesh *	0.76	11.69
3	Assam	1.13	5.67
4	Bihar	2.07	4.24
5	Chhattisgarh	5.71	3.02
6	Delhi	0.15	6.27
7	Goa	0.16	6.12
8	Gujarat	4.72	5.50
9	Haryana	2.62	3.82
10	Himachal Pradesh	1.62	5.86
11	Jharkhand	3.71	4.19
12	Karnataka	6.22	4.92
13	Kerala	2.52	8.59
14	Madhya Pradesh	7.07	2.38
15	Maharashtra	12.38	2.30
16	Manipur *	0.19	10.16
17	Meghalaya	0.78	7.09
18	Mizoram *	1.47	10.20
19	Nagaland	0.81	9.54
20	Odisha	5.11	6.15
21	Punjab	2.79	4.15
22	Rajasthan	6.05	2.49
23	Sikkim	0.08	6.96
24	Tamil Nadu	3.18	3.98
25	Telangana	2.26	4.94
26	Tripura	0.37	5.44
27	Uttar Pradesh	8.56	2.23
28	Uttarakhand	1.13	4.85
29	West Bengal	2.27	4.77
30	A & N Islands *	0.09	23.21
31	Chandigarh	0.02	8.09
32	Dadra & Nagar Haveli Daman & Diu ***	0.03	12.48
33	Jammu & Kashmir* (shape file area = 52,633#)	2.44	9.13
34	Ladakh** (Shape file area= 1,68,055#)	0.25	18.17
35	Lakshadweep ***	0.00	17.17
36	Puducherry	0.02	8.52
	<b>Total</b>	<b>91.51</b>	<b>3.70</b>



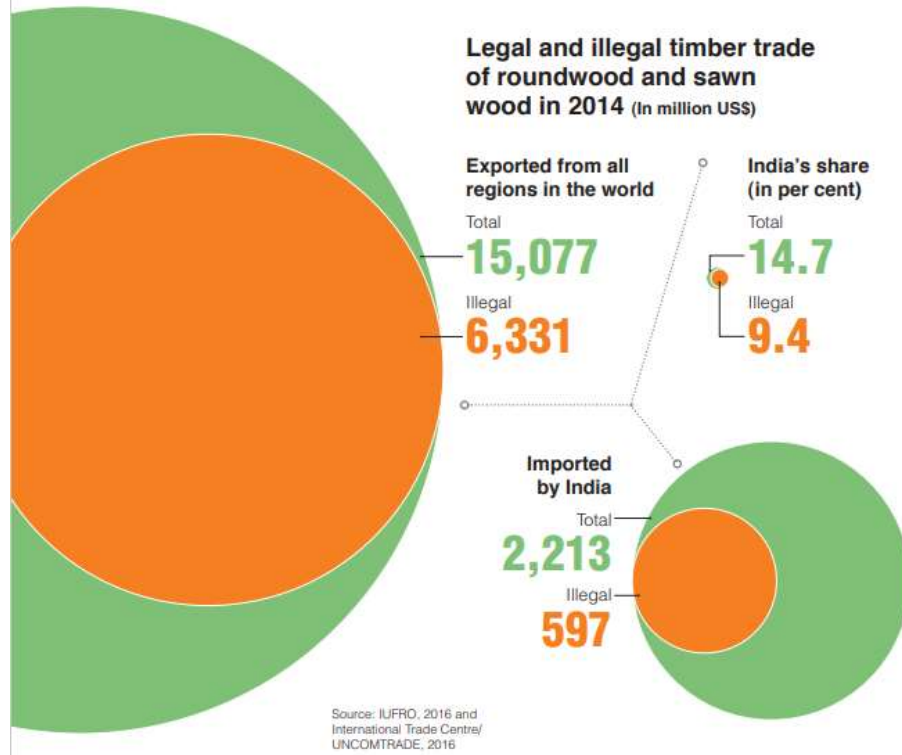
### Projected timber imports and exports by India



