



Food and Agriculture Organization of the United Nations, Forestry  
Department

and



International Network for Bamboo and Rattan (INBAR)

GLOBAL FOREST RESOURCES  
ASSESSMENT UPDATE 2005

INDONESIA

COUNTRY REPORT  
ON  
BAMBOO RESOURCES

JAKARTA, MAY, 2005

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## General Guidelines:

The main purpose of the Country Thematic Report on Bamboo Resources (CTRB) is to develop a Global Bamboo Resources Assessment (GBRA) and to integrate it in the global UN FAO FRA. The approach is to create sub-category on Bamboo in the framework of FRA 2005 ([www.fao.org/forestry/fra](http://www.fao.org/forestry/fra)) to provide supplementary information on bamboo resources. This document provides format for compiling information on Bamboo resources and should be treated as a supplement to the basic documents of FRA 2005 including Specification of National Reporting tables, FRA Working Paper No. 81; Guidelines for Country Reporting, FRA Working Paper No. 82 and Terms and Definitions, FRA Working Paper No. 83.

The country Bamboo Resources Thematic Study Report should clearly and concisely document all data sources that have been selected and used for this reporting process and assign quality rating to the data sources. Comment on any problems encountered in finding relevant data sources. The Report should also indicate if no data sources have been found which meet the requirements. Similarly all the relevant national classification and definitions should be documented clearly and concisely. Comments on any problems or incompatibilities in classification and definitions should also be provided, if necessary. Please email the Bamboo Thematic Report directly to the focal point at INBAR ([mlobovikov@inbar.int](mailto:mlobovikov@inbar.int)) with the copy to FAO ([kailash.govil@fao.org](mailto:kailash.govil@fao.org)) as a part of GFRA.

## General information

<b>Country:</b>	INDONESIA
<b>National Correspondent: (Name and contact information)</b>	LISTYA KUSUMAWARDHANI
<b>Other professionals involved in the reporting process:</b>	KUSTANTA BUDI PRIHATNO NURHAYATI ERNI MAYANA SENTOT SUBAGYO
<b>Date of submission of 1<sup>st</sup> draft:</b>	March 1 2005
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## 1 Table T1 – Extent of Bamboo Forest

### 1.1 GBRA 2005 Categories and definitions

Category	Definition
Bamboo on forest land	Bamboo on lands defined as "Forest" in FRA 2005.
Bamboo on otherland	Bamboo on lands other than forestland

### 1.2 National Data on Bamboo Resources

#### 1.2.1 Data sources

References	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Indonesia, People Forest Resource, 2003. Central Board of Statistics.	H	Number	2003	This was the result of Agricultural census. Will be used as 2000 data
Agriculture Census report. Central Board of Statistics	H	Number	1993	Used as 1990 data
Various bamboo inventory reports from Regional office for Forest Inventory and Mapping	H	Extent and number	1999/2000	Used as 2000 data
National Forest Inventory Data base	H	Number	1992	Used as 1990 data

#### 1.2.2 Classification and definitions

National class	Definition
Bamboo on forest land	Explanation : All bamboo species with diameter at breast height over than 2.5 cm growing on forestland. In this report. All bamboo found in Bamboo inventory done by Regional office for Forest Inventory and Mapping and National Forest Inventory will be classified to this class.
Bamboo on otherland	Explanation : All bamboo managed by farmers. This bamboo species are planted outside forest land (private land owned by farmers)

#### 1.2.3 Original data

a. 1990 data.

The source of 1990 data are as follow:

- National Forest inventory data base ( result of enumeration of temporary sample plots conducted from 1990 – 1994).

The National forest inventory data are in term of Number of plots where bamboos were occurred. Each NFI Plot represents 20 km x 20 km (40,000 ha). In this table, it is assumed that only 30% of the represented area will be calculated to estimate the bamboo area or 12.000 ha per plot. The data will represent bamboo on forestland.

No.	Provinces	No. of plots with bamboo	Estimated Area in ha
1	Jambi	3	36.000
2	South Sumatera	5	60.000
3	West Nusa Tenggara	2	24.000
4	East Nusa Tenggara	5	60.000
5	West Kalimantan	1	12.000
6	Central Kalimantan	1	12.000
7	South Kalimantan	5	60.000
8	Central Sulawesi	1	12.000
9	South East Sulawesi	5	60.000
10	South Sulawesi	2	24.000
11	Maluku	22	264.000
	Total	52	624.000

- Agriculture sensus of 1993 carried out by Central Board of Statistics. Data collected by Central Board of Statistics are in term of number of clump. The data represent bamboo distribution out side of forestland and will be classified as bamboo on otherland. We include this type of bamboo since these bamboo contribute significantly to national bamboo resources. Estimation has been made to calculate the bamboo area. It was assumed that the average number of clump per ha nationally is 31 clumps/ha national. This assumption was defined based on the bamboo inventory data. The number of clump nationally is 47,327,390 clumps so that the bamboo area was estimated as  $47,327,390/31 = 1,526,690$  ha. The data will represent bamboo on otherland.

b. 2000 data.

The source of 2000 data are as follow:

- Since The NFI phase II has not been yet conducted, the bamboo areas are estimated using the previous NFI data (1990) with the assumption that the deforestation rate is 2% as it is in GFRA. The bambo areas estimated from NFI data become  $624.000 - (624.000 \times 0.02) = 611.520$  ha. The figure will be part of bamboo on forestland.
- Agriculture sensus of 2003 carried out by Central Board of Statistics. Same as the 1993 agriculture sensus, the 2003 sensus data was also in term of the number of clumps so that the bamboo areas were estimated using average number of clumps per ha which are from various bamboo inventories.

