ANALYSIS OF SUSTAINABLE RAW RATTAN MATERIAL SUPPLY

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OBJECTIVES

- Assess type, quantity and source of raw rattan material in Quang Nam province.
- Assess type, quantity, prices and source of raw rattan material sourced in neighbouring provinces.
- Analyse sustainability issues concerning raw material supply, with an emphasis on specific rattan species used for rattan furniture and home appliances and ecologically sustainable harvest volumes

METHODOLOGY

- Review key documentation to obtain a better understanding of the rattan sector in Vietnam in general and Quang Nam in particular.
- Conduct detailed interviews with representatives of relevant organizations in the Quang Nam province. Undertake visits to the two communes to observe rattan exploitation and marketing activities and conduct in-depth interviews with rattan harvesters, local middlemen and local authorities.
- Conduct rattan rapid assessment (J. T. Williams et al 1995) in three forest types in Nam Giang district to identify composition of rattan species, number rattan clumps, number of rattan individual in each clump, measurements of length and diameter of stems.
- Identify scientific name of rattan species based on morphological characteristics of rattans.

Distribution of rattan

Composition of rattan species in Quang Nam

No	Scientific name
1	*Calamus bousigonii* Becc.
2	*C. tetradactylus* Hance
3	*C. rhabdocladus* Burret
4	*Plectocomia elongata* Mart. ex Blume
5	*Daemonorops poilanei* J. Dransf.
6	*C. platyacanthus* Warrb. ex Becc.
7	*Plectocomiopsis geminiflora* (Griff) Becc.
8	*C. dioicus* Lour.
9	*Daemonorops jenkinsiana* Mart.
10	*Calamus walkeri* Hance

Growth and development of rattan

Growth rates of six commercial species of rattan

Length of stem (m)	Growth rate stem (m/year)					
	C. tetradactylus	C. plactyacanthus	C. walkeri	C. rhabdocladus	D. poilanei	D. jenkinsiana
< 2.5m	0.2-1.3	0.1-0.3	0.2-1.2	0.1-0.2	0.2-1.2	0.1-0.9
2.5m<...<4m	1.5-2.0	0.4-0.6	1.8-2.5	0.4-0.6	1.5-2.0	1.0-1.5
≥ 4m	1.4-1.5	0.8-1.1	1.6-2.4	0.4-0.5	1.5-1.9	0.8-1.4

Preferred harvesting sizes of known rattan species

Species	Diameter of stem (mm)	Length of stem (m)
Calamus tetradactylus	5-8	> 4
C. platyacanthus	12 (25-40)	> 4
C. rahdocladus	25-30	> 4
C. walkeri	10-12	> 3.5
Deamonorop poilanei	12-16	> 3.5
D. jenkinsiana	14	> 3.5

Estimation of rattan yield in Quang Nam

Current situation of rattan in one hectare of natural forest in Nam Giang district

Study site: Cha Val commune, Nam Giang district

At elevation of 432-454m

Forest type: Protective forest

Species	Average number of clump/ha	Total stem/ha	Average number of stem/ha	Percentage number of stem with length (%)		
				< 2.5 (m)	2.5 <..< 4 (m)	≥ 4 (m)
D. poilanei	125.3	716.0	5.72	78.2	15.6	6.2
P. geminiflora	25	325.0	13	4.8	14.7	80.5
D. jenkinsiana	8.3	24.9	3	16.1	27.9	56.0
P. elongata	4.8	4.8	1			100
Tæng	175.3	1070.7				

Forest type: Special use forest (Regeneration zone)

Species	Average number of clump/ha	Total stem/ha	Average number of stem/ha	Percentage number of stem with length (%)		
				< 2.5 (m)	2.5 <..< 4 (m)	≥ 4 (m)
D. poilanei	175,1	835.2	4.77	74.0	17.6	8.4
P. geminiflora	85.2	772.8	9.07	8.6	18.5	72.9
D. jenkinsiana	31.2	421.2	13.5	74.1	3.7	22.2
C. plactyacanthus	7.5	15.0	2	50.0		50.0
P. elongata	5.3	5.3	1			100
C. bousigonii	1.04	1.04	1			100
C. walkeri	12.5	20.0	1.6	25	25	50
C. tetradactylus	56.2	351.3	6.25	20		80
Total	1450	2421.8				

production forest

Species	Average number of clump/ha	Total stem/ha	Average number of stem/ha	Percentage number of stem with length (%)		
				< 2.5 (m)	2.5 <..< 4 (m)	≥ 4 (m)
D. poilanei	75.6	290.2	3.87	87.7	9.4	2.9
P. geminiflora	75	525	7.0	19.0	14.3	66.7
C. plactyacanthus	4.0	8.0	2.0	100		
P. elongata	3.1	3.1	1.0		25	75
C. tetradactylus	25.0	150	6.0	40.3	35.4	24.3
Total	900	976.3				

