



MINISTRY OF FORESTRY  
FOREST DEPARTMENT, MYANMAR

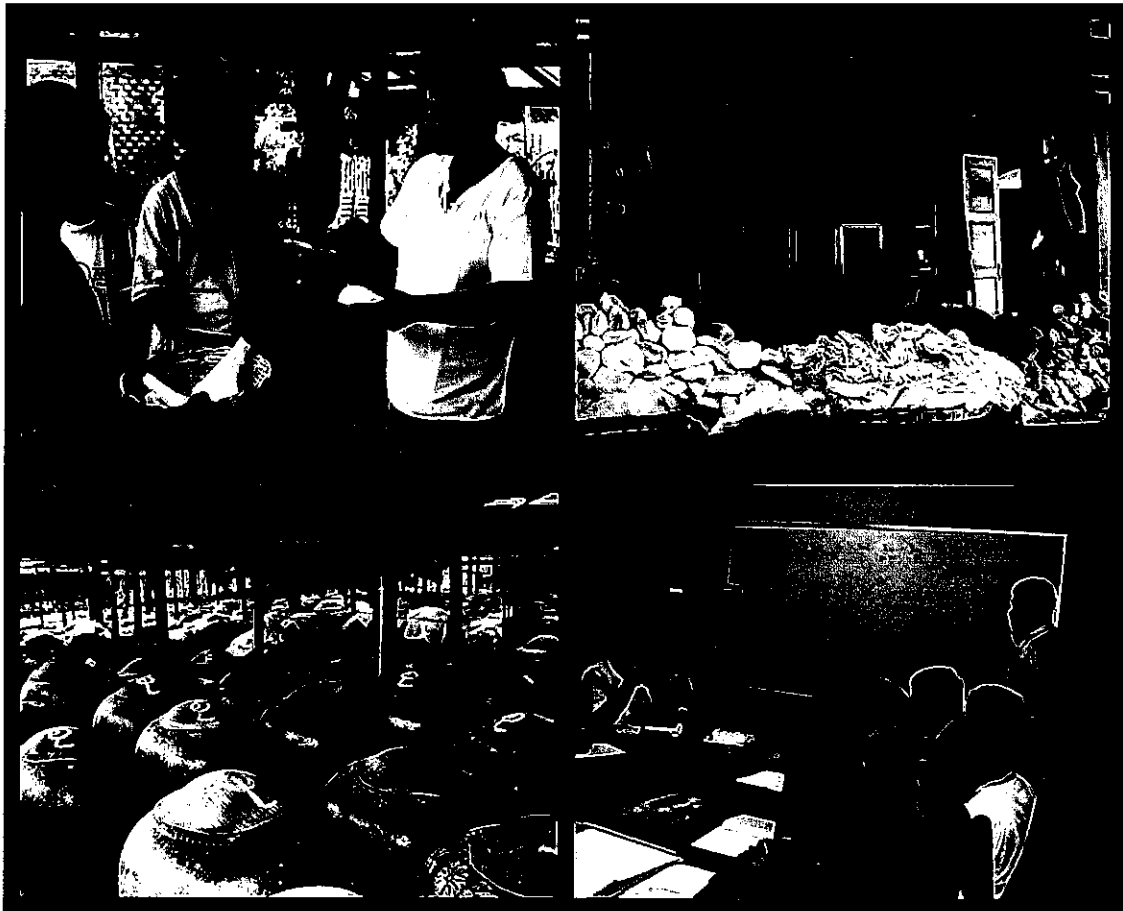


AND  
**INTERNATIONAL TROPICAL TIMBER ORGANIZATION**

ITTO Project PD 146/02 Rev.1(I)

Promoting Sustainable Utilization of Bamboo through Community Participation in  
Sustainable Forest Management

### **Current Market Situation of Bamboo Shoot in Myanmar and Market Expansion Potential**



Yangon  
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## I. EXECUTIVE SUMMARY

Current bamboo shoot consumption in Myanmar is estimated at 47,300 tons per year, accounted for rural village consumption 70% and urban city market 30%.

Harvested from natural forests, raw bamboo shoots are available all over Myanmar and widely consumed as a seasonal food during the period of June to August. In the remaining period of year, preserved bamboo shoots are sold in urban city markets, but not available in rural villages and remote towns.

Bamboo shoot processing business in Myanmar is in the stage of cottage industry and yet to be developed. With traditional preservation methods, the processed bamboo shoots produced from the cottage industry are not of quality for export. They are intended for local consumption only.

Having annual consumption of 6,153 tons, Yangon is the biggest local bamboo shoot market in Myanmar. Thirimingalar Market is a major wholesale market in Yangon, where bamboo shoots from Pyay dominate the market. Mandalay, with annual consumption of 2,646 tons, is the second largest bamboo shoot market in Myanmar. Zaycho is a Major wholesale market in Mandalay. Mogoike, Moenyin, Katha, and Pyin Oo Lwin are major suppliers of bamboo shoots to Mandalay market. Pyinmana is a well-known place in Myanmar for its famous pickled bamboo shoot.

Except a small quantity of dried or dehydrated bamboo shoot, there is no export of processed bamboo shoot from Myanmar to the world market through normal trade. However, Myanmar exports a considerably big quantity of raw bamboo shoots across border areas to Thailand, which has processing plants with modern equipments along the border. It is very likely that Myanmar bamboo shoots are processed in Thailand<sup>1</sup> and exported to the world market as a Thai product, together with bamboo shoots of Thai origin.

In this market survey, the following possibilities are identified for market expansion:

1. Domestic market expansion to rural villages and remote towns, where preserved bamboo shoots are not available in off-harvesting season, and disseminating the traditional preservation methods used in cottage industries in Myanmar;
2. Export market expansion by joint-venturing with foreign business enterprises from exporting countries, namely China and Thailand, or from importing countries, particularly Japan and Taiwan;
3. Developing bamboo-shoot-based new food products and creating new bamboo shoot food product markets.

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<sup>1</sup> Thailand is the second largest bamboo shoot exporter in the world, after China.

All the bamboo shoots commercially produced in Myanmar are from natural forests. Sustainable utilization will be needed to conserve bamboo in the natural forests. To date, there is no bamboo plantation for commercial bamboo shoot production purpose in Myanmar.

It is suggested that commercial plantation of selected bamboo species that have demand from the world bamboo shoot market should certainly contribute to the expansion of export markets. Likewise, high price for bamboo shoot demanded from export market will certainly drive the local farmers to do bamboo plantation.

## II. INTRODUCTION

### Background to the Study

Myanmar possesses more than 90 species of bamboo occupying 25 percent of total land area. Bamboo is mostly consumed by the rural population for food, shelter, energy, and many others purposes. Annual bamboo production in Myanmar is estimated at over 1 billion pieces.

Although Myanmar has abundant bamboo forest areas, preventative measures should be taken against gradual depletion of the forests, as over exploitation of bamboo exists in some rural areas. In view of that, the Forest Department under the Ministry of Forestry of Myanmar and International Tropical Timber Organization of Japan have been jointly conducting a project entitled Promoting Sustainable Utilization of Bamboo Through Community Participation in Sustainable Forest Management since 2003. The project period is 4 years.

The objectives of the project are to enhance socioeconomic benefits of bamboo to rural communities through their active participation in sustainable bamboo forest management and utilization of bamboo forests, and to develop technical guidelines for quality production of bamboo products in Myanmar.

The project has been implementing the following 3 sections:

- Bamboo Forest Management;
- Bamboo Products Processing;
- Bamboo Products Extension and Marketing.

Bamboo Forest Management Section has been undertaking sustainable management of natural bamboo forests and extension of bamboo plantation. Simultaneously, Bamboo Products Processing Section has also been engaged in shaping the activities of Bamboo Shoot Co-operatives and Bamboo Product Co-operatives. Bamboo Products Extension and Marketing Section will provide market information for the products to be manufactured by the two co-operatives for the formulation of appropriate marketing strategy.

### Objectives of Study

The objectives of this research are to collect information on current market situation of bamboo shoot in Myanmar and to explore market expansion potential. The findings of this survey will be disseminated not only to the two co-operatives for the formulation of appropriate marketing strategy but also to other parties involved in bamboo product industry in Myanmar to enhance the production of quality products. Eventually, this study will contribute to the overall objective of rural community participation in sustainable forest management in Myanmar.

## **Research Methodology**

The methodology applied in this research project included two parts: literature review and field survey. First, the research team reviewed all news, statistical figures, and facts published in newspapers, journals, magazines, booklets and books in Myanmar; official data released by the relevant government departments; and international marketing data about bamboo shoots over the Internet. Second, a market survey was conducted interviewing with bamboo shoot farmers, collectors, retailers and wholesalers. Additionally, the interviews with exporters of bamboo shoots were also included. Well-structured questionnaires were used throughout the survey.

## **Research Team**

The research project was undertaken by a team of 12 researchers: six from the Forest Department led by U Khin Maung Oo, Assistant Director of Forest Department, and six from the Myanmar Survey Research led by U Kyaw Hlaing, Research Director.

## **Research Place and Period**

Interviews were conducted:

- with bamboo shoot farmers, collectors, local wholesalers in Mandalay, Pyinmana, Pyay, Taungoo, Hmawbi, Taik Kyi, and Hle Guu townships;
- with major wholesalers and exporters in Yangon, Mandalay, Pyinmana, and Pyay;
- with retailers and consumers in Yangon and Mandalay.

This research project was started on 26 September 2005 and completed on 30 November 2005.



### III. OVERVIEW OF BAMBOO SHOOT MARKET IN MYANMAR

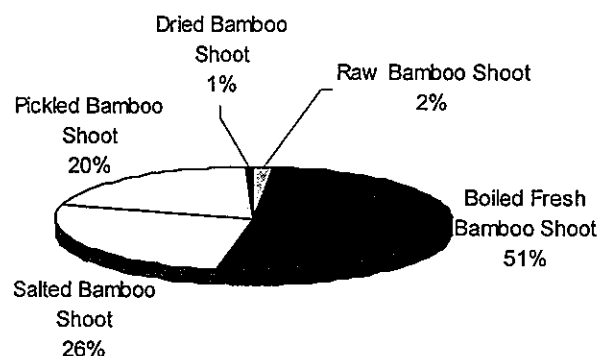
There are two segments of bamboo shoot market in Myanmar: 1) Urban City Market (year-round market) and 2) Rural Remote Town and Village Market (seasonal market). Estimation of market size is as follows:

Type of Market	Market size (Ton)
Urban City Market (Year-Round Market)	15,340
Rural remote town and village market (Seasonal Market)	31,960
<b>Total</b>	<b>47,300</b>

Bamboo shoots available in Myanmar can be categorized into five groups: 1) raw bamboo shoot (*Hmyit Sein*), 2) boiled fresh bamboo shoots (*Hmyit Pyote* or *Hmyit Cho*), 3) salted bamboo shoot (*Hmyit Sasein*), 4) pickled bamboo shoot (*Hmyit Chin*), and 5) dried bamboo shoot (*Hmyit Chyauk*). Their market shares are presented below.

Types of Bamboo Shoot	Market Volume (Ton)	Market Share
Raw Bamboo Shoot	757	1.6 %
Boiled Fresh Bamboo Shoot	24,359	51.5 %
Salted Bamboo Shoot	12,393	26.2 %
Pickled Bamboo Shoot	9,555	20.2 %
Dried Bamboo Shoot	236	0.5 %
	<b>47,300</b>	<b>100.0%</b>

Types of Bamboo Shoot Available in The Market



Boiled fresh bamboo shoots, salted bamboo shoots, pickled bamboo shoots, and dried bamboo shoots are available in urban city markets. However, only non-preserved bamboo shoots, namely raw bamboo shoots and boiled fresh bamboo shoots, are available in the rural remote town and village markets.

Market	Available bamboo shoots				
	Raw	Boiled Fresh	Salted	Pickled	Dried
Urban City Market		√	√	√	√
Rural remote town and village market	√	√			

Harvesting season of bamboo shoot in Myanmar is during June-August. Raw bamboo shoots and boiled fresh bamboo shoots are widely available all over Myanmar during the harvesting season. In the off-harvesting season, only preserved bamboo shoots, namely salted bamboo shoot, pickled bamboo shoots, and dried bamboo shoots are available.

Table showing available bamboo shoots in each month of the year

Bamboo shoot	Months											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Raw					√	√	√	√	√			
Boiled Fresh					√	√	√	√	√			
Salted	√	√	√	√	√				√	√	√	√
Pickled	√	√	√	√	√	√	√	√	√	√	√	√
Dried	√	√	√	√	√				√	√	√	√

Table showing available bamboo shoots in each month of the year in each market segment.

Market	Bamboo Shoot	Months											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Urban (Year-round market)	Raw												
	Boiled Fresh					✓	✓	✓	✓	✓			
	Salted	✓	✓	✓	✓	✓				✓	✓	✓	✓
	Pickled	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Dried	✓	✓	✓	✓	✓				✓	✓	✓	✓
Rural (Seasonal Market)	Raw					✓	✓	✓	✓	✓			
	Boiled Fresh					✓	✓	✓	✓	✓			
	Salted												
	Pickled												
	Dried												

In urban city markets bamboo shoots are available all the year round— during the harvesting season, boiled fresh bamboo shoots are sold; in off-harvesting seasons, preserved bamboo shoots are available.

However, in rural markets bamboo shoots are available only in the harvesting season as a seasonal food. There is no bamboo shoot available in off-harvesting seasons in rural markets, indicating an opportunity to expand the preserved bamboo shoot market in the rural areas.