No.	Provinces	No of Clump	Average no of clumps/ha	Estimated Area in Ha
1	Nanggroe Aceh Darussalam	46,628	14	3,331
2	North Sumatera	818,593	8	102,324
3	West Sumatera	146,741	9	16,305
4	Riau	95,127	14	6,795
5	Jambi	104,793	8	13,099
6	South Sumatera	681,804	18	37,878
7	Bengkulu	176,034	14	12,574
8	Lampung	684,299	14	48,879
9	Bangka Belitung	19,328	14	1,381
10	DKI Jakarta	74,293	31	2,397
11	West Java	10,651,734	31	343,604
12	Central Java	8,186,878	31	264,093
13	Yogyakarta	872,702	31	28,152
14	East Java	7,348,613	31	237,052
15	Banten	2,005,168	31	64,683
16	Bali	891,560	31	28,760
17	West Nusa Tenggara	700,950	164	4,274
18	East Nusa Tenggara	1,118,641	33	33,898
19	West Kalimantan	604,330	14	43,166
20	Central Kalimantan	116,327	15	7,755
21	South Kalimantan	412,821	12	34,402
22	East Kalimantan	85,950	13	6,612
23	North Sulawesi	228,044	52	4,385
24	Central Sulawesi	76,668	103	744
25	South Sulawesi	1,397,941	26	53,767
26	South East Sulawesi	78,181	51	1,533
27	Gorontalo	63,028	52	1,212
28	Maluku	160,816	24	6,701
29	North Maluku	62,892	24	2,621
30	Papua	62,022	31	2,001
	<b>Total</b>	<b>37,972,906</b>	<b>944</b>	<b>1,414,375</b>

- Various bamboo inventory reports carried out by Regional office for Forest Inventory and Mapping which were conducted between 1999- 2000. The data from various bamboo inventory reports conducted by Regional office for Forest Inventory and Mapping actually represent the surveyed area and will directly be part of bamboo on forestland since the surveyes were only carried out on forestland. The data are as follow:

No.	Provinces	Surveyed area in ha
1	North Sumatera	24,000
2	West Sumatera	28,000
3	East Nusa Tenggara	26,600
	<b>Total</b>	<b>78,600</b>

### 1.3 Data for National Reporting Table T1

GBRA 2005 Categories	Area (1000 hectares)		
	1990	2000	2005
<b>Bamboo on forest land</b>	624	690	
Monopodial bamboo area			
Sympodial bamboo area	624	690	
<b>Bamboo on other land</b>	1,527	1,414	
Monopodial bamboo area			
Sympodial bamboo area	1,527	1,414	
<b>Total</b>	2,151	2,104	

### 1.4 Comments to National Reporting Table T1

- There is no monopodial bamboo species in Indonesia.
- The actual bamboo area on forest land may be larger than the one reported in this table since the figure in Table 1 only represent the surveyed area.
- The bamboo on otherland are reported since the bamboos from this area are highly potential and most of bamboo removals are from this area.

## 2 Table T2 – Ownership of Bamboo Forest

### 2.1 GBRA 2005 Categories and definitions

Category	Definition
Private ownership	Same as FRA: Land owned by individuals, families, private co-operatives, corporations, industries, religious and educational institutions, pension or investment funds, and other private institutions.
Public ownership	Same as FRA: Land owned by the State (national, state and regional governments) or government-owned institutions or corporations or other public bodies including cities, municipalities, villages and communes.
Other ownership	Same as FRA: Land that is not classified either as "Public ownership" or as "Private ownership".

### 2.2 National Data on Bamboo Resources

#### 2.2.1 Data sources

References	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Indonesia, People Forest Resource, 2003. Central Board of Statistics.	H	Number	2003	Used as 2000 data
Agriculture Census report. Central Board of Statistics.	H	Number	1992	Used as 1990 data
Various bamboo inventory reports from Regional office for Forest Inventory and Mapping	H	Extent and number	1999/2000	Used as 2000 data
National Forest Inventory Data base	H	Number	1992	Used as 1990 data

#### 2.2.2 Classification and definitions

National class (Bamboo)	Definition
Bamboo owned by farmer	Bamboo grown by farmer in their land. The bamboos are either managed by farmers themselves or managed in cooperation with private company. These bamboo are mostly planted bamboos.
Bamboos grow on forest land	Bamboo grown on forestland are owned by government (public ownership). Since forestlands are belong to government.

#### 2.2.3 Original data

Data from NFI and bamboo inventories done by Regional office for forest inventory and mapping will be classified as public ownership since the bamboos grow on forestland. While the bamboo from Agriculture census will be classified as private ownership since they are belong to farmers. The data are as follows:

<b>Data Sources</b>	<b>1990</b>	<b>2000</b>
NFI data	624	611
Regional office data		79
Agriculture census	1527	1414
Total	2,151	2,104

### 2.3 Data for National Reporting Table T2

<b>GBRA 2005 Categories</b>	<b>Area (1000 ha)</b>	
	<b>1990</b>	<b>2000</b>
Private ownership	1,527	1,414
Public ownership	624	690
Other ownership	-	-
Total	2,151	2,104

### 2.4 Comments to National Reporting Table T2

### 3 Table T3 – Characteristics of Bamboo Forest

#### 3.1 GBRA 2005 Categories and definitions

Category	Definition
Natural bamboo forest	Bamboo area of naturally regenerated native bamboo species.
Plantation	Bamboo area of native or introduced species, established through planting, seeding or assisted natural regeneration.

