

**Food and Agriculture Organization of the United Nations,
Forestry Department**

and



International Network for Bamboo and Rattan (INBAR)

**GLOBAL FOREST RESOURCES
ASSESSMENT UPDATE 2005**

SRI LANKA

**COUNTRY REPORT
ON
BAMBOO RESOURCES**

FOREST DEPARTMENT, MARCH, 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) 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) with the copy to FAO (kailash.govil@fao.org) as a part of GFRA.

General information

| | |
|---|--------------------|
| Country: | Sri Lanka |
| National Correspondent: (Name and contact information) | Anura Sathrusinghe |
| Other professionals involved in the reporting process: | |
| Date of submission of 1st draft: | March 1 2005 |
| Date of submission of 2nd draft | April 1 2005 |
| | |
| Date of submission of final report | May 1 2005 |

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. |

1.2 National Data on Bamboo Resources

1.2.1 Data sources

| References | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|--|-----------------|----------------------------|---------|---------------------|
| Neela de Zoysa, Upeksha Hettige and K.Vivekanandan 1988. Some Aspects of Bamboo and its Utilization in Sri Lanka.:6-11.Bamboo Current research, Proc. International Bamboo Workshop, India | H | Species List | 1988 | |
| P.A.Swarnamali and K.Vivekanandan 1991. The Bamboo Resource in Sri Lanka.: 37-40. Proc. 4 th International Bamboo Workshop | M | Species and Extent Planted | 1991 | |

1.2.2 Classification and definitions

| National class | Definition |
|----------------|------------|
| - | - |

1.2.3 Original data

1.3 Data for National Reporting Table T1

| GBRA 2005 Categories | Area (1000 hectares) | | |
|------------------------|----------------------|--------------|---------------|
| | 1990 | 2000 | 2005 |
| Bamboo on forest land | | | |
| Monopodial bamboo area | 1,221.32 | 989.4 | 742.45 |
| Sympodial bamboo area | | | |
| TOTAL | 1,122.32 | 989.4 | 742.45 |

1.4 Comments to National Reporting Table T1

Including information on the minimum area on which information is collected

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 |
|--|-----------------|----------------------------|---------|---------------------|
| Neela de Zoysa, Upeksha Hettige and K.Vivekanandan 1988. Some Aspects of Bamboo and its Utilization in Sri Lanka.:6-11.Bamboo Current research, Proc. International Bamboo Workshop, India | H | Species List | 1988 | |
| P.A.Swarnamali and K.Vivekanandan 1991. The Bamboo Resource in Sri Lanka.: 37-40. Proc. 4 th International Bamboo Workshop | M | Species and Extent Planted | 1991 | |

2.2.2 Classification and definitions

| National class (Bamboo) | Definition |
|-------------------------|------------|
| | |

2.2.3 Original data

2.3 Data for National Reporting Table T2

| GBRA 2005 Categories | Area (1000 ha) | |
|----------------------|-----------------|--------------|
| | 1990 | 2000 |
| Private ownership | | |
| Public ownership | 1,221.32 | 989.4 |
| Other ownership | | |
| Total | 1,221.32 | 989.4 |

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 |
|--|-----------------|----------------------------|---------|---------------------|
| Neela de Zoysa, Upeksha Hettige and K.Vivekanandan 1988. Some Aspects of Bamboo and its Utilization in Sri Lanka.:6-11.Bamboo Current research, Proc. International Bamboo Workshop, India | H | Species List | 1988 | |
| P.A.Swarnamali and K.Vivekanandan 1991. The Bamboo Resource in Sri Lanka.: 37-40. Proc. 4 th International Bamboo Workshop | M | Species and Extent Planted | 1991 | |

3.2.2 Classification and definitions

| National class | Definition |
|----------------|------------|
| | |

3.2.3 Original data

3.3 Data for National Reporting Table T3

| GBRA 2005 Categories | Area (1000 hectares) | | |
|-----------------------|----------------------|---------------|---------------|
| | 1990 | 2000 | 2005 |
| Natural bamboo forest | 1,221.32 | 989.40 | 742.45 |
| Plantation | 2.66 | 2.71 | 2.81 |
| TOTAL | 1,223.98 | 992.11 | 745.26 |