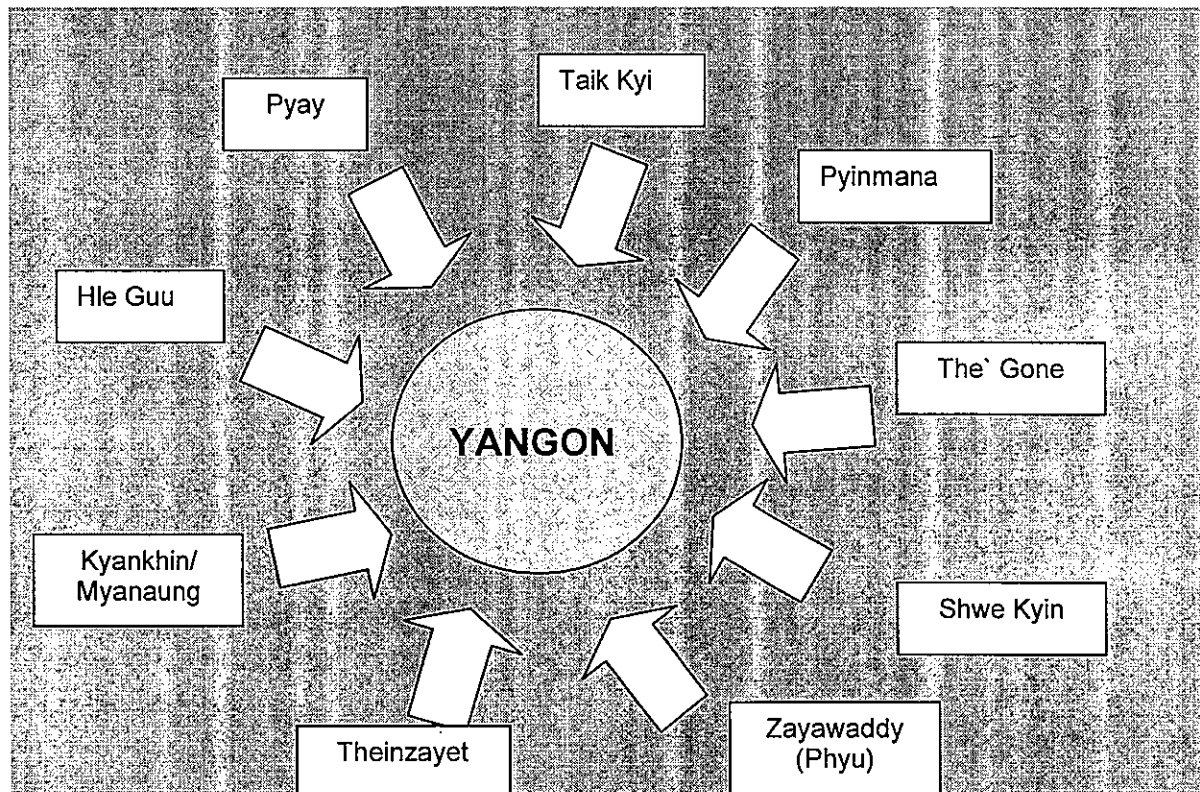
#### IV. URBAN CITY MARKETS (YEAR-ROUND MARKET)

Yangon and Mandalay are the main city markets in Myanmar. It is estimated that Yangon market size is 6,153 tons and Mandalay market is about 2,646 tons. Combination of other cities markets is about 6,541 tons.

Major City Market	Market Size (Ton)
Yangon	6,153
Mandalay	2,646
Other Cities	6,541
<b>Total</b>	<b>15,340</b>

#### Supply to Yangon market

Bamboo shoots in Yangon Market are supplied from Pyay, Taik Kyi, Hle Guu, Kyankhin/Myanaung, Theinzayet, Zayawaddy (Phyu), Shwe Kyin, The` Gone, and Pynmana regions.

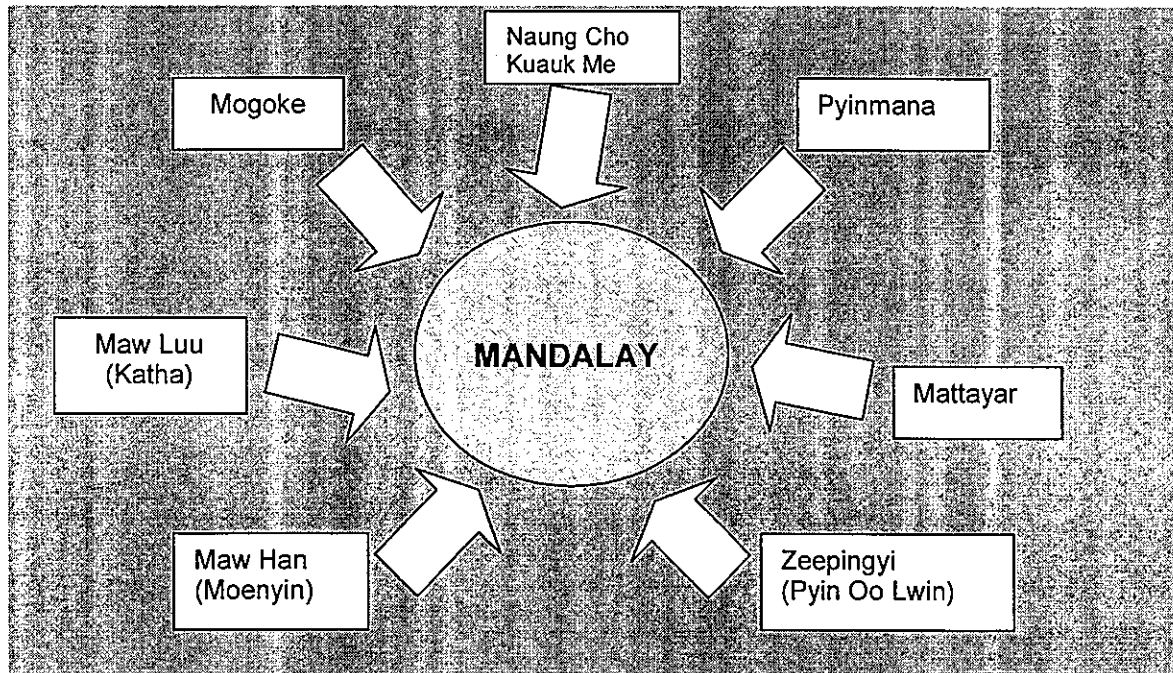


Pyay is a major supplier of bamboo shoots to Yangon market. More than 50% of bamboo shoots in Yangon market are from Pyay. Other suppliers to Yangon Market are Taik Kyi, Hle Guu, Kyankhin, Theinzayet, Zayyawaddy, Shwe Kyin, The` Gone, and Pyinmana. Estimated volumes of bamboo shoots supplied to Yangon from each area is presented in the table below:

Source of bamboo shoot supply to Yangon	Volume (Ton)
Pyay	3,548
Taik Kyi	806
Hle Guu	726
Kyankhin/Myanaung	484
Theinzayet	225
Zayyawaddy (Phyu)	218
Shwe Kyin	75
The` Gone	56
Pyinmana	15
<b>Total</b>	<b>6,153</b>

### Supply to Mandalay Market

Bamboo shoots from Mogoke, Maw Luu (Katha), Maw Han (Moenyin), Zeepingyi (Pyin Oo Lwin), Mattayar, Pyinmana, and Naung Cho enter Mandalay market.



Mogoke is the main supplier of bamboo shoots to Mandalay market. More than 34% of bamboo shoots in Mandalay market come from Mogoke. Other sources of bamboo shoot supply to Mandalay are Maw Luu (Katha), Maw Han (Moenyin), Zeebingyi (Pyin Oo Lwin), Mattayar, Pyinmana, and Naung Cho/ Kyauk Me.

Source of bamboo shoot supply to Mandalay	Volume (Ton)
Mogoke	900
Maw Luu (Katha)	476
Maw Han (Moenyin)	397
Zeebingyi (Pyin Oo Lwin)	397
Mattayar	238
Pyinmana	53
Naung Cho/ Kyauk Me	185
<b>Total</b>	<b>2,646</b>

### Other Urban City Markets

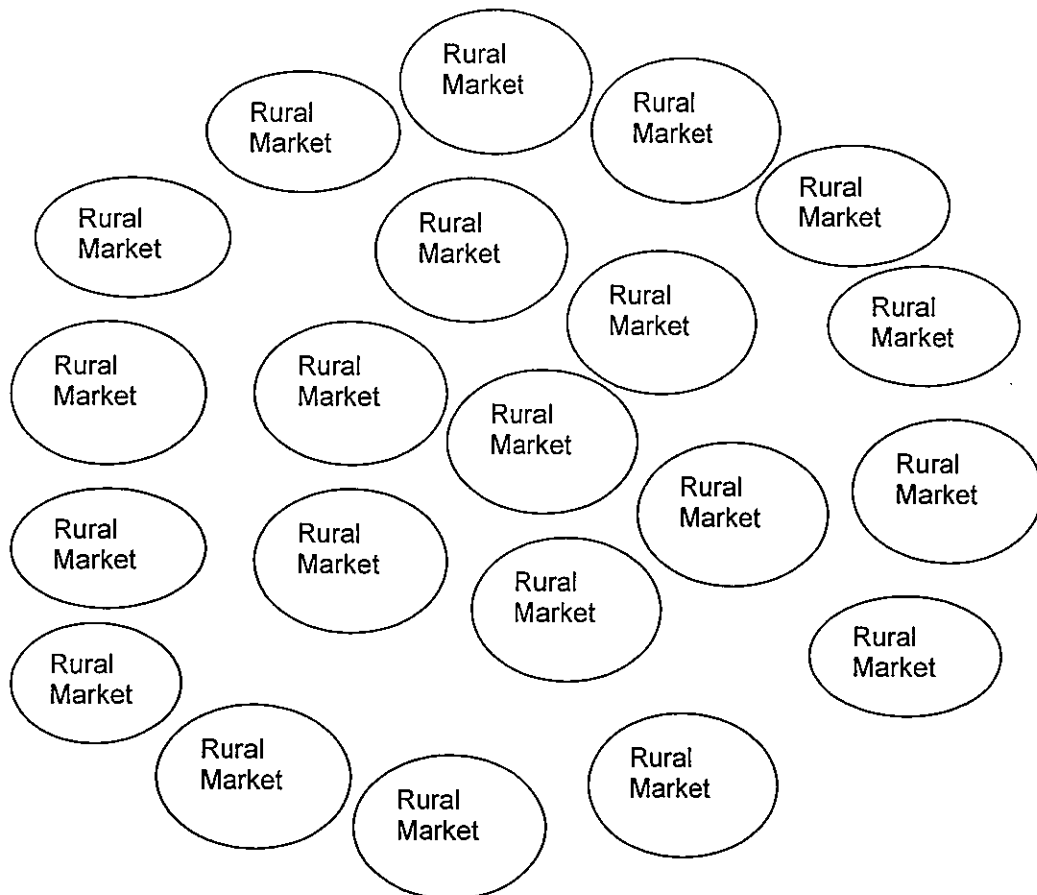
Other urban cities include Bago, Monywa, Sittawe, Taungoo, Minbu, Mawlamyine, Lashio, Pa-an, Taunggyi, Bamaw, Dawei, etc. The sources of bamboo shoot supplied to these cities are from within the respective local areas. Combination of other cities markets is estimated at about 6,541 tons.

## V. RURAL REMOTE TOWN AND VILLAGE MARKETS (SEASONAL MARKET)

More than 70% of population lives in rural area in Myanmar. They widely consume bamboo shoots as a seasonal food in the harvesting season, July-August. Preserved bamboo shoots are not available in these rural areas in other months of the year.

The volume of current consumption of bamboo shoots as a seasonal food in the rural market is estimated at 31,960 tons. However, it is expected that the consumption volume will be increased by 65% if preserved bamboo shoots are available in those areas in the off-harvesting season.

Numerous rural seasonal markets spread out all over the country.

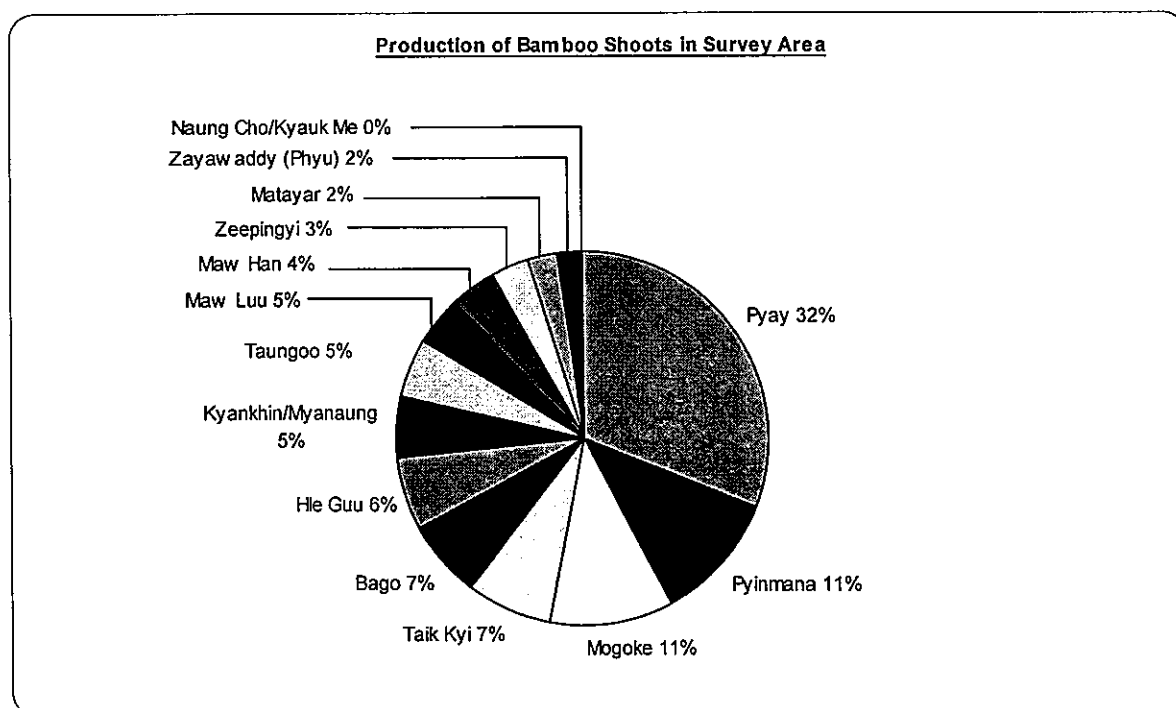


These numerous rural markets where bamboo shoots are unavailable between September and May are identified as potential markets for the preserved bamboo shoots to be sold in the off-harvesting season.