#### 3.2 National data on Bamboo in Forest

##### 3.2.1 Data sources

References	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Indonesia, People Forest Resource, 2003. Central Board of Statistics.	H	Number	2003	Used as 2000 data
Agriculture Census report. Central Board of Statistics.	H	Number	1992	Used as 1990 data
Various bamboo inventory reports from Regional office for Forest Inventory and Mapping	H	Extent and number	1999/2000	Used as 2000 data
National Forest Inventory Data base	H	Number	1992	Used as 1990 data

##### 3.2.2 Classification and definitions

National class	Definition
Natural bamboo forest	Bamboo area of naturally regenerated native bamboo species.
Plantation	Bamboo area of native or introduced species, established through planting, seeding or assisted natural regeneration.

##### 3.2.3 Original data

Data from NFI and bamboo inventories done by Regional offices for forest inventory and mapping will be classified as natural bamboo forest since they grow naturally on forestland. While the bamboo from Agriculture census will be classified as plantation since they are planted by farmers. The data are as follow:

Data Sources	1990	2000
NFI data	624	690
Regional office data		79
Agriculture census	1,527	1,414
Total	2,151	2,104

3.3 Data for National Reporting Table T3

GBRA 2005 Categories	Area (1000 hectares)		
	1990	2000	2005
Natural bamboo forest	624	690	
Plantation	1,527	1414	
<b>TOTAL</b>	2,151	2,104	

3.4 Comments to National Reporting Table T3

## 4 Table T4 – Bamboo Growing Stock

### 4.1 GBRA 2005 Categories and definitions

Category	Definition
Bamboo Growing stock	Weight (tons) of all bamboo forest more than X cm in diameter at breast height.
Commercial growing stock of Bamboo	The part of the growing stock of bamboo species that are considered as commercial or potentially commercial under current market conditions, and with a diameter at breast height of Z cm or more.
Growing stock of Common bamboo species	Weight (tons) of the most common bamboo species.

### 4.2 National data on Bamboo Resources

#### 4.2.1 Data sources

References	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Indonesia, People Forest Resource, 2003. Central Board of Statistics.	H	Number	2003	Used as 2000 data
Agriculture Census report. Central Board of Statistics.	H	Number	1992	Used as 1990 data
Various bamboo inventory reports from Regional office for Forest Inventory and Mapping	H	Extent and number	1999/2000	Used as 2000 data
National Forest Inventory Data base	H	Number	1992	Used as 1990 data
Bamboo planting and harvesting in Kalisetail, by Darmono Sindoesoewarno, Report No 90. Forestry Research Institute (in Indonesia)	H	Number and volume	1963	Conversion factor from culm to kg

#### 4.2.2 Classification and definitions

Category	Definition
Bamboo Growing stock	Weight (tons) of all bamboo forest more than 2.5 cm in diameter at breast height.
Commercial growing stock of Bamboo	The part of the growing stock of bamboo species that are considered as commercial or potentially commercial under current market conditions (with age more than 3 years), and with a diameter at breast height of 2.5 cm or more. This considers as mature bamboos.

Growing stock of Common bamboo species	Weight (tons) of the most common bamboo species.
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### 4.2.3 Original data

The original data of bamboo are mostly in culm or clump per ha. Growing stock was calculated using conversion factor taken from Bamboo planting and harvesting in Kalisetail, by Darmono Sindoesoewarno, Report No 90. Forestry Research Institute (in Indonesia) where the average dry weight of various bamboo species is 7.5 kg/ culm or approximately 133 culms per ton. Same as the previous table the main data for bamboo growing stocks are from NFI data (1990 and 2000 data (estimation)), Regional office for forest Inventory and mapping data (2000 data) and Central Board of Statistics data (1990 and 2000 data).

The original data after converted to tons are as follows :

#### a. NFI Data.

The 2000 data of NFI was estimated from 1990 data using assumption of deforestation rate of 2% such as in GFRA.

No.	Provinces	Bamboo Growing stock in tons		Comercial Bamboo Growing stock in tons	
		1990	2000	1990	2000
1	Jambi	11,349	11,122	3,686	3,612
2	South Sumatera	122,089	119,647	77,128	75,586
3	West Nusa Tenggara	192,208	188,363	71,464	70,034
4	East Nusa Tenggara	79,191	77,607	16,821	16,485
5	West Kalimantan	7,313	7,167	5,808	5,692
6	Central Kalimantan	4,294	4,208	1,652	1,618
7	South Kalimantan	27,648	27,095	8,370	8,203
8	Central Sulawesi	109,485	107,295	47,925	46,967
9	South East Sulawesi	144,342	141,455	54,821	53,724
10	South Sulawesi	112,617	110,365	51,161	50,138
11	Maluku	640,193	627,390	178,487	174,917
	<b>Total</b>	<b>1,450,729</b>	<b>1,421,714</b>	<b>517,322</b>	<b>506,975</b>

## b. Data from Regional office for Forest Inventory and Mapping (2000 data).

Data on bamboo survey from Regional Office for Forest Inventory and Mapping do not include mature bamboo. Mature bamboo data was estimated using conversion factor taken from NFI data where the ratio between commercial growing stock to total growing stock is 0.36 or 517,322/1,450,729.

The original data after converted to ton is as follows:

Provinces	2000	
	Bamboo Growing stock in tons	Comercial Bamboo Growing stock in tons
North Sumatera	23,940	8,618
West Sumatera	50,610	18,220
East Nusa Tenggara	32,718	11,778
Total	107,268	38,616

## c. Central Board of Statistics data.

The data is available for both 1990 and 2000. The original data is in number of clump per ha for both total bamboo and mature bamboo (commercial bamboo).