Existing rattan yield in one hectare in three forest types in Nam Giang

Items	Unit	Protective forest area	Special use forest area	Protection forest area
Cane of 4m length	Average cane/ha	44.4	70.2	8.5
Weight	Cane/ton	6,000	6.000	6,000
D. poilanei	Ton/ha	0.0074	0.012	0.0014

Table 8: Estimation of annual yield of D. poilanei species in Nam Giang district

Title	Unit	Protective forest type	Special use forest type	Production forest type
Current yield	Cane/ha (2.5<...<4m)	111.7	147.0	27.3
Growth rate	M/year	1.5-2.0	1.5-2.0	1.5-2.0
Cane yield annually	M/ha/year	167.5-279.3	220.5-294	41.0-68.3
Weight	M/ton	24000	24000	24000
Cane yield annually	Ton/ha/year	0.0069-0.011	0.0092-0.012	0.0017-0.0028
Natural forest area	ha	38000	46000	15000
Total of rattan yield	Ton	262.2-418.0	423.2-552.0	25.5-42.0

Table 9: Estimation of annual yield of D. poilanei species in Quang Nam province

Title	Unit	Protective forest	Special use forest	Production forest
Cane yield annually	Ton/ha/year	0.0069-0.011	0.0092-0.012	0.0017-0.0028
Natural forest area	ha	240,214,06	77,170,1	71,113,34
Total of rattan yield	Ton	1,657.5-2,642.3	709.9 – 926.0	120.9-199.1

Current status of rattan exploitation in Quang Nam

Availability, collected quantity and market demand of rattan

Species	Availability	Quantity today	Quantity past	Plant stage today	Markt demand
P. geminiflora	High	+ + + + + # #	+ + + + + # #	Mature and young	No market
D. poilanei		+ # # #	+ # # # # #	Young	High demand
C. tetradactylus		+ # #	+ # # #	Young	High demand
Korthalsia laciniosa		+ + + + +	+ + + #	Mature and young	Low market
C. walkeri		+ # #	+ # # #	Young	Moderate demand
D. jenkinsiana		+ #	+ #	Mature and young	Moderate demand
C. plactyacanthus		+	# # #	Young	High demand
P. elongata	Low	+ +	+ +	Mature and young	No market
C. bousigonii		++	# #	Matura and young	Moderate market

Legend: + for use; # for sale

Impact of exploitation to conservation and sustainable utilization of rattan in Quang Nam province

Due to market pressure, rattans have been exploited freely without plans rendering natural rattan resources to become exhausted in this area

The harvested cycle of rattan is about 3-4 years per time in the study. However, buyers regulate the harvesting cycle of rattan. They return village annually to purchase harvested rattan. At present, the *D. poilanei* and *C. tetradactylus* species in Quang Nam province are not yet rare in term of species distribution but its volume is considerably reduced in the past few years. There are many reasons regarding reduction but one of them is applied unsustainable harvesting method.

As the middlemen request for a specific size and quality of the stem, harvesters left as a result part of the stem behind; the part which is young or does not meet the requested length. This a waste of the available resources and also a major cause of forest fire during the dry reason. The interviews show that some women and children also harvest rattan. As they are not strong enough to pull out long stems, they cut also the timber trees entangled to that long stem. The above-mentioned systems of harvesting could be called unsustainable harvesting methods. The current situation of rattan exploitation in Quang Nam has had a considerable negative impact to sustainable management and utilization forest resources

Importance of rattan in rural households

Rattan has been exploited for sale to get cash to secure food for the family in the year (households facing food shortages during 3-4 months of the year). Rattan is exploited for sale to get cash for buying school books, pens, cloths at the beginning new school year as well as for spending in traditional festivals (such as the Vietnamese New Year). When the farmers had to classify the NTFPs according to their importance, five out of eight focus groups classified the rattan as most important product (Olivier Wetterwald, 2001). Therefore, rattan is important for supporting livelihoods and directly involved in poverty alleviation of poor communities of ethnic minorities who live near forests in mountainous areas of Quang Nam. At the present, income of collectors from rattan is about 30,000 VND to 35,000 VND per day.