## VI. PRODUCTION OF BAMBOO SHOOTS FOR DOMESTIC CONSUMPTION

Pyay, Pyinmana, and Mogoke townships are major production areas of bamboo shoots for domestic consumption. Region-wise production volumes of bamboo shoots are presented in the table below:

Production Township	Habitat Area	Production Volume (Ton)
Pyay	Bago Yoma, Rakhine Yoma	4,257
Pyinmana	Bago Yoma (East)	1,545
Mogoke	Shan Plateau	1,315
Taik Kyi	Bago Yoma	967
Bago	Bago Yoma	929
Hle Guu	Bago Yoma	871
Kyankhin/Myanaung	Rakhine Yoma (East)	726
Taungoo	Bago Yoma (East)	677
Maw Luu	Chindwin Area	619
Maw Han	Chindwin Area	516
Zeepingyi (Pyin Oo Lwin)	Shan Plateau	476
Mattayar	Shan Plateau	333
Zayawaddy (Phyu)	Bago Yoma (East)	262
Naung Cho/ Kyauk Me	Shan Plateau	204





### Region-wise production of bamboo shoots of each type

Pyay and Mogoke are major production areas of salted bamboo shoots in Myanmar. Pickled bamboo shoots are produced in a large quantity in Pyinmana. Estimation of region-wise production of bamboo shoots for each type is provided in details in the table below:

Production Township	Boiled Fresh Bamboo Shoot	Salted Bamboo Shoot	Pickled Bamboo Shoot
Pyay	852	3405	-
Pyinmana	-	-	1,545
Mogoke	250	800	265
Taik Kyi	242	435	290
Bago	743	-	186
Hle Guu	871	-	-
Kyankhin/Myanaung	508	218	-
Taungoo	542	-	135
Maw Luu (Katha)	619	-	-
Maw Han (Moenyin)	516	-	-
Zeepingyi (Pyin Oo Lwin)	286	190	-
Mattayar	183	150	-
Zayyawady (Phyu)	87	-	175
Naung Cho/ Kyauk Me	100	54	50

### Region-wise habitats of bamboo species used for shoot production

Pyay region produces bamboo shoots from *Hmyin* Bamboo. Pyinmana uses *Kyalo* (*Wabo*) and Mogoke uses *Wani* and *Wabo Myet-San-Gye* for production. The following table presents region-wise habitats of bamboo species used for shoot production.

Production Township	Hmyin	Kyathaung	Kyalo (Wabo)	War Kauk	Wanet	Wani	Wabo-Myete-San-Gye
Pyay	√						
Pyinmana		√	√				
Mogoke						√	√
Taik Kyi		√		√	√		
Bago		√		√	√		
Hle Guu		√		√			
Kyankhin/Myanaung	√						
Taungoo		√	√				
Maw Luu (Katha)	√						
Maw Han (Moenyin)	√						
Zeepingyi (Pyin Oo Lwin)	√						
Mattayar	√						
Zayyawaddy (Phyu)		√	√				
Naung Cho/ Kyauk Me	√					√	

## VII. BAMBOO SPECIES FOR BAMBOO SHOOTS

In Myanmar, more than 50% of land is covered with forests, and 50% of forests are bamboo forests. According to the estimation of FAO in 1996, Myanmar with 2,170,000 hectares of natural bamboo forests is the third largest bamboo forest-possessing country in the world.

### World Distribution of Natural Bamboo Forests

Location	Area(Ha)	Species
China	4,000,000	500
India	2,980,000	136
Myanmar	2,170,000	90
Thailand	510,000	50
Bangladesh	510,000	30
Laos and Cambodia	130,000	-
Vietnam	287,000	101
Japan	123,000	230
Indonesia	60,000	30
Malaysia	20,000	44
South Korea	8,000	13
Philippines	8,000	55
Sri Lanka	2,000	30
Islands in Oceanic and Pacific	200,000	10
America	1,500,000	400
Africa	1,500,000	50
<b>Total</b>	<b>14,008,000</b>	

It is recorded that there are about 90 species of bamboos in Myanmar. The following table presents major bamboo species in Myanmar and bamboo species for bamboo shoot production:

### Major Bamboo Species Habitat in Myanmar

No	Myanmar Name	Scientific Name	Habitat Areas in Myanmar	Bamboo Shoot production
1	Kya Khat Wa	<i>Bambusa/ arundinaceae</i>	Bago Yoma & Tanintharyi Division	
2	Kya Thaug Wa	<i>Bambusa / polymorpha</i>	Bago Yoma	√
3	Kyar Wa	<i>Bambusa/ pallida</i>	Naga Mountain Region & Kachin State	
4	Nga Chat Wa (Wa Kyap)	<i>Bambusa/ binghami</i>	Bago Yoma & Tanintharyi Division	
5	Pilaw Pinan Wa	<i>Bambusa/ nana</i>	Lower Myanmar	
6	Sinthana Wa	<i>Bambusa/ sinthana</i>		
7	Ta Pin Tine Net/ Thaiwagyi	<i>Bambusa/ burmanica</i>		
8	Ta Pin Tine Wa	<i>Bambusa/ longispiculata</i>	Mogoke & Thanlwin Valley	

9	Thaik Wa	<i>Bambusa/ tulda</i>	Bago, Sittaung, and Dawei Region	
10	Thaik Wa Gyi	<i>Bambusa/ burmanica</i>		
11	Thaik Wabo	<i>Bambusa/ kingiana</i>	Kachin & Northern Shan State	
12	Thar Law Wa	<i>Bambusa/ thalawwa</i>		
13	Wa Bywet	<i>Bambusa/ offinis</i>		
14	Wa Min	<i>Bambusa/ thalawwa</i>		
15	Wa Myinn	<i>Bambusa/ griffithiana</i>		
16	Wa Phyu Kalay	<i>Bambusa/ oliveriana</i>	Some Region in Lower Myanmar	
17	Tin Wa	<i>Cephalostachyum/ pergracile</i>	Bago Yoma & Upper Myanmar	
18	Kyat Wa	<i>Cephalostachyum/ burmanicum</i>	Various parts of Myanmar	
19	Hmyin wa	<i>Dendrocalamus/ strictus</i>	Central Region of Myanmar & Lower Myanmar	√
20	Kyalo Wa (Wa Bo)	<i>Dendrocalamus/ brandisii</i>	Hilly Region	√
21	Wa Gyi	<i>Dendrocalamus/ calostachyus</i>	Kachin, Shan State and Upper Chindwin Region	
22	Wa Net	<i>Dendrocalamus/ longispathus</i>	Ayeyarwaddy & Yangon Region	√
23	Wa Phyu	<i>Dendrocalamus/ membranaceus</i>	Various parts of Myanmar	
24	Wa Pyaw	<i>Dendrocalamus/ longifimbriatus</i>		
25	Wabo Aye	<i>Dendrocalamus/ hookeri</i>	Banmaw & Kathar District	
26	Wabo Gyi	<i>Dendrocalamus/ giganteus</i>	Kachin, Shan State, Upper Chindwin & Some Lower Myanmar	
27	Wabo-Myet-San-Gye	<i>Dendrocalamus/ hamiltonii</i>	Upper Myanmar	√
28	Wani	<i>Dendrocalamus/ latiflorus</i>	Hilly Region	√
29	Htamyin Wa	<i>Dendrochloa/ distans</i>	Myeik Region & Taniintharyi Region	
30	Kamyin Wa/Tamyin Wa	<i>Dendrochloa/ distans</i>	Taniintharyi Region	
31	Sin Nin Wa/Wa Nwe/Wa Tha Put	<i>Dinochloa/ maclellandii</i>		
32	Wa Nwe	<i>Dinochloa/ milellandi</i>	Some Region in Lower Myanmar	
33	Wa Nwe Goat	<i>Dinochloa/ compactiflora</i>	Some Region in Lower Myanmar	
34	Wa Phyu Gyi	<i>Gigantochloa/ macrostachya</i>		
35	Wa Toe	<i>Gigantochloa/ apus</i>		
36	Kayin Wa	<i>Melocanna/ bambusoidestrin</i>	Rakhine Yoma and Upper Chindwin	
37	Tha Put Wa	<i>Neohouzeaua/ stricta</i>	Kachin & Northern Shan State	
38	Wa Soon	<i>Neohouzeaua/ dulloa</i>	Kachin & Northern Shan State	

39	Wa Tha Put	<i>Neohouzeaus/ helferi</i>	Nago Yoma & Lower Myanmar	
40	Kyaung Wa Ame'	<i>Oxytenanthera/ thwaitesii</i>		
41	Thaik Tu Myin Tu Wa	<i>Oxytenanthera/ parviflora</i>		
42	Wa Pyaut	<i>Oxytenanthera/ nigrociliata</i>	Kachin State & Kathar District	
43	Watoke	<i>Oxytenanthera/ albociliata</i>		
44	Wa Ni Par	<i>Pseudosorghum/ polymorphum</i>		
45	Wa Khar	<i>Pseudostachyum/ wakha</i>		
46	Thanut Wa	<i>Thyrsostachys/ oliveri</i>	Kachin & Shan State	
47	Htee Yoe Wa/Htee Wa	<i>Thyrsostachys/ siamensis</i>	Various parts of Myanmar	
48	Wa Kauk			√

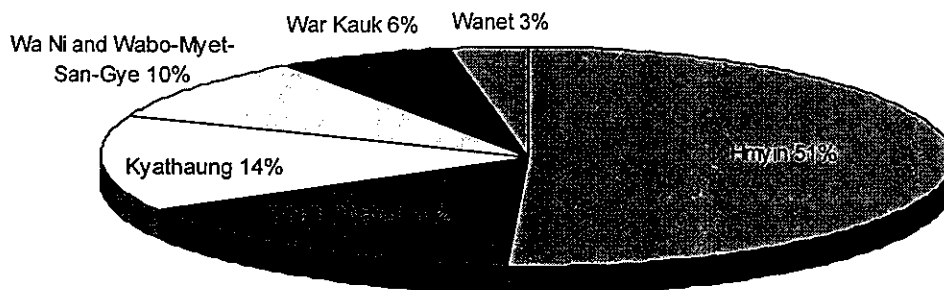
Source: The Botanical Name and Genus of main plants in Myanmar, Myanma Agricultural Services

*Hmyin*, *Kyalo (Wa Bo)*, *Kyathaung*, *Wa Ni/Wabo-Myet-San-Gye*, *Wa Kauk*, and *Wanet*, are bamboo shoot-producing bamboo species in Myanmar. More than 50% of bamboo shoots are produced from *Hmyin* species, followed by *Kyalo(Wabo)* 16%, *Kyathaung* 14%, and *Wa Ni/ Wabo-Myet-San-Gye* 10%.

### Bamboo Species and Production of Bamboo Shoots

Bamboo Species (Myanmar Name)	Production of Bamboo Shoots QTY (Ton)
Hmyin	6,963
Khalo (Wabo)	2,159
Kyathaung	1,938
Wa Ni and Wabo-Myet-San-Gye	1,315
Wa Kauk	887
Wanet	435
<b>Total</b>	<b>13,697</b>

Bamboo Species and Their Shares of Shoot Production in Myanmar



As *Hmyin* bamboo shoots are smaller in size, they are made into boiled bamboo shoots and salted bamboo shoots. *Kyalo (Wabo)*, *Kyathaung*, and *Wa Ni/ Wabo-Myet-San-Gye*, are used to make boiled bamboo shoots and pickled bamboo shoots.

Bamboo Species	Boiled Bamboo Shoot	Salted Bamboo Shoot	Pickled Bamboo Shoot	Total
Hmyin	2,936	4,027		6,963
Kyalo (Wabo)	453	614	1092	2,159
Kyathaung	1,425		513	1,938
Wa Ni and Wabo-Myet-San-Gye	250	400	665	1,315
Wa Kauk	887			887
Wanet		435		435

The following table presents habitat at areas of each species of bamboo and production volumes from the respective areas:

Bamboo Species	Area	Production (Ton)
Hmyin	Pyay	4,257
	Kyankhin/Myanaung	726
	Maw Luu (Katha)	619
	Maw Han (Moenyin)	516
	Zeepingyi (Pyin Oo Lwin)	476
	Mattayar	333
	Naung Cho/Kyauk Me	36
Kyalo (Wabo)	Pyinmana	1,558
	Taungoo	514
	Zayawady (Phyu)	87
Kyathaung	Bago	632
	Hlegu	523
	Taik Kyi	290
	Zayyawady (Phyu)	175
	Taungoo	163
	Pyinmana	155
Wa Ni and Wabo-Myet-San-Gye	Mogyoke	1,147
	Naung Cho/Kyauk Me	168
Wa Kauk	Hlegu	348
	Bago	297
	Taik Kyi	242
Wanet	Taik Kyi	435

## VIII. HARVESTING AND PROCESSING OF BAMBOO SHOOTS

### Harvesting of Bamboo Shoots

There are 3 ways of harvesting bamboo shoots, depending on the time within the season.

At the start of the season in May and June the farmer first checks the top emerging over the earth surface and taps on the ground surrounding the shoot to make a sound, which will suggest the size of the shoot growing under the surface. Then the earth surrounding the underground shoot is removed and the shoot is levered off the root with a bamboo stick. Bamboo shoots collected that way are called "underground bamboo shoots".