Categories	Total weight in tons	
	1990	2000
Bamboo Growing Stock	11,713,529	9,685,227
Comercial bamboo growing stock	7,790,292	7,152,672

Data for national reporting table will be the sum up of those three figures presented in point 4.2.3 a, b and c.

#### 4.3 Data for National Reporting Table T4

GBRA 2005 Categories	Total weight (tons)		
	1990	2000	2005
Bamboo Growing stock	13,164,258	11,214,209	
Comercial Bamboo Growing stock	8,307,614	7,698,263	
Growing stock of Common bamboo species	NA	NA	NA

Note: if possible, please (1) breakdown by species groups (2) include information on the minimum diameter used as thresholds and (3) provide coefficient of number of culms per a ton of weight

#### 4.4 Comments to National Reporting Table T4

## 5 Table T5 – Bamboo Biomass stock

### 5.1 GBRA 2005 Categories and definitions

Category	Definition
Above-ground biomass of Bamboo	All living biomass above the soil including stem, stump, branches, bark, seeds, and foliage.
Below-ground biomass of Bamboo	All living biomass of live roots. Fine roots of less than 2mm diameter are excluded because these often cannot be distinguished empirically from soil organic matter or litter.

### 5.2 National Data on Bamboo Resources

#### 5.2.1 Data sources

References	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments

#### 5.2.2 Classification and definitions

Category	Definition

#### 5.2.3 Original data

### 5.3 Data for National Reporting Table T5

GBRA 2005 Categories	Bamboo Biomass (million metric ton dry weight)		
	1990	2000	2005
Above-ground biomass of Bamboo	NA	NA	NA
Below-ground biomass of Bamboo	NA	NA	NA
Total of living biomass	NA	NA	NA
<b>TOTAL</b>	NA	NA	NA

### 5.4 Comments to National Reporting Table T5.

- Since there is no study or research on biomass stock calculation for bamboo resource in Indonesia we can not fill in table T5.

## 6 Table 6 – Diversity of bamboo tree species

### 6.1 GBRA 2005 Categories and definitions

Category	Definition
Number of native Bamboo species	The total number of native tree species that have been identified within the country.
Number of introduced Bamboo species	The total number of introduced tree species that have been identified within the country.
Number of critically endangered Bamboo species	The number of native tree species that are classified as “Critically endangered” in the IUCN red list.
Number of endangered Bamboo species	The number of native tree species that are classified as “Endangered” in the IUCN red list.
Number of vulnerable Bamboo species	The number of native tree species that are classified as “Vulnerable” in the IUCN red list.

### 6.2 National Data on Bamboo Resources

#### 6.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Widjaya, Elizabeth A, 1998. State of The Art of Indonesian Bamboo. Proceedings of training course cum workshop 10-17 May 1998, Kunming and Xishuanbanna, Yunnan, China	H	List of species	1998	

#### 6.2.2 Classification and definitions

Category	Definition
Number of native Bamboo species	The total number of native tree species that have been identified within the country.
Number of introduced Bamboo species	The total number of introduced tree species that have been identified within the country.
Number of critically endangered Bamboo species	The number of native tree species that are classified as “Critically endangered” in the IUCN red list.
Number of endangered Bamboo species	The number of native tree species that are classified as “Endangered” in the IUCN red list.
Number of vulnerable Bamboo species	The number of native tree species that are classified as “Vulnerable” in the IUCN red list.

### 6.3 Data for National Reporting Table T6

<b>GBRA 2005 Categories</b>	<b>Number of species (Year 2000)</b>
Native Bamboo species	118
Introduced Bamboo species	17
Critically endangered Bamboo species	-
Endangered Bamboo species	-
Vulnerable Bamboo species	-

### 6.4 Comments to National Reporting Table T6

- Indonesia has 135 bamboo species that belong to 21 genera. Seventeen of them are introduced species for ornamental purposes. 9 species are propagated in the botanical gardens.
- Among those species, 70 of them are endemic species.

## 7. Table T7 – Bamboo Removal

### 7.1 GBRA 2005 Categories and Definitions

Category	Definition
Bamboo Wood removal	The Bamboo wood removed (volume) for production of goods and services other than energy production (woodfuel).
Woodfuel Bamboo removal	The Bamboo wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

### 7.2 National Data on Bamboo Resources

#### 7.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Industrial Statistics, Survey of Manufacturing Industries, Large and Medium, Central board of statistics	H	Volume	1990	
Large and Medium Manufacturing Statistics, Central board of statistics	H	Volume	2000	The unit are in kg, m3 and culm

#### 7.2.2 Classification and definitions

National class	Definition
Manufacture of plaits made of bamboo	Explanation : Bamboo used as raw material for manufacture of plaits made of rattan and bamboo
Manufacture of product of wood, cork, sorted rattan and Coffin	Explanation : Bamboo used as raw material for manufacture of product of wood, cork, sorted rattan and Coffin
Manufacture of furniture and fixtures made of bamboo	Explanation : Bamboo used as raw material for manufacture of furniture and fixtures made of bamboo and/or rattan
Manufacture of product of kitchen utensils, made of bamboo	Explanation : Bamboo used as raw material for manufacture of product of kitchen utensils, made of wood, bamboo and rattan
Moulding and building components	Explanation : Preserved bamboo used as raw material for moulding and building components
Plaits made of bamboos	Explanation : Preserved bamboo used as raw material for plaits made of bamboos and rattan
Plaits from plants except rattan and	Explanation : Preserved bamboo used as raw material for plaits from plants except rattan and bamboo(there are still

bamboo	parts made of bamboo)
Wood carving except furniture	Explanation : Preserved bamboo used as raw material for wood carving except furniture
Kitchen utensil made of bamboo	Explanation : Preserved bamboo used as raw material for kitchen utensil made of wood, bamboo and rattan
Other goods made of bamboo	Explanation : Preserved bamboo used as raw material for other goods made of wood, rattan, cork and bamboo
Cultural papers	Explanation : Young bamboo used as raw material for cultural papers
Special paper	Explanation : Young bamboo used as raw material for special paper
Tissues paper	Explanation : Bamboo used as raw material for tissues paper

### 7.2.3 Original data

The figure of bamboo removal will be represented by the use of bamboo for manufacturing or industries. Recording on bamboo removal for domestic use such as housing material are not conducted so that there are no record in this matter. There is also no record on bamboo used for woodfuel.