Our results showed that income of harvesters from rattan occupied about 40% of total household income in the communes that have large natural resources and about 10% household income in communes that have moderate rattan resources. In some villages such as Za Ra village, Ta Bhing commune, the number of households that go into forest for harvesting rattan is about 56% of total household in the village. During harvesting calendar, some harvesters spent about 28-29 days per month in the forest

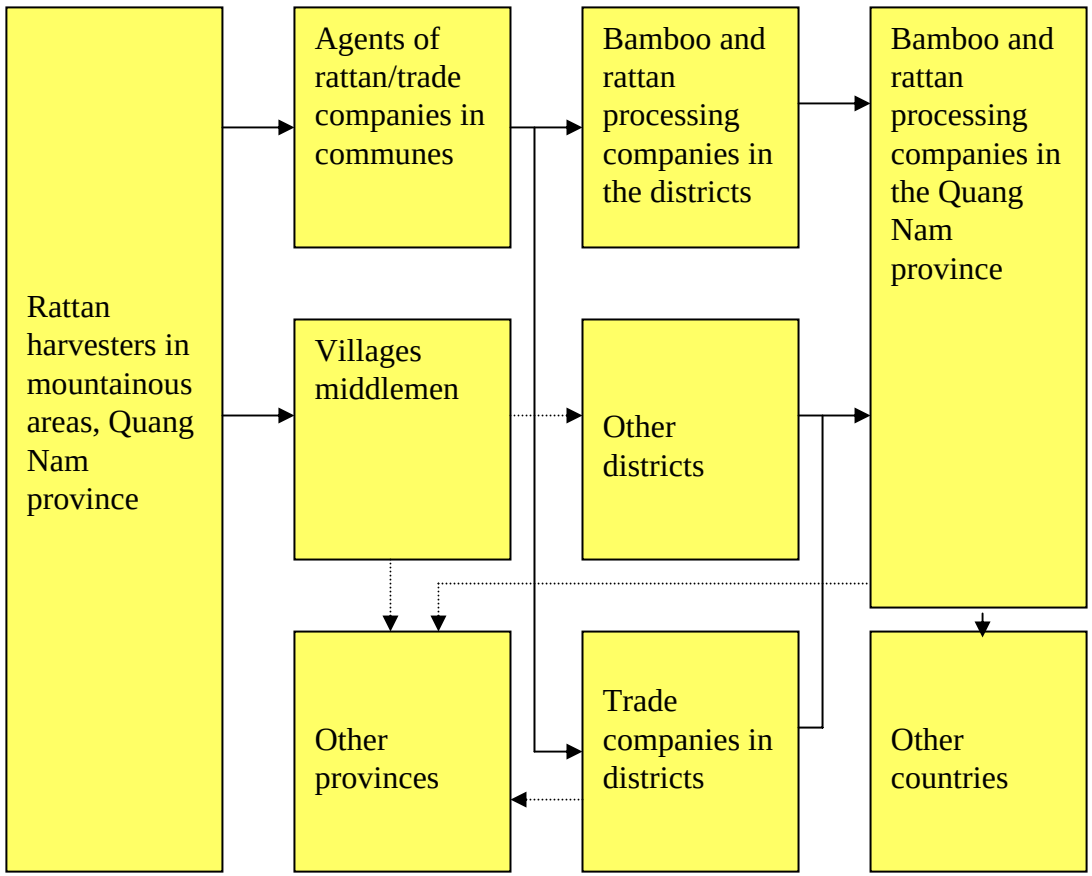
Rattan production in neighboring provinces

The volume of rattan in 2002 in some provinces

Province	**Unit**	**2002**
Quang Binh	Ton	650
Quang Ngai	Ton	500
Thanh Hoa	Ton	430
Ha Tinh	Ton	720
Quang Tri	Ton	320
T.T.Hue	Ton	2,192
Binh Dinh	Ton	770

Source: Nguyen Quoc Dung (FIPI) and statistical yearbook 2002 of provinces

Rattan market structure in Quang Nam



Distribution cost and benefit in market chains

Average benefit of stakeholders in 2005

Stakeholder	Average benefit	Average turnover (*1000đ)			Average cost (*1000đ)			VAT (*1000d)	Fee (*1000đ)			Resource tax (*1000d	Other costs (*1000d)
		Total turnover	Saled volume (kg)	price	Total cost	Purchased volume (kg)	Price		Agent	District	commune		
Harvester	1800000	1800	600	3	0	0	0	0	0	0	0	0	0
Village middlemen	1.200000	19800	6000	3.3	18000	6000	3	0	0	0	600	0	0
Agent	8437000	0	0	0	0	0	0	0	0	0	0	0	0
Trade company	114000000	1350000	300000	4.5	900000	300000	3	67500	67500	60000	30000	67500	43500
Rattan processing company	350000	2.590.000	140.000	18.5	2240000	300.000	7.63	129.5					