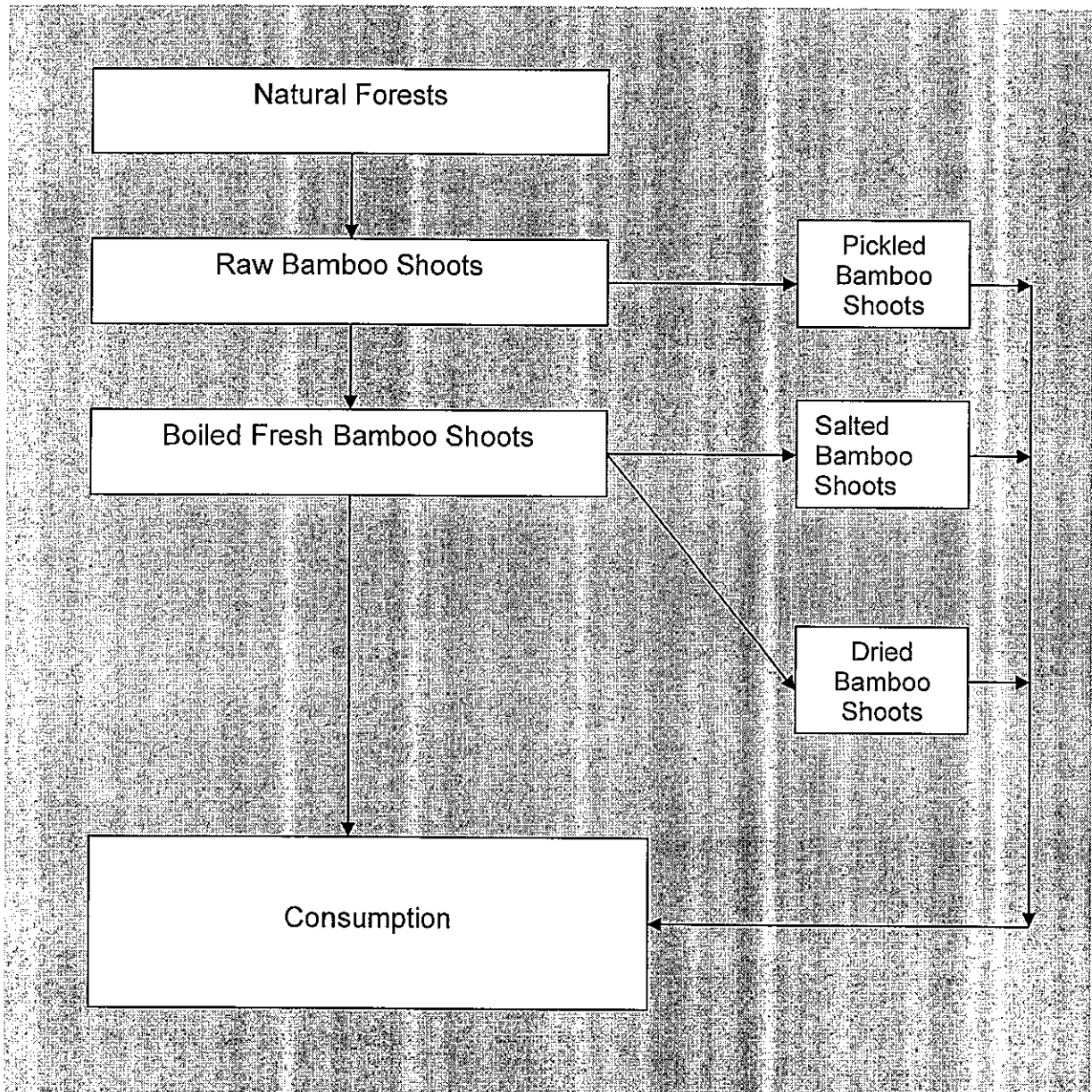
During the time when bamboo shoots are abundant in July and August, farmers take the shoots that have grown about between 9 and 18 inches tall above the ground. They break off the shoots using a knife, the most conventional way to gather a large amount of shoots.

Bamboo shoots start to get rare when they have grown too tall over time. During the time bamboo shoots start to get rare—in October and November, the top-most part of the young bamboo plant, which is still tender enough to eat, is cut off. Top parts of bamboo plants about 9 feet tall are usually cut off for food.

Harvesting Season of Bamboo Shoots in Myanmar											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
					√	√	√				

Harvesting season of Bamboo shoots in Myanmar is from June to August. In some areas, early seasonal bamboo shoots are available starting from May and in certain areas late seasonal bamboo shoots are harvested until September.

## Overview Flow Chart of Harvesting, Processing, and Consumption

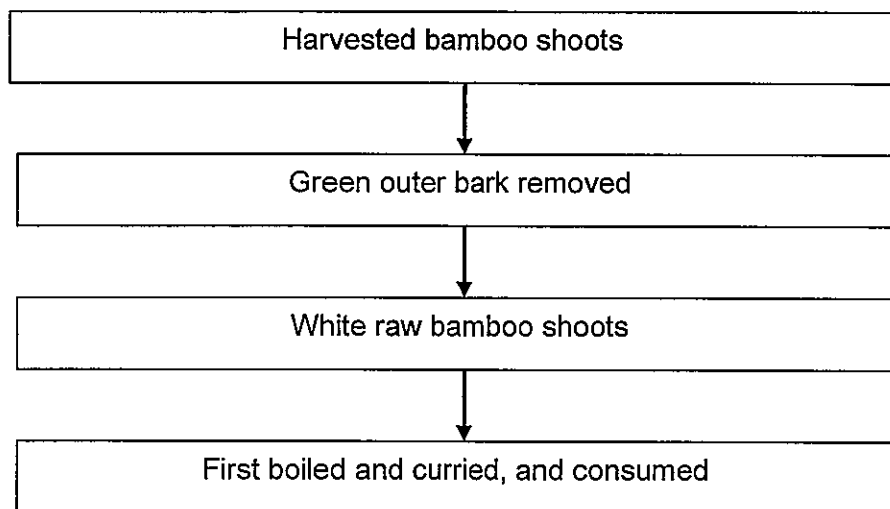




## Processing of Bamboo Shoots

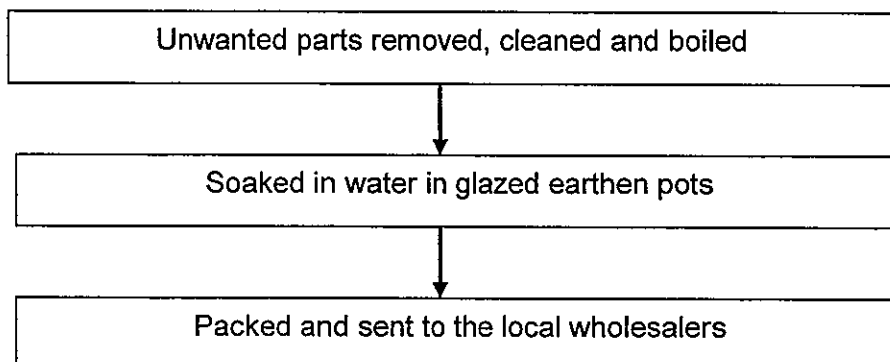
### Raw Bamboo Shoots

After the green outer bark of the harvested bamboo shoot has been removed, the white fresh part of the shoot as a whole is available. Those raw bamboo shoots are available only when they are in season.



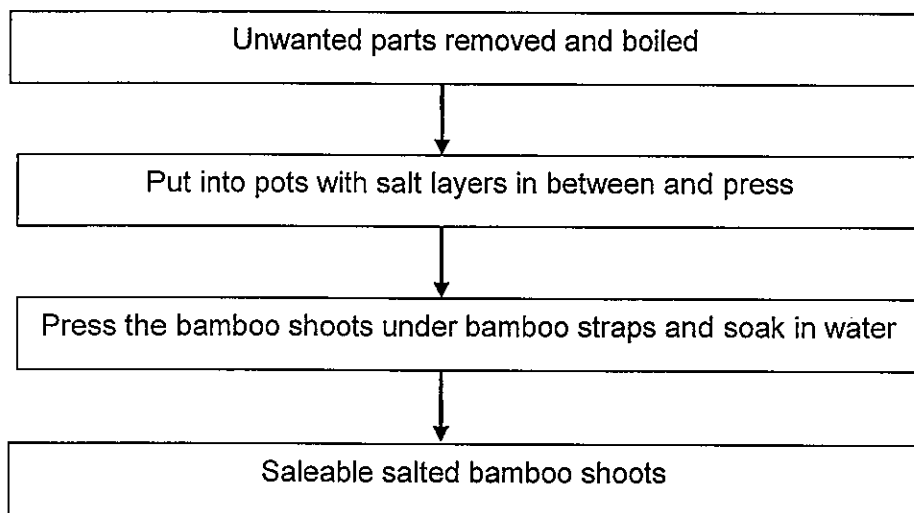
### Boiled Fresh Bamboo Shoots

Unwanted parts of the raw bamboo shoots are removed and the main parts cleaned in water and boiled within a day. Then they are soaked in clean water over night in large glazed earthen pots. They are taken out of the water the next day and packed and sent to the local wholesalers.



### Salted Bamboo Shoots

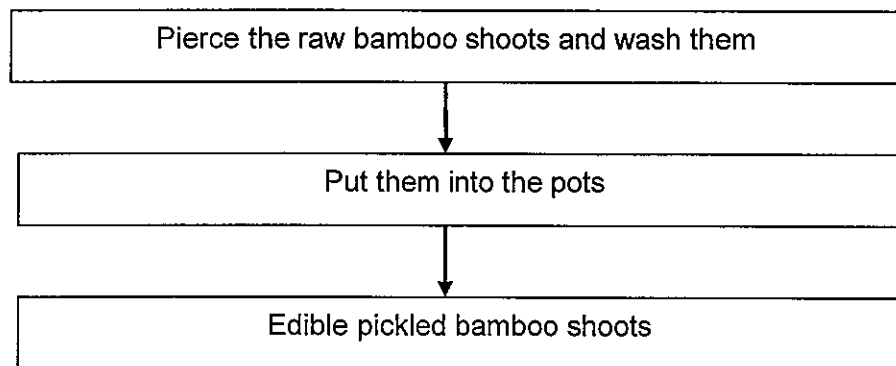
Raw bamboo shoots are boiled for a short time after unwanted parts are removed. Then they are put into large glazed earthen pots. In putting them in the pots, a layer of salt must be put on every four layers of bamboo shoots. Then the bamboo shoots are pressed under bamboo straps. Bamboo shoots need pressing so that they do not come up over the water. Whenever they get shrunk after a day or so, more water and/ or salt is filled into the pots. In 3 or 4 days, the salted bamboo shoots are available. These salted bamboo shoots can be kept the whole year until the next season.



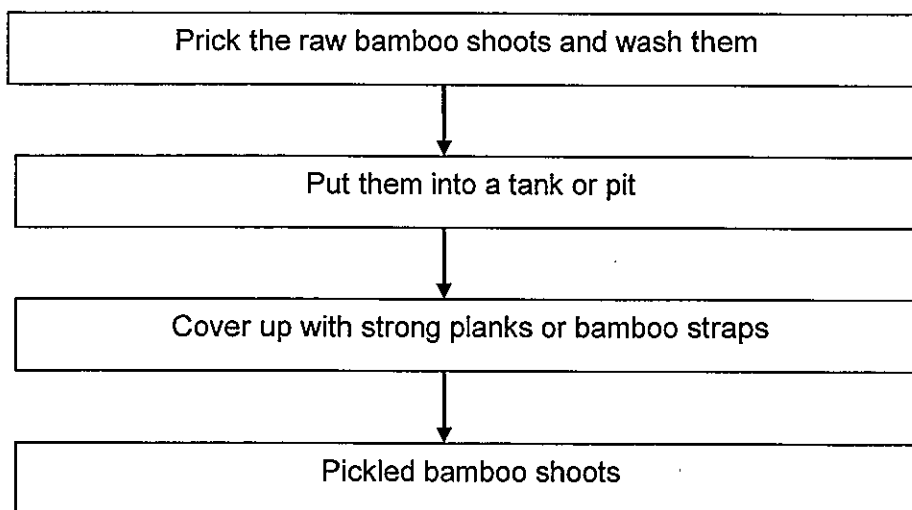
## Pickled Bamboo Shoots

There are 2 ways of pickling bamboo shoots: Pickling in glazed earthen pots, and pickling in a brick tank and or a ground pit. The first way is for the purpose of selling them when bamboo shoots are in season, the second way for selling them when bamboo shoots are out of season.

In the first way, raw bamboo shoots are cleaned and thoroughly pricked using a sharp thing till they become riddled with small holes. They are washed and put in circular position into the pots. Then pots are kept well covered up. In a period of about 7 days or so, edible pickled bamboo shoots are available.

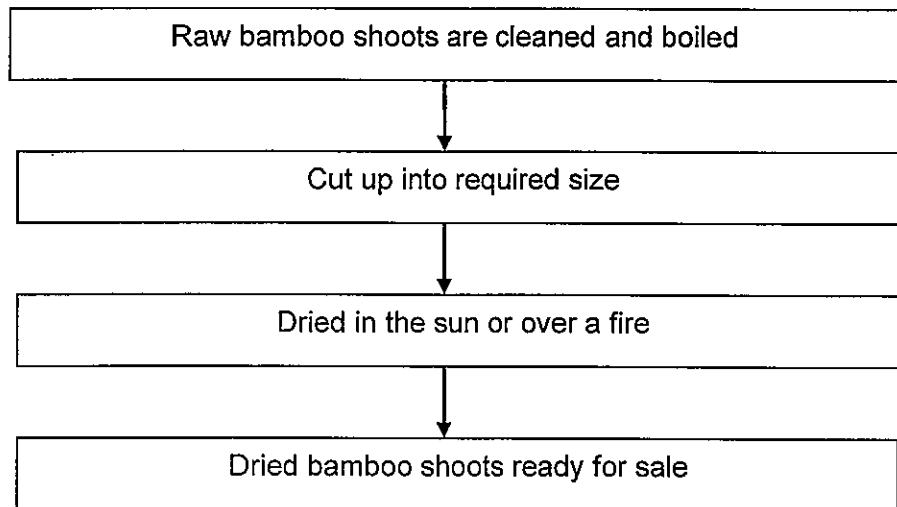


In the second way, pricked raw bamboo shoots are put into a 10-foot-deep pit or a brick tank that deep. The capacity may vary with the amount of shoots to be pickled. The pit must have strong bamboo mats against its walls, broad leaves covered at the bottom before the storage. Bamboo shoots must be packed in plastic bags before they are put into the pit or tank. After that, the pit or tank must be covered with thick planks or bamboo straps with weight on them. The bamboo shoots inside, over time, will dehydrate and lose weight. They will lose about 75% of their weight. That pickled bamboo shoots last the whole year.