#### a. 1990 Data

No	Description/Items	Unit	Volume	Remark
1	Manufacture of plaits made of bamboo	Culm	426,126	
2	Manufacture of product of wood, cork, sorted rattan and Coffin	Culm	4,151,230	Some parts are still used bamboo
3	Manufacture of furniture and fixtures made of bamboo	Culm	6,001	
4	Manufacture of product of kitchen utensils, made of bamboo	Culm	1,259,478	
	Total of bamboo used	Culm	5,842,835	

b. 2000 data.

The unit are in culm, kg and m3.

No	Description/ Items	Unit	Volume	Remark
1	Moulding and building components	Culm	47,827	
2	Plaits made of bamboos	Culm	183,062	
3	Plaits from plants except rattan and bamboo (there are still parts made of bamboo)	Culm	500	
4	Wood carving except furniture	Culm	9,000	
		m3	100	
5	Kitchen utensil made of bamboo	Culm	3,709,225	
		m3	155,883	
6	Other goods made of bamboo	Culm	283,000	
7	Cultural papers	kg	4,875,010	
8	Special paper	kg	178,511,112	
9	Tissues paper	Culm	21,492	
	Total of bamboo used	Culm	4,254,106	
		M3	155,983	
		Kg	183,386,122	

Estimation :

Estimation has been made to convert the unit from culm to kg. 1 culm = 7.5 kg (0.0075 ton)

a. 1990 data.

The 1990 data after converted to ton are as follows :

No	Description	Unit	Volume
1	Manufacture of plaits made of bamboo	Ton	3,196
2	Manufacture of product of wood, cork, sorted rattan and Coffin	Ton	31,134
3	Manufacture of furniture and fixtures made of bamboo	Ton	45
4	Manufacture of product of kitchen utensils, made of bamboo	Ton	9.446
	Total of bamboo used	Ton	<b>43,821</b>

## b. 2000 data

The figure with reporting unit in culms are converted to ton whereas the figure with reporting unit in m3 were not be able to be converted to ton since there is no conversion factor from m3 to ton. For that reason this figure will not be included in the estimation. The 2000 data after conversion are as follows:

No	Description	Unit	Volume	Remarks
1	Moulding and building components	Ton	359	
2	Plaits made of bamboos	Ton	1,373	
3	Plaits from plants except rattan and bamboo	Ton	4	Some parts are still made from bamboo
4	Wood carving except furniture	Ton	68	
5	Kitchen utensil made of bamboo	Ton	27,819	
6	Other goods made of bamboo	Ton	2,123	
7	Cultural papers	Ton	4,875	
8	Special paper	Ton	178,511	
9	Tissues paper	Ton	161	
	<b>Total Bamboo Used</b>	Ton	<b>215,292</b>	

## 7.3 Data for National Reporting Table T7

GBRA2005	Bamboo removal (x1000 tons)		
	1990	2000	2005
Bamboo wood removal	43.821	215.292	
Bamboo woodfuel removal			
Total	43.821	215.292	

## 7.4 Comments to National Reporting Table T7.

- The reporting unit used is 1000 tons, not in million ton since the figure is too small to be presented in million ton.
- The actual bamboo removal may be larger than the above figure since there is no record on domestic use of bamboo or bamboo used for traditional purposes.

**8 Table 8 – Value of Wood Removal****8.1 GBRA 2005 Categories and Definitions**

<b>Category</b>	<b>Definition</b>
Bamboo Wood removal	The Bamboo wood removed (volume ) for production of goods and services other than energy production (woodfuel).
Woodfuel Bamboo removal	The Bamboo wood removed for energy production purposes, regardless whether for industrial, commercial or domestic use.

**8.2 National Data****8.2.1 Data sources**

<b>References to sources of information</b>	<b>Quality (H/M/L)</b>	<b>Variable(s)</b>	<b>Year(s)</b>	<b>Additional comments</b>
Industrial Statistics, Survey of Manufacturing Industries, Large and Medium, Central Board of Statistics	H	Value	1990	Original value is in Rp
Large and Medium Manufacturing Statistics, Central Board of Statistics	H	Value	2000	Original value is in Rp