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 |
|------------|-----------------|-------------|---------|---------------------|
| | | | | |

4.2.2 Classification and definitions

| Category | Definition |
|----------|------------|
| | |

4.2.3 Original data – No data available on growing stock

4.3 Data for National Reporting Table T4

| GBRA 2005 Categories | Total weight (tons) | | |
|----------------------|---------------------|------|------|
| | 1990 | 2000 | 2005 |
| Bamboo Growing stock | | | |
| | | | |

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 | | | |
| Below-ground biomass of Bamboo | | | |
| Total of living biomass | | | |
| TOTAL | | | |

5.4 Comments to National Reporting 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 |
|--|-----------------|----------------------------|---------|---------------------|
| Neela de Zoysa, Upeksha Hettige and K.Vivekanandan 1988. Some Aspects of Bamboo and its Utilization in Sri Lanka.:6-11.Bamboo Current research, Proc. International Bamboo Workshop, India | H | Species List | 1988 | |
| P.A.Swarnamali and K.Vivekanandan 1991. The Bamboo Resource in Sri Lanka.: 37-40. Proc. 4 th International Bamboo Workshop | M | Species and Extent Planted | 1991 | |

6.2.2 Classification and definitions

| Category | Definition |
|----------|------------|
| | |

6.3 Data for National Reporting Table T6

| GBRA 2005 Categories | Number of species (Year 2000) |
|--------------------------------------|-------------------------------|
| Native Bamboo species | 10 |
| Introduced Bamboo species | 20 (7 + 13)* |
| Critically endangered Bamboo species | |
| Endangered Bamboo species | 1 |
| Vulnerable Bamboo species | |

6.4 Comments to National Reporting Table T6

Native Bamboo species are found in the natural forest areas while introduced species (20) are found as plantations owned by the state, or on private lands as well as confined to Botanic Gardens and some times as ornamental species.

Out of 20 introduced species mentioned above, 7 species have been planted as commercial plantations while balance 13 species are restricted to the botanic gardens.

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 |
|---|-----------------|--|---------|---------------------|
| P.A.Swarnamali and K.Vivekanandan 1991. The Bamboo Resource in Sri Lanka.: 37-40. Proc. 4 th International Bamboo Workshop | L | Districts and no.of permits issued for transport | 1991 | |

7.2.2 Classification and definitions

| National class | Definition |
|----------------|------------|
| | |

7.2.3 Original data

7.3 Data for National Reporting Table T7

| GBRA2005 | Bamboo removal (million ton) | | |
|-------------------------|------------------------------|-----------------|-----------------|
| | 1990 | 2000 | 2005 |
| Bamboo wood removal | 271,173 culms* | 1,000,000 culms | 1,500,000 culms |
| Bamboo woodfuel removal | N/a | N/a | N/a |
| Total | | | |

7.4 Comments to National Reporting Table T7

The table refers only to a single species – *Bambusa vulgaris* which has the highest demand as a raw material for construction purposes. The figures represent only the permits issued by the state when bamboo culms are transported by road. In fact, a great no of bamboo are cut and used in rural areas and therefore are not recorded. Consequently the actual figures for culm production may be two or three times greater than the figure presented for year 1990 and therefore estimations for 2000 and 2005 were made accordingly.

8 Table 8 – Value of Wood Removal

8.1 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. |

8.2 National Data

8.2.1 Data sources

| References to sources of information | Quality (H/M/L) | Variable(s) | Year(s) | Additional comments |
|--|-----------------|----------------------------|---------|---------------------|
| Neela de Zoysa, Upeksha Hettige and K.Vivekanandan 1988. Some Aspects of Bamboo and its Utilization in Sri Lanka.:6-11.Bamboo Current research, Proc. International Bamboo Workshop, India | H | Species List | 1988 | |
| P.A.Swarnamali and K.Vivekanandan 1991. The Bamboo Resource in Sri Lanka.: 37-40. Proc. 4 th International Bamboo Workshop | M | Species and Extent Planted | 1991 | |