## Dried Bamboo Shoots

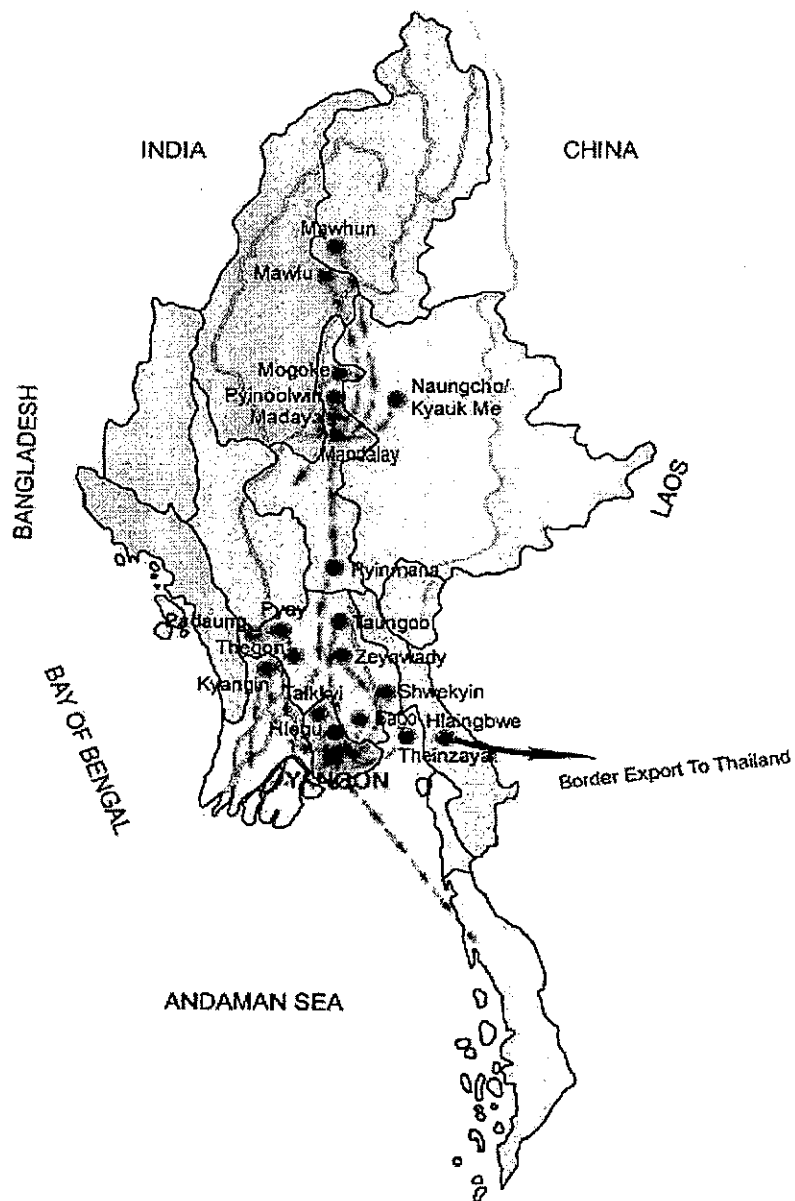
Raw bamboo shoots are cleaned, and then boiled. The best species for that purpose are 'Hmyin' and 'Kyalo (Wabo)' bamboos. Then the boiled fresh shoots are cut up into required size, and the pieces are dried up in the sun or over a fire for 2 or 3 days. Then dried bamboo shoots are ready for sale when raw shoots are out of season. Dried bamboo shoots are produced in Minbu, Mogyoke and some regions, but only in small scales.



## IX. MARKET CHANNELS

Map of Myanmar showing routes from production areas to the urban city markets, particularly Yangon and Mandalay. The map also indicates that raw bamboo shoots are exported through border to Thailand from Kayin State.

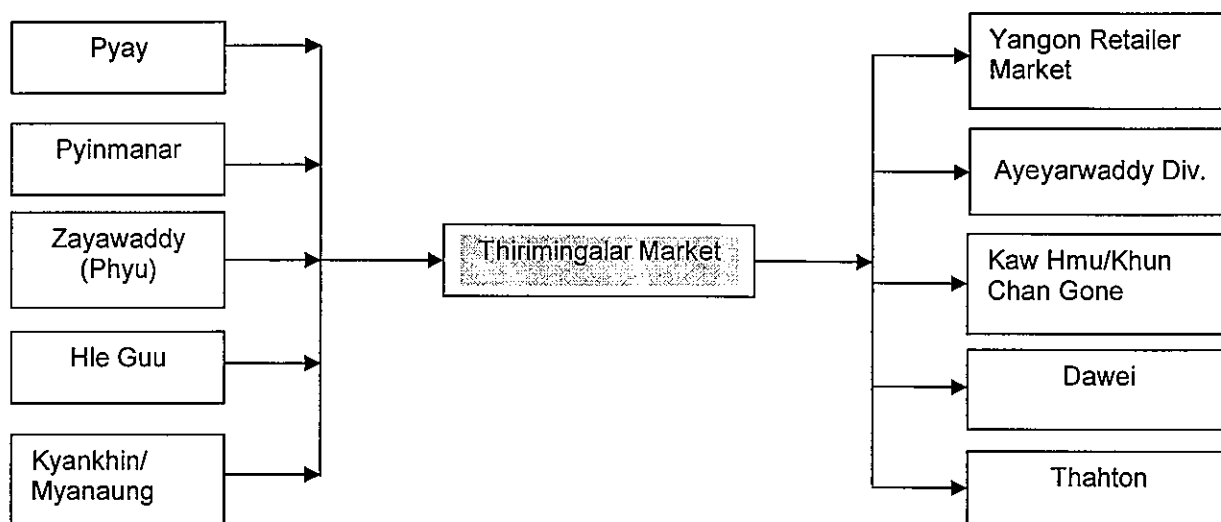
Market Distribution Channel



## Yangon Market

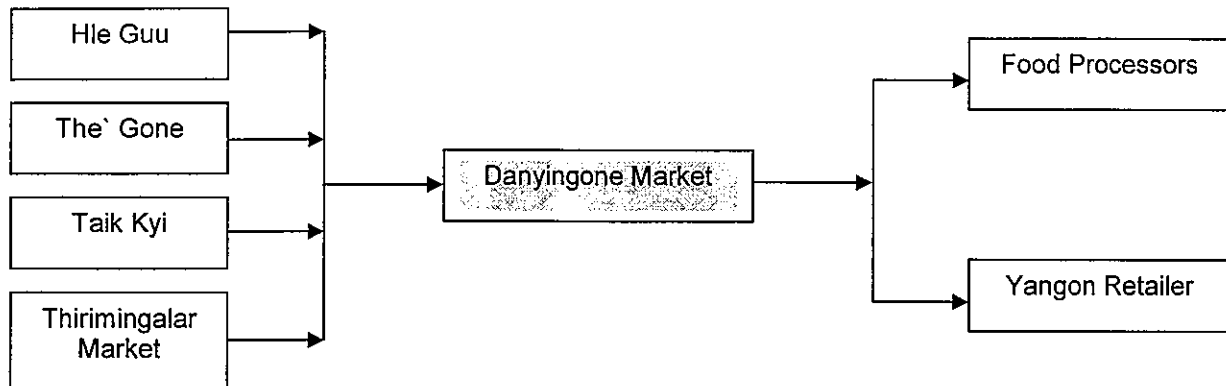
There are three main bamboo shoot markets in Yangon: Thirimingalar Market, Danyingone Market, and Thingangyun Market. Among them, Thirimingalar Market is the largest one. Its annual market volume is 80% of Yangon Market. There are 18 wholesalers in Thirimingalar Market.

### Thirimingalar Market in Yangon



Bamboo shoots enter the Thirimingalar Market from Pyay, Pyinmana, Zayawaddy, Phyu, Hle Guu, and Kyankhin/Myanaung regions. From the Thirimingalar Market, bamboo shoots are distributed to Yangon retail markets. In addition, they are distributed to some areas in Ayeyarwaddy delta such as Pyarpone, Bogalay, Kyone Ma Ngay, Mawlamyaing Kyun, Mau Bin; and some towns in Yangon Division such as Kaw Hmu/Khun Chan Gone. Furthermore, they are distributed to Dawei and Thahton in small quantities.

### Danyingone Market in Yangon



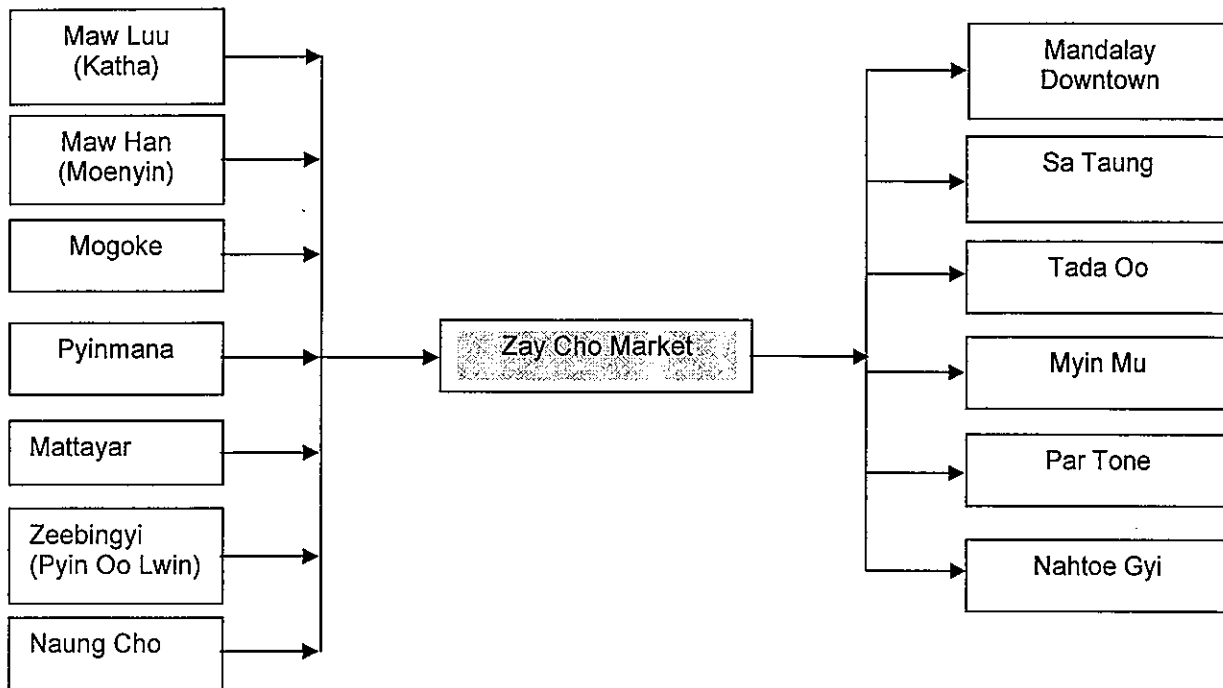
Bamboo shoots enter the Danyingone Market from Hle Guu, The` Gone, Taik Kyi, and Thirimingalar Market. From the Danyingone Market, bamboo shoots are distributed to food processors and retailers in Yangon.

### Thingangyun Market in Yangon



Bamboo shoots enter the Thingyungun Market from Donzayit, Shwe Kyin, and Thein Zayet regions. From the Thingangyun Market, bamboo shoots are distributed to retailers in Yangon.

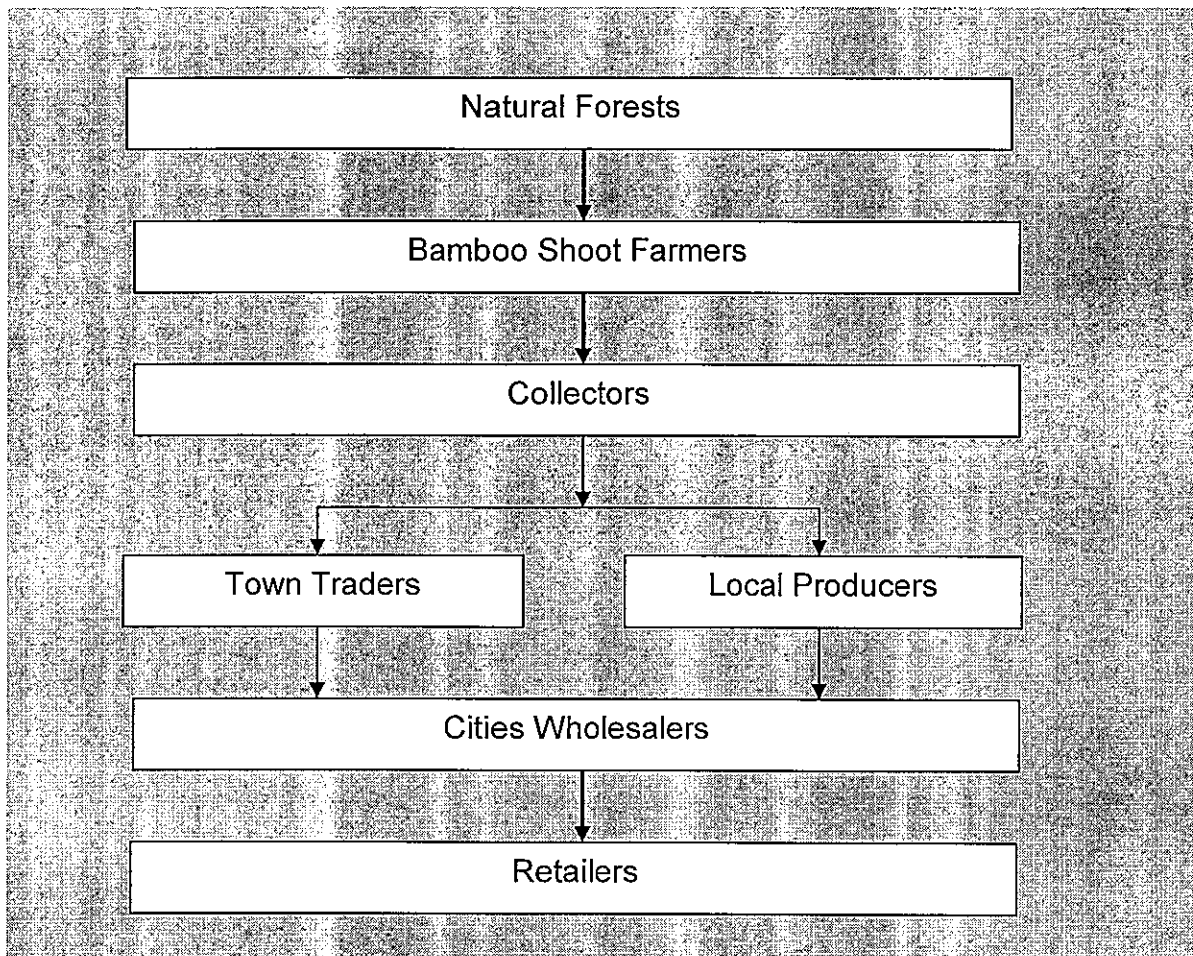
## Mandalay Market



Bamboo shoots enter the Zaycho Market in Mandalay from Mawluu (Katha), Mawhan (Moenyin), Mogoke, Pyinmanar, Mattayar, Zeebingyi (Pyin Oo Lwin), and Naung Cho regions. From the Zaycho Market, bamboo shoots are distributed to Mandalay downtown, Tada Oo, Sa Taung (Sagaing), Myin Mu, Par Tone, and Nahtoe Gyi (Mandalay).