**8.2.2 Classification and definitions**

<b>National class</b>	<b>Definition</b>
Manufacture of plaits made of bamboo	Explanation : Bamboo used as raw material for manufacture of plaits made of rattan and bamboo
Manufacture of product of wood, cork, sorted rattan and Coffin	Explanation : Bamboo used as raw material for manufacture of product of wood, cork, sorted rattan and Coffin
Manufacture of furniture and fixtures made of bamboo	Explanation : Bamboo used as raw material for manufacture of furniture and fixtures made of bamboo and/or rattan
Manufacture of product of kitchen utensils, made of bamboo	Explanation : Bamboo used as raw material for manufacture of product of kitchen utensils, made of wood, bamboo and rattan
Moulding and building components	Explanation : Preserved bamboo used as raw material for moulding and building components
Plaits made of bamboos	Explanation : Preserved bamboo used as raw material for plaits made of bamboos and rattan
Plaits from plants except rattan and	Explanation : Preserved bamboo used as raw material for plaits from plants except rattan and bamboo(there are still

bamboo	parts made of bamboo)
Wood carving except furniture	Explanation : Preserved bamboo used as raw material for wood carving except furniture
Kitchen utensil made of bamboo	Explanation : Preserved bamboo used as raw material for kitchen utensil made of wood, bamboo and rattan
Other goods made of bamboo	Explanation : Preserved bamboo used as raw material for other goods made of wood, rattan, cork and bamboo
Cultural papers	Explanation : Young bamboo used as raw material for cultural papers
Special paper	Explanation : Young bamboo used as raw material for special paper
Tissues paper	Explanation : Bamboo used as raw material for tissues paper

### 8.2.3 Original data

As in Table 8, value of bamboo removal will be represented by the use of bamboo for manufacturing or industries. Recording on bamboo removal for domestic use such as housing material are not conducted so that there is no record in this matter. There is also no record for bamboo used for woodfuel.

#### b. 1990 Data

The original data is in Indonesian Rupiah (IDR). The value was then be converted into USD using the following exchange rate USD1 = Rp1,901.

No	Description/Items	Value (USD1000)	Remark
1	Manufacture of plaits made of bamboo	258	
2	Manufacture of product of wood, cork, sorted rattan and Coffin	2,141	Some parts are still used bamboo
3	Manufacture of furniture and fixtures made of bamboo	4	
4	Manufacture of product of kitchen utensils, made of bamboo	710	
	<b>Total of bamboo used</b>	<b>3,113</b>	

c. 2000 data.

The exchange rate is USD1 = Rp9,594,96

No	Description/ Items	Value (USD1000)	Remark
1	Moulding and building components	168	
2	Plaits made of bamboos	774	
3	Plaits from plants except rattan and bamboo (there are still parts made of bamboo)	0	
4	Wood carving except furniture	2	
		78	
5	Kitchen utensil made of bamboo	1,007	
		6	
6	Other goods made of bamboo	47	
7	Cultural papers	44	
8	Special paper	2,310	
9	Tissues paper	5	
	<b>Total of bamboo used</b>	<b>4,441</b>	

### 8.3 Data for National Reporting Table T8

GBRA2005	Value (USD1000)		
	1990	2000	2005
Bamboo wood removal	3,113	4,441	
Bamboo woodfuel removal			
<b>Total</b>	<b>3,113</b>	<b>4,441</b>	

### 8.4 Comments to National Reporting Table T8

Same as in Table T7, actual value of bamboo removal may be higher than the figure presented in this table since there is no record on domestic use of bamboo and bamboo for fuelwood.

## 9 Table 9 – Non Wood Bamboo Product Removal

### 9.1 GBRA2005 Categories and Definitions

<b>Category</b>
<b><u>Plant products / raw material</u></b>
1. Food
2. Raw material for medicine and aromatic products
3. Raw material for utensils, handicrafts & construction
4. Ornamental plants
5. Other plant products
<b><u>Animal products / raw material</u></b>
1. Living animals
2. Other edible animal products
3. Other non-edible animal products

### 9.2 National Data on Bamboo Resources

#### 9.2.1 Data sources

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Indonesia Foreign Trade Statistics, Export, Central Board of Statistics	H	Volume	1991	Used as 1990 data
Indonesia Foreign Trade Statistics, Export, Central Board of Statistics	H	Volume	2000	Used as 2000 data

#### 9.2.2 Classification and definitions

#### 9.2.3 Original data

The data used for this table is the export data for 1991 and 2000. We used this approach since the use of NWFP from bamboo other than for export purposes is not available.

The original data are as follow :

No.	Descriptions/ Items	HScode	Volume (kg)	
			1990	2000
1.	Bamboo shoots in airtight container frozen	200490110	NA	658,224

### 9.3 Data for National Reporting Table T9

GBRA 2005 Categories	Scale factor	Unit	NWFP removal		
			1990	2000	2005
<b>Plant products / raw material</b>					
1. Food (bamboo shoots)	-	Kg	NA	658,224	NA
2. Raw material for medicine and aromatic products			NA	NA	NA
3. Raw material for utensils, handicrafts & construction			NA	NA	NA
4. Ornamental plants			NA	NA	NA
5. Other plant products			NA	NA	NA
<b>Animal products / raw material (if any)</b>					
1. Living animals			NA	NA	NA
2. Other edible animal products			NA	NA	NA
3. Other non-edible animal products			NA	NA	NA

### 9.4 Comments to National Reporting Table T9

- The actual NWFP removal from bamboo may be higher than the figure present in Table T9 since the bamboo shoot presented in this table is only the part of bamboo shoots removal. Many people, especially in rural area, consume bamboo shoots for their daily food.
- Bamboo materials used for utensils, handicrafts & construction are presented in Table 7 to avoid double counting.

**10 Table T10– Value of Non Wood Bamboo Product****10.1 GBRA 2005 Categories and Definitions****10.2 National Data on Bamboo Resources****10.2.1 Data sources**

References to sources of information	Quality (H/M/L)	Variable(s)	Year(s)	Additional comments
Indonesia Foreign Trade Statistics, Export , Central of Board Statistics	H	Volume	1991	Used as 1990 data
Indonesia Foreign Trade Statistics, Export , Central of Board Statistics	H	Volume	2000	Used as 2000 data

**10.2.2 Classification and definitions****10.2.3 Original data**

Same as in Table T9, export data for 1991 and 2000 will be used for Table T10. We used this approach since the use of NWFP from bamboo other than for export purposes is not available.