### Declining dependence of Indian population on forests



### Legal and illegal timber trade of roundwood and sawn wood in 2014 (In million US\$)



Source: IUFRO, 2016 and International Trade Centre/ UNCOMTRADE, 2016

### Statistics of Import and Export of Wood and Wood Products in India During Jan-March 2023

S.No.	HS-Code	Commodity	Value in million USD		
			Import (Imp)	Export (Exp)	Trade Balance (Exp-Imp)
1	4401	FUEL WOOD, IN LOGS, IN BELLETS, IN TWIGS, IN FAGGOTS OR IN SIMILAR FORMS; WOOD IN CHIPS OR PARTICLES; SAWDUST AND WOOD	0.52	0.05	-0.47
2	4402	WOOD CHIRCL(INCL SHL/NUT CHIRCL) W/N AGLOMRTD	1.46	11.74	10.28
3	4403	WOOD IN THE ROUGH, WHETHER OR NOT STRIPPED OF BARK OR SAPWOOD, OR ROUGHLY SQUARED	235.78	1.26	-234.52
4	4404	HOOP/WOOD SPLIT POLES PILES PICKETS AND STACKOF WOOD POINTED BUT NOT CUT TO LENGTHWISE WOODEN STICKS CHIPWOOD	0.05	0.10	0.05
5	4405	WOOD WOOL; WOOD FLOUR	0.29	0.00	-0.29
6	4407	WOOD SAWN OR CHIPPED LENGTHWISE, SLICED OR PEELED, WHETHER OR NOT PLANED, SANDED OR ENDJOINTED, OF A THICKNESS EXCEEDING	118.45	1.76	-116.69
7	4408	VENER SHEET AND SHEETS FOR PLWD (W/N SPLCD)AND OTHR WOOD SAWN IN LENTH SLICD/PEELD W/N PLANED OR FINCR (TD THIKNES <= 6MM	66.82	9.49	-57.33
8	4409	WOOD(INCL STRIPS,FRZS FOR PARQT FLORNG NT ASEMBLD) CONTINUPLY SHAPED(TONGD GROVD V-JTD ETC) ALONG ANY EDGS/FACS W/N P	8.85	3.02	-5.83
9	4410	PARTCLE BORD AND SMLR BORD OF WOOD OTHR LIGNUS MATRIS W/N AGLOMRTD WITH RESIN OR OTHR ORGNIC BINDG SUBSTS	7.72	1.49	-6.23
10	4411	FIBR BORD OF WOOD OR OTHR LIGNELUS MATRIS W/N BONDED WITH RESIN/OTHR ORGNIC SUBSTS	26.62	16.89	-9.73
11	4412	PLYWOOD, VENEERED PANELS AND SIMILAR LAMINATED WOOD	35.49	17.81	-17.68
12	4413	DENSIFIED WOOD, IN BLOCKS, PLATES, STRIPS, OR PROFILE SHAPES	1.37	0.44	-0.93
13	4414	WOODEN FRAMES FOR PAINTINGS, PHOTOGRAPHS, MIRRORS OR SIMILAR OBJECTS	0.21	2.85	2.64
14	4415	PCKNG CASES,BOXES,CITS,DRMS AND SMLR PCKNGS OF WOOD; CBLE DRMS OF WOOD; PALLET, BOX PALLETS AND OTHR LOAD BOARDS OF WO	1.97	3.12	1.15
15	4416	CASES, BARRELS, VATS, TUBS AND OTHR COOPERSPRODUCTS AND PARTS THEREOF, OF WOOD, INCLUDING STAVES	1.00	0.02	-0.98
16	4417	TOOLS, TOOL BODIES, TOOL HANDLES, BROOM OR BRUSH BODIES AND HANDLES, OF WOOD; BOOT OR SHOE LASTS AND TREES, OF WOOD	1.06	4.30	3.24
17	4418	BUILDERS JOINERY AND CARPENTRY OF WOOD, INCLUDING CELLULAR WOOD PANELS, ASSEMBLED FLOORING PANELS, SHINGLES AND SHAKES	12.77	3.78	-8.99
18	4419	TABLEWARE AND KITCHENWARE, OF WOOD	3.85	13.03	9.18
19	4420	MARQUY AND INLAD WOOD;CASKETS/CASES FOR JWEJRY/CTJRY AND SMLR ARTCLS STATUETS AND OTHR ORNAMTS OF WOOD NT FALLNG I	0.66	4.59	3.93
20	4421	OTHER ARTICLES OF WOOD	9.24	45.03	35.79
<b>Total</b>	<b>44</b>	<b>WOOD AND ARTICLES OF WOOD; WOOD CHARCOAL</b>	<b>534.18</b>	<b>140.77</b>	<b>-393.41</b>

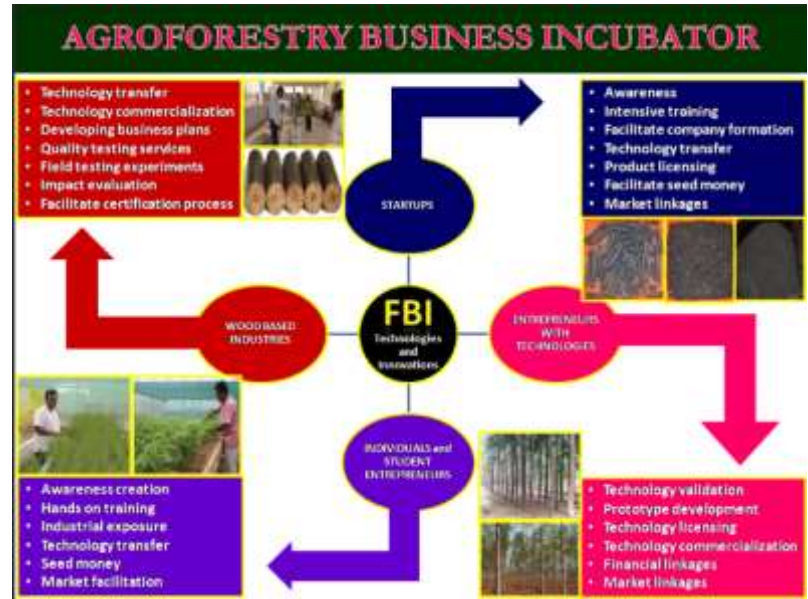
Source: Data compilation based on data in Ministry of Commerce and Industry, Govt. of India



# Drivers of wood market in India

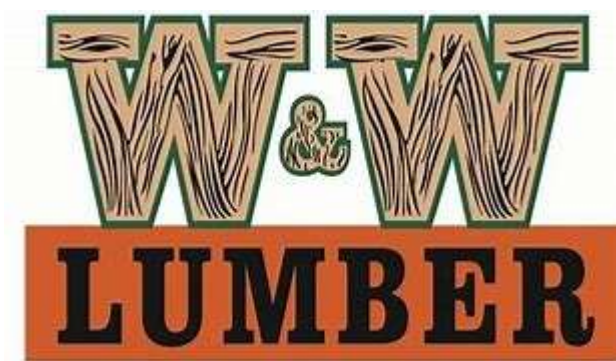
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**FEDERATION OF INDIAN PLYWOOD & PANEL INDUSTRY (FIPPI)**  
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# Wood startups in India



WEST COAST PAPER MILLS LIMITED