## Distribution Channels of Bamboo Shoots in Myanmar



In Myanmar, bamboo shoots are harvested from natural forests by bamboo shoot farmers, who sell them to collectors in villages. Most farmers harvest and sell bamboo shoots freely. Only a few farmers obtain money in advance from collectors. On the other hand, most of the collectors are agents of town traders and local producers to buy bamboo shoots. Town traders and local producers usually supply a certain amount of cash to collectors in villages. There is a vague distinction between town traders and local producers. Basically, town traders accept bamboo shoots and send them to city wholesalers while local producers engage in preservation of bamboo shoots. In some regions, town traders undertake preservation of bamboo shoots too.

City wholesalers receive bamboo shoots from town traders or local producers. It is found out that about one third of city wholesalers maintain close relations with local producers in order to keep regular supply. Retailers in city buy bamboo shoots from city wholesalers to sell in vegetable markets throughout the city.

## X. PRICES OF BAMBOO SHOOTS

Prices of bamboo shoots are presented in the following tables. These are weighted prices and represent the whole country of Myanmar.

These tables show that the prices received by the farmers are relatively low: the average farmers' price of boiled fresh bamboo shoot is 70 kyat per viss, compared with its retailers' price 250 kyats per viss.

It is also to be noted that the prices of bamboo shoots in the harvesting season are naturally lower than that of bamboo shoot in the off-harvesting season. Bamboo shoots are sold at the highest price in April.

### Raw Bamboo Shoots

No.	Seller	Price (Kyat/Viss)		
		Minimum	Average	Maximum
1	Farmers	40	60	80
2	Collectors	-	-	-
3	Local Producers	-	-	-
4	City Wholesalers	-	-	-
5	Retailers	-	-	-

### Boiled Fresh Bamboo Shoots

No.	Seller	Price (Kyat/Viss)		
		Minimum	Average	Maximum
1	Farmers	50	70	100
2	Collectors	70	100	130
3	Local Producers	-	-	-
4	City Wholesalers	130	190	250
5	Retailers	200	250	350

### Salted Bamboo Shoots

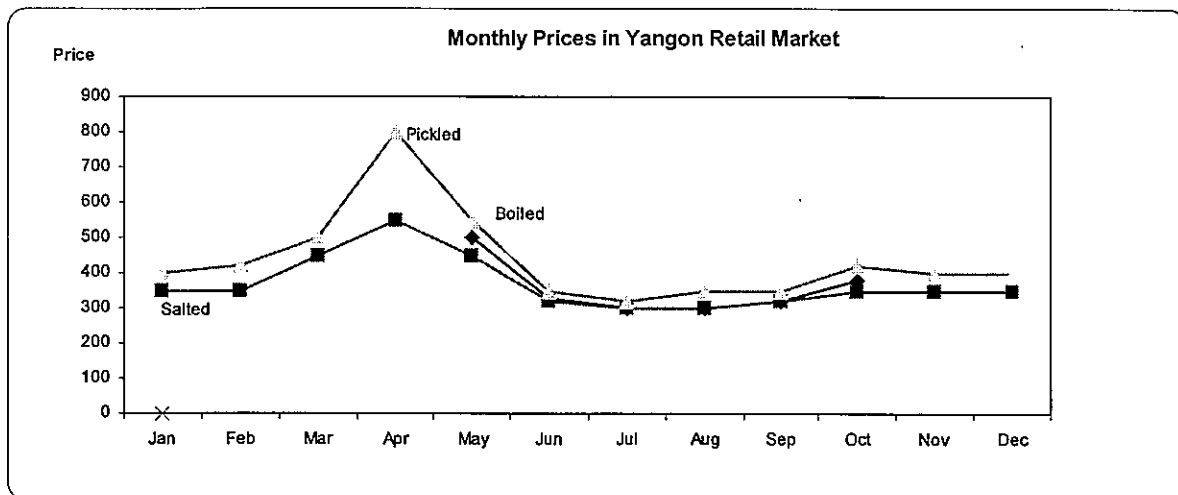
No.	Seller	Price (Kyat/Viss)		
		Minimum	Average	Maximum
1	Farmers	-	-	-
2	Collectors	-	-	-
3	Local Producers	200	225	250
4	City Wholesalers	250	275	300
5	Retailers	350	450	600

## Pickled Bamboo Shoots

No.	Seller	Price (Kyat/Viss)		
		Minimum	Average	Maximum
1	Farmers	-	-	-
2	Collectors	-	-	-
3	Local Producers	150	200	300
4	City Wholesalers	250	350	600
5	Retailers	400	700	800

## Monthly Retail Prices of Bamboo shoots: Yangon Market

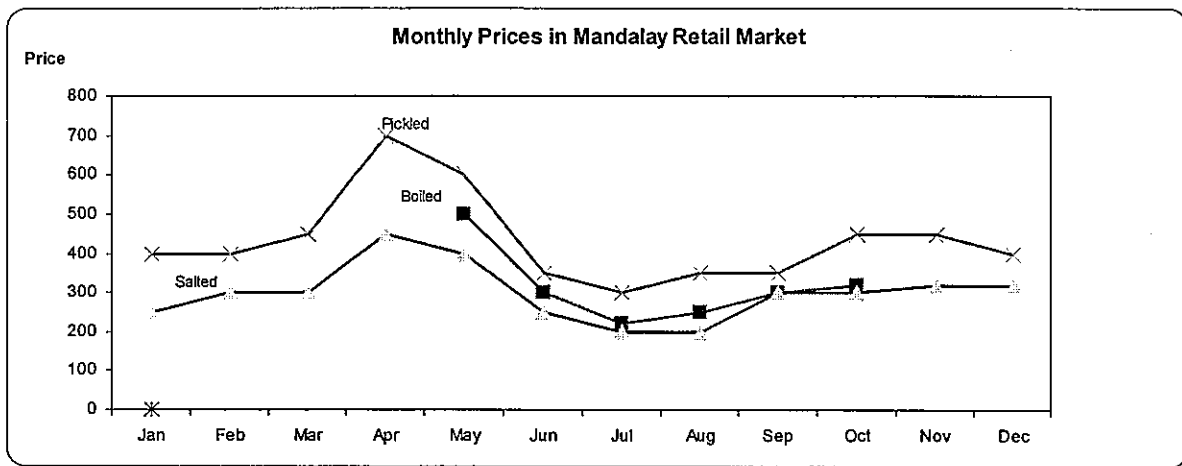
	Kyat/Viss											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Raw												
Boiled Fresh					500	330	300	300	350			
Salted	500	500	650	700	600				400	450	500	600
Pickled	550	600	700	800	650	550	400	400	450	500	550	600
Dried	3000	3000	3500	4000	4000	3800	3500	3500	3500	3500	3500	3500



**Monthly Retail Prices of Bamboo shoots: Mandalay Market**

Kyat/Viss

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Raw												
Boiled Fresh					400	300	300	350	350			
Salted	450	500	600	600	500				350	350	400	450
Pickled	550	550	650	700	650	400	400	450	450	450	500	500
Dried	3000	3000	4000	4000	4000	3500	3500	3500	3500	3500	3500	3500



## **XI. CONSUMER BEHAVIOUR OF BAMBOO SHOOT IN MYANMAR**

### **Urban Consumption**

Urban dwellers do not usually eat the raw fresh bamboo shoots curried as a main dish. They eat boiled bamboo shoots or salted shoots fried, curried or as a salad, or mixed with shrimp sauce; or fried with garden peas, roselle, and prawns, all as side dishes. Pickled bamboo shoots are eaten as a sour side dish usually cooked with chicken, fish or pork.

### **Rural consumption**

Villagers eat the raw shoots curried or fried. They eat them as a main dish. Bamboo shoots are also eaten as a salad, or mixed with shrimp sauce. Villagers would not mind going into the forests to gather bamboo shoots for their everyday consumption.

### **Household Consumption**

An average urban family eats bamboo shoots once or twice a month, the consumed amount in a meal around 10 ticals (5.25 Oz). Bamboo shoots are a main source of food for vegetarians. An average person in a bamboo-growing area eats approximately 5 ticals of shoots a week when they are in season.

### **Consumption in Alms Donations**

Occasions like weddings and alms-giving usually have bamboo shoot as a popular side dish. Alms-giving at a rural village has fried bamboo shoots and bamboo shoot soup as very common side dishes.

### **Consumption in Food Shops**

Fried bamboo shoot is a common side dish in Myanmar food shops. Bamboo shoot is a main ingredient in fish soup, Thai soup, and bamboo shoot-pork soup in Chinese food shops.

## **Buying Habits**

Urban vegetable markets sell preserved bamboo shoots all the year round. They sell the shoots in different colours attracting the customers. Bamboo shoots cooked together with roselle or prawns make a delicious dish and so they sell well when roselle and prawns are in season. Pickled bamboo shoots sell well in winter due to their hot taste. Easy to cook, relatively cheap, and not having unwanted parts, bamboo shoots have become a more favoured food source than other seasonal vegetables.

## **Bamboo shoot dishes**

- Fried bamboo shoots: Eaten as exclusively fried bamboo shoots, or fried mixed with garden peas or roselle.
- Bamboo shoot salad: Dried bamboo shoots are soaked in water for 15 minutes and then made into salad mixed with sesame, onion, peas-powder, garlic oil, dried shrimp, and flavoured with lime.
- Boiled bamboo shoots: Eaten mixed with fish or shrimp sauce.
- Sour bamboo shoot soup: Prepared mixed with Roselle, fish and prawns.
- Pickled bamboo shoots: Cooked with chicken, fish or pork to make a side dish.

## XII. MYANMAR'S BAMBOO SHOOT EXPORTS

### Normal Trade:

According to customs records, 480 tons of bamboo shoots were exported from Myanmar through normal trade to Taiwan, Hong Kong, Singapore and Japan during 1996-2005. Data in details is presented below:

YEAR	Exporter	Country	Qty (Ton)
1996	BAMBOO LAND CO	SINGAPORE	100.25
1996	EVER GREAT ENTERPRISE	HONG KONG	12.00
1996	HEIN LATT CO	HONG KONG	40.00
1996	HEIN LATT CO	SINGAPORE	19.76
1996 TOTAL			172.01
1997	BAMBOO LAND CO	HONG KONG	19.99
1997	BAMBOO LAND CO	SINGAPORE	78.00
1997	WAI PHYO ENTERPRISE	SINGAPORE	56.41
1997 TOTAL			154.40
1998	NEW ORLEANS CO LTD	JAPAN	19.68
1998 TOTAL			19.68
2004	PAUK KAN TRADING	SINGAPORE/TAIWAN	134.00
2004 TOTAL			134.00
TOTAL			480.09

Source: Customs Records

It is also learnt that Myanmar Nyunt Co Ltd in conjunction with the Ministry of Agriculture exported about 100 tons of bamboo shoots to Japan during 1986-89. The Japanese buyer was Taishi Co Ltd.

### Border Trade:

There are also bamboo shoot exports through border to Thailand. According to the local people, bamboo shoot trading in Kayin State is a major business in the rainy season. About 90 tons of raw bamboo shoots were exported daily to Thailand by car through Three-Pagoda Pass and by boat along the Thaung Yin River during the harvesting season.

The raw bamboo shoot price at Three-Pagoda Pass on Myanmar side is 2 to 4 baht per Kg. In Thailand, processed bamboo shoots are sold at 12 baht per Kg. (1 baht = 30 kyats in November, 2005)

### XIII. IMPORTED BAMBOO SHOOT IN MYANMAR

Imported bamboo shoots in small quantities are also found in Myanmar market. They are canned bamboo shoots, bottled bamboo shoots, and dried bamboo shoots, and mainly sold in Super markets. The country origins of these imported bamboo shoots are China, and Thailand. Some Chinese bamboo shoot products are distributed from Singapore.

Imported canned bamboo shoots are targeted at the hotels and higher-class markets. The imported bamboo shoots sold in supermarkets in Yangon are usually bought by foreigners rather than Myanmar nationals. Specifications and prices of some imported bamboo shoots are as follows:

Sr	Brand Name	Packaging	Country of Origin/ Distribution	Weight	Retail Price (Kyat)
1	Ma Ling	Canned	China	552 g	985
		Canned	Singapore	552 g	1130
2	Mili	Canned	China	552 g	900
3	Pantainoeasingh	Bottled	Thailand	454 g	950
4	King Bell	Bottled	Thailand	454 g	580



## XIV. WORLD MARKETS OF BAMBOO SHOOT

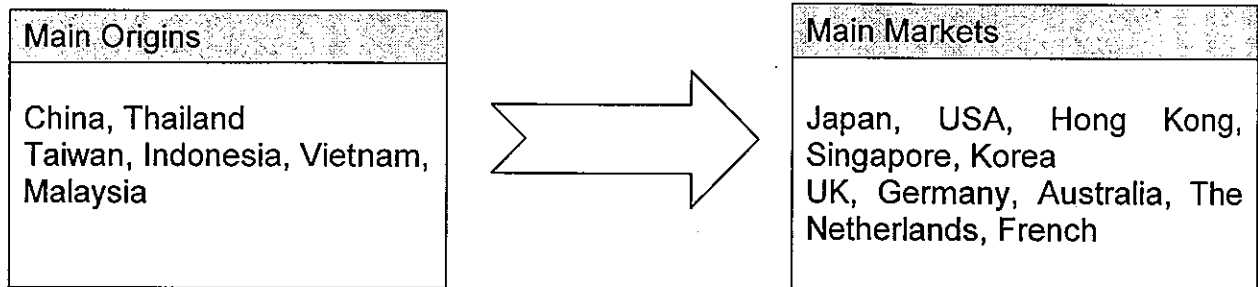
### *Bamboo Shoot Production and Consumption in the World*

Asia is a major production region of bamboo shoots in the world. A large proportion of the product is domestically consumed in Asia. Consumption of bamboo shoots outside Asia is mainly by consumers with Asian background.