In this table 1 USD = Rp9,594.96. The original data are as follow :

No.	Descriptions/ Items	HScode	Value (USD)	
			1990	2000
1.	Bamboo shoots in airtight container frozen	200490110	NA	347,275

**10.3 Data for National Reporting Table T10**

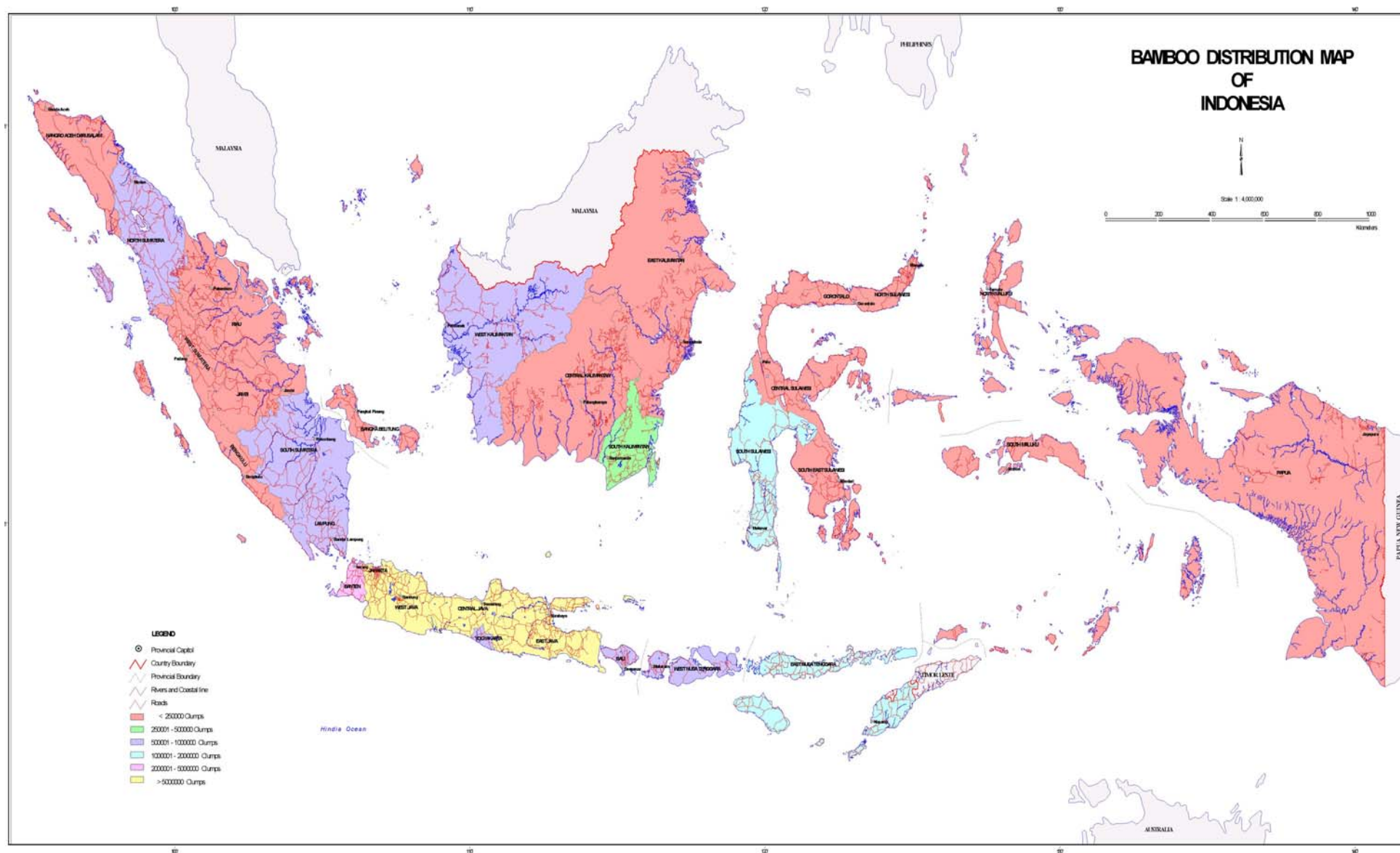
GBRA 2005 Categories	Value of the other than culms removal (Million USD)		
	1990	2000	2005
<b>Plant products / raw material</b>			
1. Food (bamboo shoots)	NA	0.347	NA
2. Raw material for medicine and aromatic products	NA	NA	NA
3. Raw material for utensils, handicrafts & construction	NA	NA	NA
4. Ornamental plants	NA	NA	NA
5. Other plant products			

#### **10.4 Comments to National Reporting Table T10**

- Same as in Table T9, the actual value of NWFP from bamboo is higher than the figure in this table.
- Value of bamboo materials used for utensils, handicrafts & construction are presented in Table T7 to avoid double counting.

## **11 Map of country's bamboo resources distribution**

This map indicates the distribution of bamboo based on the number of clumps for each province. The color represents the class of total number of clumps in each province. The data represented in this map is derived from agriculture survey done by Central board of Statistics. Eventhough the map does not represent the real figure of bamboo for the whole country the map depict the rough distribution of bamboo especially bamboo owned by the farmer nationally.