8.2.2 Classification and definitions

| National class | Definition |
|----------------|------------|
| | |

8.2.3 Original data

8.3 Data for National Reporting Table T8

| GBRA2005 | Value (million USD) | | |
|-------------------------|---------------------|------|------|
| | 1990 | 2000 | 2005 |
| Bamboo wood removal | | | |
| Bamboo woodfuel removal | | | |
| Total | | | |

8.4 Comments to National Reporting Table T8

9 Table 9 – Non Wood Bamboo Product Removal

9.1 GBRA2005 Categories and Definitions

| Category |
|--|
| <u>Plant products / raw material</u> |
| 1. Food |
| 2. Raw material for medicine and aromatic products |
| 3. Raw material for utensils, handicrafts & construction |
| 4. Ornamental plants |
| 5. Other plant products |
| <u>Animal products / raw material</u> |
| 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 |
|---|------------------------|---------------------------------|----------------|----------------------------|
| Neela de Zoysa, Upeksha Hettige and K.Vivekanandan 1988. Some Aspects of Bamboo and its Utilization in Sri Lanka.:6-11. Bamboo Current research, Proc. International Bamboo Workshop, India | H | Species List and different uses | 1988 | |
| P.A.Swarnamali and K.Vivekanandan 1991. The Bamboo Resource in Sri Lanka.: 37-40. Proc. 4 th International Bamboo Workshop | M | | 1991 | |

9.2.2 Classification and definitions – Not available

9.2.3 Original data

Data given below are based on limited information available as mentioned above and expert consultations and personnel communications. No quantitative data are available.

9.3 Data for National Reporting Table T9

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

9.4 Comments to National Reporting Table T9

In addition to above, Bamboo is planted along stream banks as a soil stabilizer to prevent soil erosion.

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 |
|--------------------------------------|-----------------|-------------|---------|---------------------|
| | | | | |

10.2.2 Classification and definitions

10.2.3 Original data

10.3 Data for National Reporting Table T10

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

10.4 Comments to National Reporting Table T10

11 Map of country's bamboo resources distribution

Please attach a map of bamboo distribution in the country with explanatory notes

Sri Lanka possesses an extremely poor bamboo flora which consists only of ten species. A remarkable feature, however, is the high degree of endemism (80%) with one genus (*Davidsea*) and eight species being reported as unique to the country (Table 12).

Of the 10 species, *Bambusa bambos* and *Dendrocalamus cinctus* are confined to the dry zone of the country. Of these, the latter is very restricted in distribution and is known only from one or two isolated forested inselbergs such as Ritigala located in the North-central region of the country. A third species, *Ochlandra stridula*, is found extensively in the wet lowlands of the south-western region. The remaining seven species are found in the high altitudinal montane areas of the country (Map). The natural habitat of most of the bamboo species is the forest under-storey. The exceptions are species confined to special habitats such as *Dendrocalamus cinctus*, and *Arundinaria scandens* which have been reported from windswept mountain tops and *A.densifolia* from low temperature swamps within the montane grasslands.

12 List of bamboo species in the country

Please attach list of the main bamboo species in the country

Native Species

1. *Arundinaria densifolia**
2. *Arundinaria debilis**
3. *Arundinaria scandens**
4. *Arundinaria floribunda**
5. *Arundinaria walkeriana**
6. *Pseudoxylanthera monodelpha**
7. *Davidsea attenuata**#
8. *Ochlandra stridula**
9. *Dendrocalamus cinctus**
10. *Bambusa bambos*

* - Endemic Species , *# - Endemic Genus

Introduced Species

1. *Bambusa vulgaris*
2. *Bambusa multiplex*
3. *Dendrocalamus giganteus*
4. *Dendrocalamus membranaceus*
5. *Dendrocalamus asper*
6. *Dendrocalamus strictus*
7. *Thyrostachys siamensis*

8. *Arundinaria hindsii*
9. *Bambusa polymorpha*
10. *Bambusa tulda*
11. *Bambusa ventricosa*
12. *Dendrocalamus hamiltonii*
13. *Dendrocalamus lengispathus*
14. *Gigantochloa alter*
15. *Melaccana baccifera*

List main uses, quantity, value of the bamboo removal – Please see the attached table

Add the table: list of the main pest species – No records available on pests