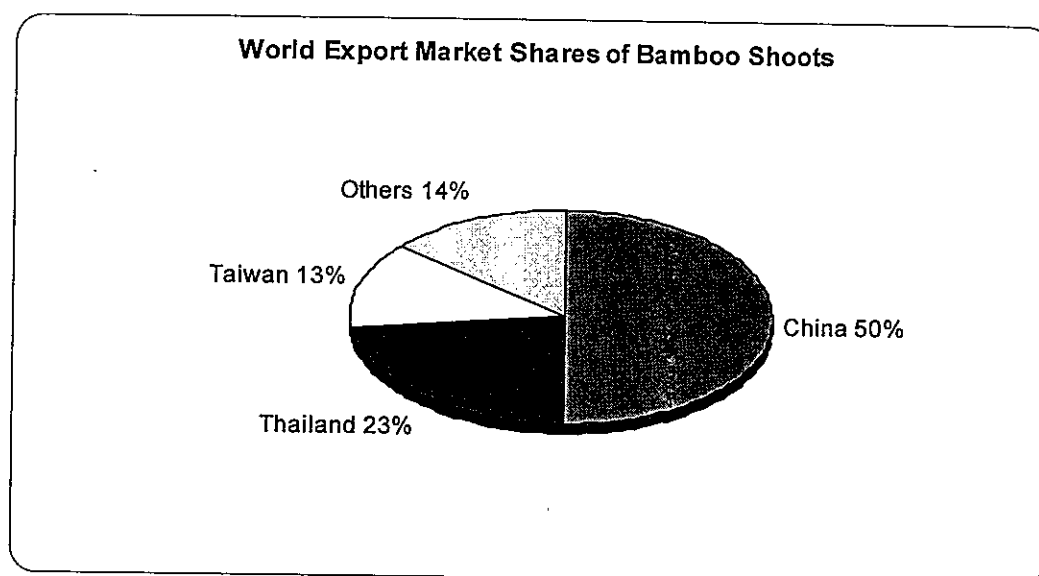
### *Bamboo Shoot Trading in the World*

Total trade volume of bamboo shoots worldwide is estimated at 300,000 tons per year. China and Thailand are the two major exporters of Bamboo shoots in the world, dominating 50% and 23% of world bamboo trade respectively. Japan is a major bamboo shoot importer.

### Trade Direction



## World Export Market Shares of Bamboo Shoots



### China

China, the world's largest bamboo shoot producer with most of its production consumed domestically, is also the largest exporter of bamboo shoot in the world. In addition to over 4 million hectares of natural bamboo forests, China possesses large areas of commercial plantation of bamboo for shoot production. China's bamboo shoot processing industry has been well developed and modernized. It is estimated that China exports 150,000 tons of bamboo shoots per year, dominating 50% of bamboo shoot market in the world.

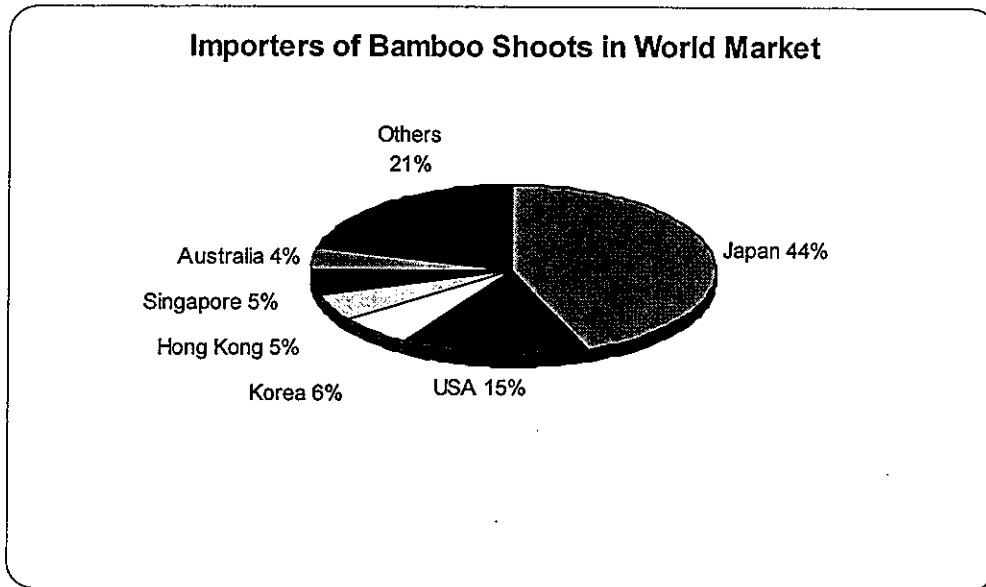
### Thailand

Thailand is the second largest bamboo shoots exporter in the world. It has about 510,000 hectares of natural bamboo forests. In addition, Thailand does commercial bamboo shoot plantations for shoot production. The species *Dendrocalamus asper* is Thailand's most important commercial species, its shoots used primarily for canning. Thailand exports about 50000- 60000 tons of bamboo shoots per year, dominating 23% of bamboo shoot export market in the world.

### Taiwan

Taiwan produced 340,000 tons of bamboo shoots. A substantial proportion of this production is processed to make pickles and other value-added products, which are sold both domestically and internationally. Approximately 10,800 tons of bamboo shoot products are exported annually. On the other hand, Taiwan imports certain amount of bamboo shoots from abroad.

## Importers of Bamboo Shoots in World Market



### Japan

Japan is the biggest importer of bamboo shoot in the world. It is estimated that Japan imports over 130,000 tons of bamboo shoots annually, mainly from China and Thailand.

Japan produces about 50,000 tons of bamboo shoots per year domestically as well. Its popular bamboo species for shoot is *Phyllostachys heterocycla var. pubescens*, whose harvesting season runs from March through May.

### USA

World trade statistics shows that USA imports Bamboo shoot from Asia, mainly from Thailand and China. People of Asian origins are major consumers of bamboo shoots in the USA. Import volume of USA is estimated at about 45,000 tons per year.

It is also learnt that USA has started doing bamboo plantation for shoot production.

### Korea, Hong Kong and Singapore

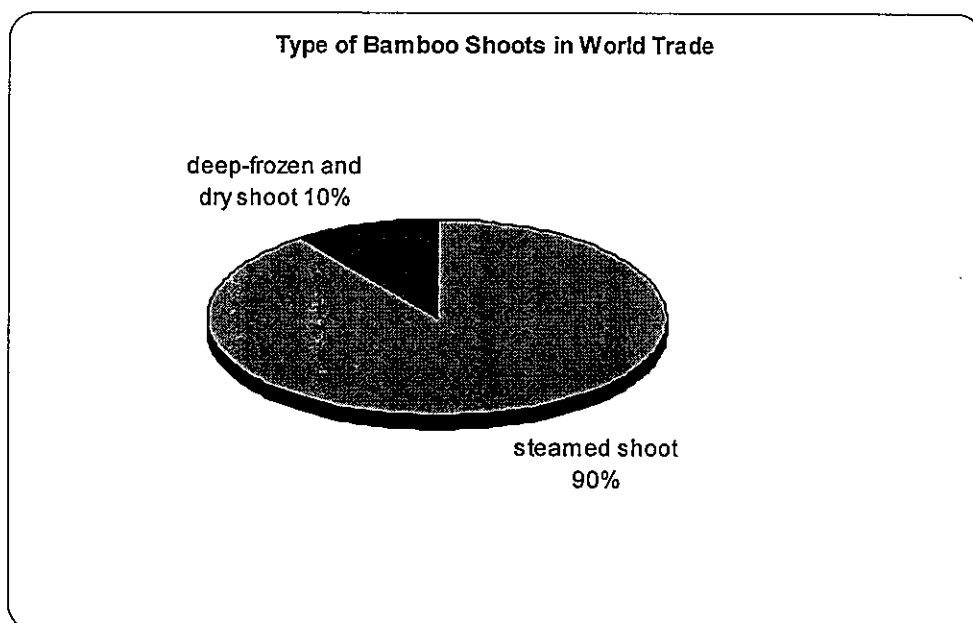
These countries have a large demand for bamboo shoots, currently met by imports from China, Thailand, and Taiwan. Domestic production is extremely limited.

## Australia

Australia is one of the bamboo shoot importing countries in the world. For import substitution, Australian government encourages its citizens to grow bamboo locally. The majority of bamboo planted in Australia is of three species, *Dendrocalamus asper* (74%), *Dendrocalamus latiflours* (6%) and *Bambusa oldhamii* (12%). With an estimated yield of ten tons of shoots per hectare, a total annual production is targeted at 2,700 tons by about 2005.

## Type of Bamboo Shoots in World Trade

Steamed shoots comprise 90% of bamboo shoots traded in the world. The remaining 10% are deep-frozen and dry shoots.



## Bamboo Shoot Prices in the World Markets

In Japan, bamboo shoot prices are generally between US\$ 1.50 and US\$ 3 per kg. During the off-season, prices shoot up to between \$ 4 and \$ 6 per kg.

In Australia, retail prices of canned bamboo shoot ranges from Australian \$ 4 to \$ 8 per kg. Prices peak toward the end of February just before the Chinese New Year.

In USA, retail prices of bamboo shoots are 1 to 5 US\$ per kg.

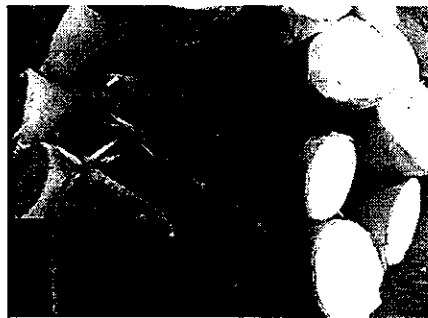
## Main Bamboo Species for Shoot Production in the World

*Phyllostachys Pubescens* and *Dendrocalamus Asper* are main species of bamboo for shoot production. *Phyllostachys Pubescens* or Moso is commercially planted in China. *Dendrocalamus Asper* is commercially planted in Thailand.

Country	Main Species
China	<i>Phyllostachys Pubescens</i> (Moso)/ <i>Dendrocalamus/ latiflorus</i> (Wani)
Thailand	<i>Dendrocalamus (Asper)</i> / <i>Dendrocalamus/ latiflorus</i> (Wani)



*Dendrocalamus Asper*



D. Asper shoots to be sent to the processing plant



*Phyllostachys Pubescens* (Moso)

## XV. MARKET EXPANSION POSSIBILITIES

There are three possibilities to expand and promote the bamboo shoot market:

1. To create new domestic markets where there is demand but little or no supply;
2. To explore possibilities to penetrate into foreign markets.
3. To create more possible ways of consuming bamboo shoots, or produce quality ready-made food made from them;

### 1. Expansion of the domestic market

Current domestic supply and demand of bamboo shoots remain set and equal and it is clear that supply goes only to the extent of demand and not further, which show that there is a potential market demand.

Current all-season markets are in Yangon Division, Mandalay Division and Bago Division. Except for the capital cities of the states and divisions, other townships do not have markets or centres, in summer months when bamboo shoots are out of season.

Current supply of bamboo shoots is just to fit in with present domestic demand and there is greater and sure capability to supply, should there be greater demand in markets, including foreign markets.

Due to the population growth and incoming of more small-scale dealers into the markets, year-on-year increase in the bamboo shoot production can be seen, and increase in both production and consumption is conspicuous, though not very much.

Many residential areas with wider market potentiality are not far from the bamboo forests, but people living there eat only the seasonal bamboo shoots as there are no pioneer businessmen to make a breakthrough to enable people to eat bamboo shoots throughout the year. Potential areas are, of course, Rakhine state, Mon state, Kayin state, Kayah state, Shan state, Kachin state, Taninthayi Division and Sagaing Division.

Those regions need interested local businessmen to distribute bamboo shoots to their town and rural village markets. Such businessmen can be provided with information and technology.

Interested bamboo shoot farmers in those areas can be well informed and formed into business organizations with opportunities to run the business of bamboo shoot distribution. Those bamboo farmers should be informed that bamboo shoot business can be carried out either as a family business or an organized company and make profits. Thus, seasonal bamboo shoot markets can be developed into year-round markets.

## **2. Exploration to export market**

The second possibility to make it an export, rather than domestically consumed is to explore foreign market possibilities. According to the Customs Data, bamboo shoot exports through normal trade were seen in 1996, 1997, 1998 and 2004. There was no export of bamboo shoots from 1999 to 2003. As production potentials of bamboo is promising in Myanmar, efforts can be made to expand the bamboo shoot export by systematic penetration with the assistance of the respective government departments.

A news source from the border trade says bamboo shoots from Kayin State and Mon state have been going in large amount to Thailand during the rainy months when bamboo shoot are in season. Local residents in those regions are making money doing that seasonal business, which bring them large profits.

In addition, China has experience in manufacturing and exporting bamboo shoots and maintains a good economic relation with Myanmar. So Myanmar can also invite FDI from China.

Given Myanmar's neighbouring countries, Thailand and China, exporting a large quantity of bamboo shoots, Myanmar with a high potential for the same trade, should seek foreign technology and investments.

## **3. Developing new bamboo-shoot-based foodstuff**

The third possibility of bamboo shoot market expansion is to develop the ways people eat them. Myanmar bamboo shoots can be made into various kinds of food products rather than limited to traditional recipes. Non-availability in different types of products has been a setback and hindrance to the market expansion. Bamboo shoots in the form of salad, preserve of light meal snack would, of course, expand and promote the market.

## XVI. CONSTRAINTS ON MARKET EXPANSION

Together with market expansion possibilities of bamboo shoots, there are some constraints to be considered.

Encouraging local businessmen to engage in bamboo shoot processing to make bamboo shoots all-season food in some regions may encounter some shortcomings: lack of necessary capital investment; lack of knowledge on bamboo shoots processing and preserving; and inactive participation of local people.

Expansion of export market by normal trade route may also have little possibility for such reasons that:

- (a) Bamboo shoots have not yet got a considerable place in the international market except some Asian countries;
- (b) The current procedures of bamboo shoot collection and production are not up to the standards of world food markets;
- (c) There is not yet any technology to preserve a bamboo shoot product to last a certain period of time and to have them in secure packages of international standards;
- (d) There is little possibility to attract a foreign investment that would provide modern technologies;
- (e) Bamboo shoot dealers and growers are unwilling to maintain or grow bamboo themselves.

Although bamboo shoot export via border points to Thailand seems promising, security is the major concern in these areas for the large scale investors. The situation in these areas simply compels to sell raw bamboo shoots (fresh or boiled) to buyers on Thailand side, who manufacture value added bamboo shoot for re-export.

Developing new types of bamboo-shoot-based foodstuff may take time to penetrate into present market. It needs the state-of-the-art marketing and advertising campaigns nation-wide.

Timely availability of market information, accurate international standard of preserving, packaging, and other necessary data rather pose difficulties to regional bamboo shoot businessmen in current business environment.