**12 List of bamboo species in Indonesia (from: State of the art of Indonesian Bamboo by Elizabeth A Widjaja. Herbarium Bogoriense, Puslitbang Biologi - LIPI, Bogor, Indonesia).**

1. *Arundinaria amabilis*
2. *Arundinaria hindsii*
3. *Bambusa angulata*
4. *Bambusa balcooa*
5. *Bambusa bambos*
6. *Bambusa blumeana*
7. *Bambusa brevispicula*
8. *Bambusa glaucophylla*
9. *Bambusa heterostachya*
10. *Bambusa jajang*
11. *Bambusa lako*
12. *Bambusa maculata*
13. *Bambusa multiplex*
- 13 a. B.m "alponsokarr"
- 13 b. B.m "fernleaf "
- 13.c. B.m riviereorum
- 13.d. B.m "silver stripe"
14. *Bambusa oldhamii*
15. *Bambusa polymorpha*
16. *Bambusa riauensis*
17. *Bambusa tulda*
18. *Bambusa tuldoides*
19. *Bambusa viridis*
20. *Bambusa vulgaris*
21. *Cephalostachyum pergacile*
22. *Chimonobambusa marmorea*
23. *Dendrocalamus asper*
24. *Dendrocalamus bengkalisensis*
25. *Dendrocalamus brandisii*
26. *Dendrocalamus buar*
27. *Dendrocalamus giganteus*
28. *Dendrocalamus hait*
29. *Dendrocalamus hirtellus*
30. *Dendrocalamus latiflorus*
31. *Dendrocalamus membranaceus*
32. *Dendrocalamus strictus*
33. *Dinochloa albociliata*
34. *Dinochloa barbata*
35. *Dinochloa cordata*
36. *Dinochloa darvelana*
37. *Dinochloa erecta*
38. *Dinochloa glabrescens*
39. *Dinochloa hirsuta*
40. *Dinochloa kostermansiana*
41. *Dinochloa pubiramea*
42. *Dinochloa scabrida*

43. *Dinochloa scandens*
44. *Dinochloa trichogona*
45. *Dinochloa truncata*
46. *Dinochloa* sp1. (*pusila*)
47. *Dinochloa* sp2. (*pinogua*)
48. *Dinochloa* sp3.
49. *Fimbribambusa horsfieldii*
50. *Fimbribambusa microcephala*
51. *Gigantochloa achmadii*
52. *Gigantochloa apus*
53. *Gigantochloa atroviolacea*
54. *Gigantochloa atter*
55. *Gigantochloa balui*
56. *Gigantochloa calcicola*
57. *Gigantochloa hasskarliana*
58. *Gigantochloa hirtinoda*
59. *Gigantochloa kuring*
60. *Gigantochloa longiprophylla*
61. *Gigantochloa luteostriata*
62. *Gigantochloa manggong*
63. *Gigantochloa magenta*
64. *Gigantochloa membranoidea*
65. *Gigantochloa nigrociliata*
66. *Gigantochloa papyracea*
67. *Gigantochloa pruriens*
68. *Gigantochloa pseudoarundinacea*
69. *Gigantochloa pubinervis*
70. *Gigantochloa pubipetiolata*
71. *Gigantochloa ridleyi*
72. *Gigantochloa robusta*
73. *Gigantochloa scortechinii*
74. *Gigantochloa serik*
75. *Gigantochloa* cf.. *thoii*
76. *Gigantochloa tomentosa*
77. *Gigantochloa velutina*
78. *Gigantochloa wrayi*
79. *Gigantochloa* sp1
80. *Gigantochloa* sp2
81. *Melocana baccifera*
82. *Nastus elatoides*
83. *Nastus elegantissimus*
84. *Nastus glaucus*
85. *Nastus holttumianus*
86. *Nastus obtusus*
87. *Nastus productus*
88. *Nastus reholttumianus*
89. *Nastus rudimentifer*
90. *Nastus schmutzii*
91. *Neololeba amahussana*
92. *Neololeba anarita*

93. *Neololeba atra*
94. *Neololeba glabra*
95. *Neololeba hirsuta*
96. *Oxytenanthera abyssinica*
97. *Parabambusa kaini*
98. *Phyllostachys aurea*
98. a. Ph.a, var. *flavescenceinverse*
99. *Phyllostachys nigra*
100. *Pleiobastus chino* var. *vaginatus*
101. *Pinga marginata*
102. *Racemobambos celebica*
103. *Racemobambos ceramica*
104. *Racemobambos kutaiensis*
105. *Racemobambos raynaldii*
106. *Racemobambos rupicola*
107. *Racemobambos scultzii*
108. *Racemobambos sessilis*
109. *Schizostachyum aequiramosum*
110. *Schizostachyum alopecurus*
111. *Schizostachyum atrocingulare*
112. *Schizostachyum bamban*
113. *Schizostachyum blumei*
114. *Schizostachyum brachycladum*
115. *Schizostachyum castaneum*
116. *Schizostachyum caudatum*
117. *Schizostachyum cornutum*
118. *Schizostachyum cuspidatum*
119. *Schizostachyum flexuosum*
120. *Schizostachyum lengguanii*
121. *Schizostachyum glaucocladum*
122. *Schizostachyum grande*
123. *Schizostachyum iraten*
124. *Schizostachyum latifolium*
125. *Schizostachyum lima*
126. *Schizostachyum lutescens*
127. *Schizostachyum mampouw*
128. *Schizostachyum silicatum*
129. *Schizostachyum terminale*
130. *Schizostachyum undulatum*
131. *Schizostachyum zollingeri*
132. *Semiarundinaria fastuosa*
133. *Shibatea kumasaca*
134. *Sphaerobambos subtilis*
135. *Thyrsostachys siamensis*