Existing management and protection of natural rattan resources in Quang Nam

Applying the decision No 40/2005/QD-BNN, in Quang Nam branch of forest development under Department of Agriculture and Rural Development who provided harvesting permits to individuals and organizations have harvesting demand. The district people's committee can give harvesting permit but this only applied for harvested permits of less than 10 tons. The branch of forest protection has responsibility for checking and taking over harvesting activities of people who have harvesting permits. At present the exploitation of rattan in the Quang Nam have been conducted in three levels:

- Rattan exploitation in commercial scale

Some companies were provided permits for exploitation of rattan in commercial scale. These companies usually rent labor from other districts and provinces so the benefit to the local people was lost.

- Rattan exploitation in small scale

The local harvesters usually go into forest to harvest rattan to met demand of outsiders. These exploitation activities are frequently done at unsustainable exploitation levels so the rattan resources is gradual decreased.

- Rattan exploitation for household use

Local people go into forest to harvest rattan for construction, knitting, matting and making baskets. This harvest mode happened all year-round in the three natural forest types

The access to natural rattan exploitation is quite open for inside and outside communes. Interviews with staff of forest protection units and harvesters mentioned that currently controlling and management of rattan harvesting activities was not tight so this is the reason for the exhaustion of natural resources base. The transferof rattan harvesting permits between purchased companies and rattan processing enterprises within province increased price of the products so they have no power to compete with other producers in the rattan market and income of the laborers is reduced

The Nature Reserves in the Quang Nam have tasks to protect and manage natural resources in their areas. As above-mentioned, harvesting forest products including non-timber forest products are prohibited in special use forest areas. From the interviews with representatives of forest organizations in Quang Nam province and field observation, we found that rattan exploitation have been carried out in the forest regeneration areas of special use forest in Nature Reserves. However, rattan exploitation activities are not opened and as much as in protective forest and protection forest areas

The model of commune forest allocation in Tra Mi and Nam Giang district is opportunities to communes become forest owners and display of their role in natural resource utilization and management. In this model, the village assembly and management board discussed and made decisions on forest activities after thorough consultations with other villagers. Village management board also formulated a set of Huong Uoc with severe punishments and clear benefits associated with natural resources, specifically on issues related to shifting cultivation, hunting, rattan and other NTFPs collection. The village Huong Uoc stipulated that exploitation of NTFPs in the commune areas is prohibited with people who are living outside commune if they do not have harvesting permit from village management board and commune people committee. The village forest protective team regularly patrolled and protected village forest areas. The model participatory management and protection of natural resources in sustainable way should be disseminated to neighbor communes. However, raising funds to maintain village forest protective activities should be considered by concerned organizations inside and outside of Quang Nam province

CONCLUSION AND RECOMMENDATION

Non-timber forest products in general and rattan in particular are considered as spin off form so they have not been strong interest in sustainable exploitation and management. Currently rattan exploitation from natural forest in Quang Nam is not controlled and supervised closely as timber exploitation. The natural forest area and forest ecosystem necessary for growth and development of rattan are decreasing and downgrading. Rattan exploitation that are free and without plans make some rattan species, such as *C. platyacanthus* and *C.rahdocladus*, become rare and endangered. Decreasing quality and quantity of rattan natural resource is not only income of households in communes but the biodiversity of forest ecosystem is also affected

In order to overcome above mentioned constraints and orientation for rattan sustainable utilization in the future in Quang Nam, we recommended the following:

Important source of income from rattan and its social significance in communes living near the forest should be identified clearly. Incorporating traditional knowledge in management and utilization of rattan resources and regulations on access to forest resources should be clear for villagers in local communities

Support and encouragement policy for meso and medium rattan processing enterprises making jobs for local people could be recommended. Participation of the enterprises in rattan cultivation in the forest gardens and home gardens to reduce pressure on natural resources and sustainable utilization of rattan resources in Quang Nam could also be recommended

In parallel with assessment of rattan natural resources, impact of harvesting on rattan population, study on potential domestication of rattan species (such as *D. poilanei, C. tetradactylus*) which have high demand in the market and protection, management, controlling as well as improving forest ecological condition could be recommended to provincial concerning organizations, rattan processing enterprises and local people

Establishing model on zoning rattan areas that rattan is growing naturally for management and protection of local associations or a group of villagers should be considered. However, building set of local rules to stipulate authorities and duties as well as benefit of individuals and groups should be supported by local authority and provincial organizations

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THANKS FOR YOUR ATTENTION