## **XVII. RECOMMENDATIONS**

The survey shows that there are some possible domestic markets where bamboo shoot trading can be expanded. Those markets in villages and some remote towns need interested local businessmen to distribute bamboo shoots to their towns and rural markets. Such businessmen must be provided with traditional preservation method currently applied in bamboo shoot trading regions. One or two regions should be selected as a model for creation of systematic bamboo shoot trading. Based on the results, bamboo shoot market expansion should be promoted.

Current bamboo shoot processing and trading are only in the status of cottage industry. So those cottage industries should be provided with modern processing technology by the Government.

Bamboo shoot farmers should be helped to understand profitability from bamboo shoot trading and encouraged to expand their business from bamboo shoot gathering to trading individually or in cooperatives.

According to the field study, the traditional processes applying in manufacturing and preserving of bamboo shoots are not acceptable in terms of international standards. Gradual upgrading is a must from traditional methods to modern technical processes.

The survey finds that bamboo shoot farmers do not realize the possible depletion of bamboo forest through bamboo shoot harvesting. Even the wholesalers in the cities lack necessary understanding in likelihood of bamboo forest depletion. A broad education is required for the rural communities on the importance of bamboo forests, thereby making them understand the benefits of bamboo and bamboo shoots business and leading to bamboo plantation.

For penetrating into the international market, advanced technology can be achieved via foreign investor. As Thailand buys a large amount of bamboo shoots from border areas, a favorable climate for foreign investment particularly from Thailand must be fostered.

Suggestion should be made for the inclusion of value-added bamboo shoot manufacturing plants in agro-based industrial zones, for which the feasibility studies are underway in Kayin and Mon States in cooperation with Thailand according to ACMECS development scheme.

Neither foreign investors nor large scale local investors can rely only on raw bamboo shoots from natural forests for the long term. In this regard, bamboo plantation with quality species for bamboo shoots ought to be encouraged in order to keep regular supply of raw materials.

In present situation, import of bamboo shoot to Myanmar is not apparently strong. Under the situation of fierce competition for export market and maintaining local market, a database and information center must be set up collecting domestic and international information on planting, harvesting, manufacturing and trading of bamboo shoots.

At the initial stages, there is no doubt that the government's initiatives are necessarily important. For the long term, the Bamboo Shoot Manufacturers and Traders Association should be formed to tackle relevant problems while gradually freezing the role of the government institution in bamboo shoot trading.

In order to gain international experience, arrangements must be made for local entrepreneurs and technical experts to participate in foreign study tours, seminars and international trade fairs.

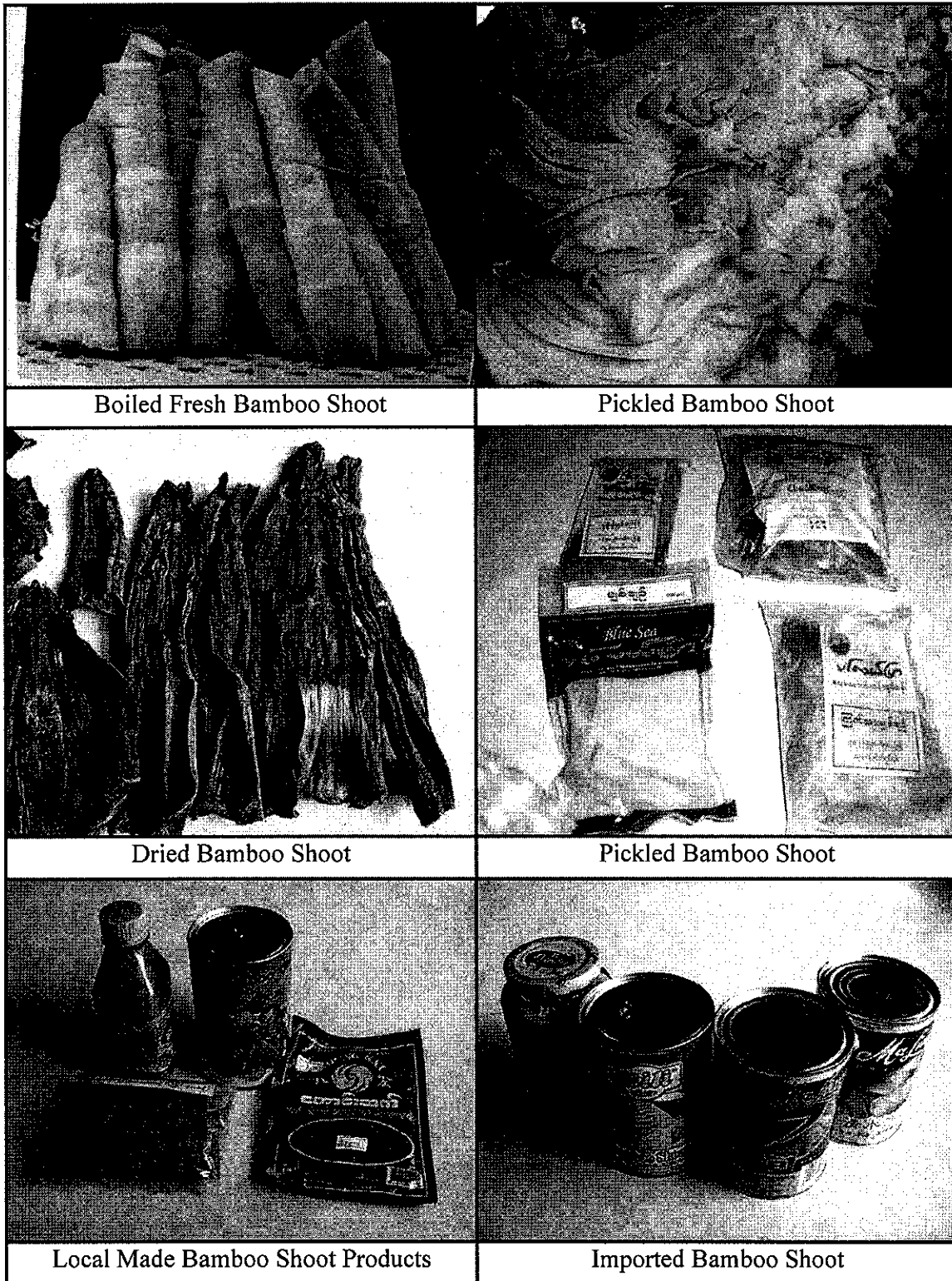
Providing training courses on management, marketing, finance and accounting are also recommended to local bamboo shoot manufacturers and traders for effective business transaction.

Some wholesalers and retailer in cities apply dyes to obtain attractive colors. Although the practice does not affect the present local trading activities, some measures must be taken into account to control the use of dye for promoting the image of bamboo shoot.

A successful strategy towards bamboo shoot market expansion will have to employ a tripartite group of rural town wholesalers, current cottage industries and potential FDIs which will require support from the Government and its subsidization programmes.

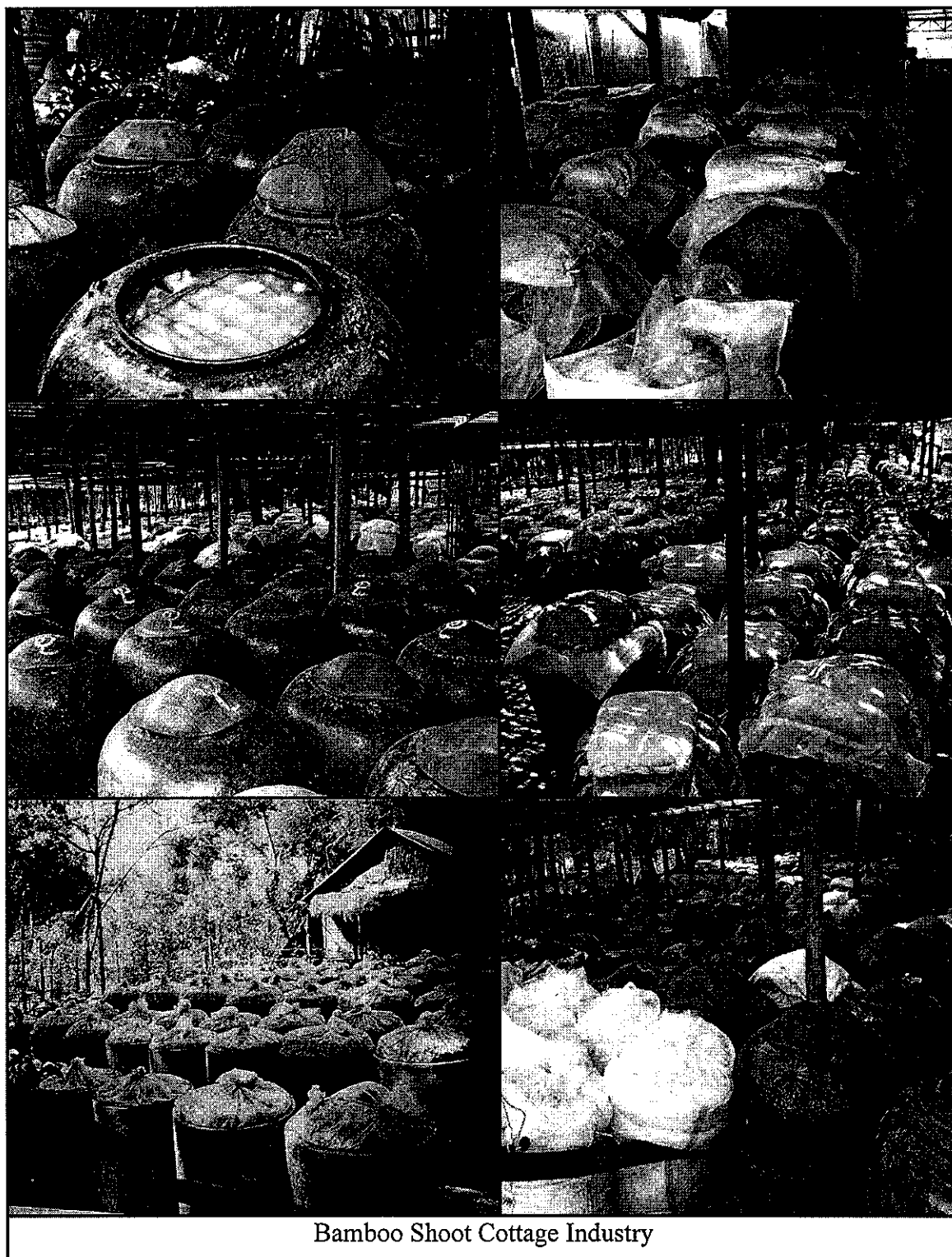
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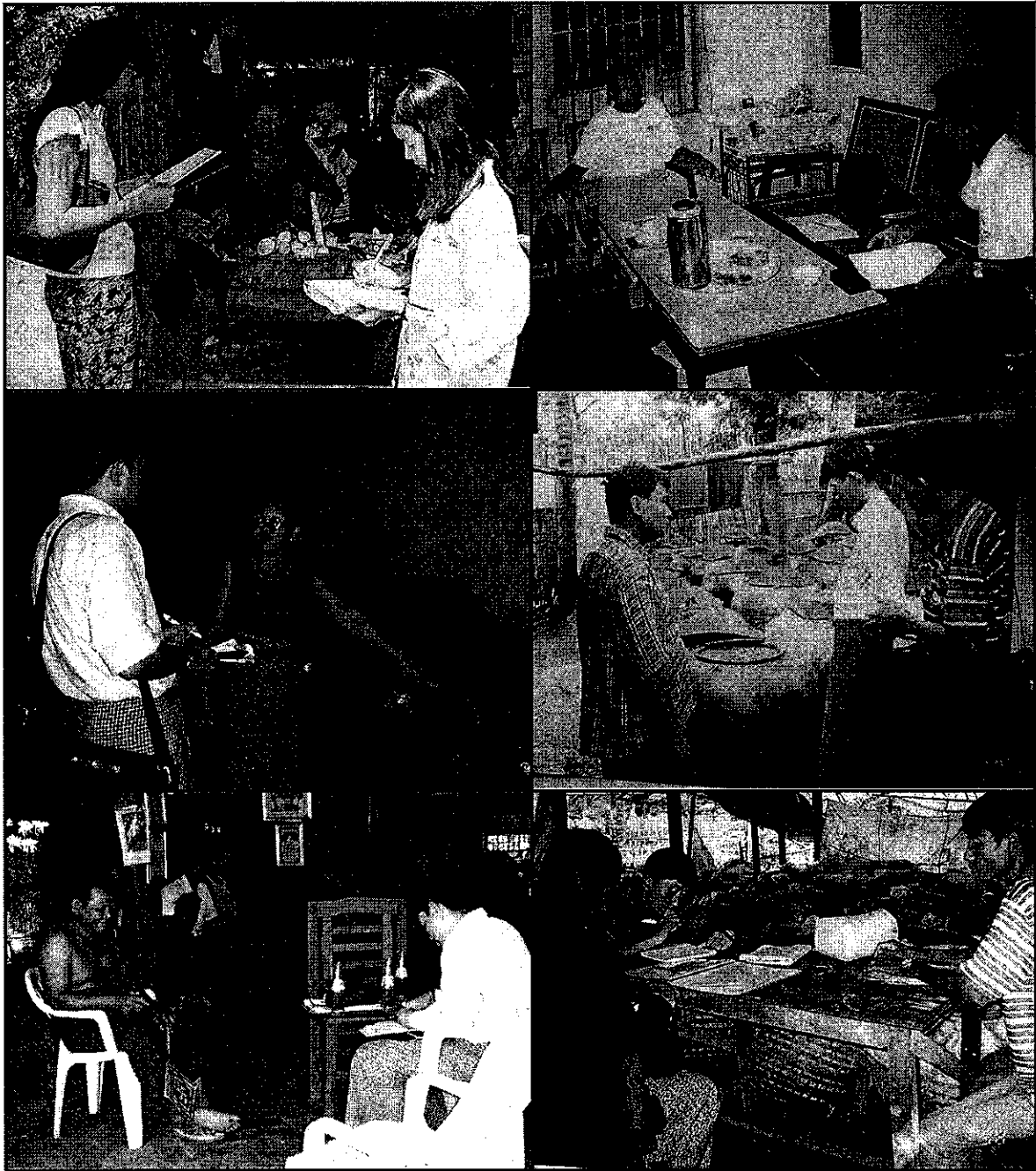
Bamboo Shoot Market



Bamboo Shoot Cottage Industry



A Field Survey Team Meeting with Bamboo Shoot Farmers



Market Survey Teams Conducting Interviews



