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INDIA'S EXPORTS OF NON-WOOD FOREST PRODUCTS AND THEIR POTENTIAL ROLE IN AGRICULTURAL DEVELOPMENT

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The term 'agriculture' is commonly understood to mean the practice of cultivating land for seasonal crops. This has been due to a number of reasons, the most important of which may be the emphasis on enhanced production of 'food' in a very narrow sense. In fact, agriculture encompasses activities pertaining to management of plants and livestock. In this sense, forests are an essential part of agriculture. Arboriculture which relates to the cultivation of trees is one of the synonyms of agriculture. In a historical context, villages sprang up wherever cultivable land was available, and there are forest villages just as the others.

Just like crop and livestock husbandry, forestry activities generate a number of goods. Forest products have customarily been divided into two groups: (*i*) major and (*ii*) minor. The first consists of timber, smallwood, and fuelwood. The second includes bamboo, oilseeds, grasses, fruits, resins, barks, leaves, exudates, animal products, etc. This category also includes some intangible goods and services such as soil and water conservation, oxygen supply, restoration or maintenance of an ecological and environmental balance.

All forest products other than wood have, thus, been classified as 'minor'. These have numerous direct and indirect uses, and generate tangible and intangible benefits. They also contribute significantly to the total revenues from the forestry sector in India, and this contribution has been increasing over time. Their role in India's export earnings appeared to be no less important. In this context, the classification of the forest products into 'major' and 'minor' does not indicate their relative economic and social significance. For reasons of both simplicity and appropriateness, the term 'non-wood forest products' (NWFPs) will be used in this paper in place of 'minor' forest products.[1]

OBJECTIVES AND SCOPE

The main objectives of this study are to assess (*i*) the actual and potential contribution of the exports of NWFPs to India's total export earnings; and (*ii*) some macro level impacts of a policy to enhance exports of the NWFPs. The second of these objectives is relatively more important as export earnings must be enhanced for promoting overall economic growth with economic and social regeneration of the relatively poorer sections of the population.

The NWFPs will be divided into eight groups: (*i*) materials such as canes and bamboo used for plaiting; (*ii*) essential oils including those from grasses, roots, and flowers; (*iii*) materials used for tanning and dyeing; (*iv*) gums,

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1. Government of India: Indian Forest Utilization, Vol. II, Manager of Publications, Delhi, 1972.

resins, and olioresins; (*v*) drugs, poisons, and insecticides; (*vi*) spices including black pepper and cardamom; (*vii*) lacs; and (*viii*) tendu leaves.

A few issues which limit the scope of this study must be noted. First, timber production has been and continues to be the most important objective of forest management in India. The potential contribution of the NWFPs to the export earnings, and towards agricultural development will, therefore, be assessed in the context of the given objective of forest management.

Second, some of the important NWFPs such as rubber, and cashew have not been covered. These are known for their commercial values in national and international markets, but large scale plantations are being raised to produce them such that timber and fuelwood have the status of by-products in their case.[2]

Silk is another export item which has not been included in this study. Four major types of silks: (*i*) mulberry, (*ii*) muga, (*iii*) ari, and (*iv*) tasar are commercially produced in India. Silk worms for the first two varieties are completely domesticated and have to be fed and reared indoors. The rearing of insects which produce muga silk is a semi-domesticated activity. More importantly, these three types of silk worms flourish on tender leaves, and trees have to be pollarded to encourage growth of as many tender branches as possible. The activity cannot be carried out in reserved forest areas, and is in conflict with the above-stated main objective of forest management. Tasar producing insects are, of course, wild. They feed and form cocoons in the open, but this variety accounts for only 12 per cent of the total silk produced in the country and contributes very little to the total silk exports.

Exports of oilseeds of tree origin have also not been included. The gap between demand and supply of vegetable oils in India has been rising, and is met through imports. An alternative to the imports is better management of the forest wealth. Out of over 100 types of tree borne oilseeds, only 10-12 have so far been tapped. Moreover, about 0.2 million tonnes of these oilseeds are utilized against an estimated potential of 6.7 million tonnes per annum.[3] These are usually characterized as non-edible, but some of them are used as cooking media and as substitutes for butter. Others have industrial and commercial uses. They enjoy wide international markets, but their exports should be evaluated only after a major portion of the production potential is harnessed.

Some other NWFPs such as fibres and flosses, grasses other than those used for oil extraction, edible products such as honey, wild animals, horns, skins, have not been covered for want of the requisite data.

Third, black pepper is one of the conventional export items within primary products, but has been included in this study as it can be produced in association with timber and other tree species, and does not compete for allocation of the land resource.

2. In the recent past, some forest development corporations have raised large scale plantations of rubber, coffee, etc. Such activities directly compete with timber species for the allocation of the land resource.

3. Tirath Gupta and Amar Guleria: Non-Wood Forest Products in India, Oxford & IBH Publishing Co., New Delhi, 1982, p. 45.

EXPORTS OF SELECTED NWFPS

Money values of exports of the selected eight groups of NWFPs during the years 1967-68 to 1980-81 are presented in Table I. The table also provides data pertaining to India's total exports during the same period. It can be observed that the share of the NWFPs in the total exports ranged between 1.3 and 2.9 per cent during the thirteen years under review. It was, however, more than 2 per cent in nine out of the thirteen years and the average for the period was 2 per cent.

This in itself may not appear very significant, but the picture must be viewed in the context of the status of and environment for the forestry systems in India. With 75 million hectares or nearly 23 per cent of the country's georgraphical area or 50 per cent of the area under the plough, the contribution of the forestry system to the GDP during the years under review stood between 1.2 and 1.5 per cent. Investment per hectare of land under forests has been around Rs. 2 per year. It has also been noted that the main objective of forest management has been to enhance timber and small wood outputs. The fact that the NWFPs have been labelled as 'minor' forest products may suffice to indicate that these have not received due attention.

More importantly, exports of most NWFPs take place in raw form. Facilities for even initial processing are either inadequate or primitive. The nation has the appropriate technology to enhance its capacity for scientific processing of these goods, and the same need not be capital intensive. There have also been no specific incentives to encourage the exports of NWFPs enjoyed by a number of other outputs. Some important non-wood exports of forest origin have not been included in the study for reasons stated earlier.

It can, therefore, be said that the overall contribution of the NWFPs to India's export earnings has been consistently better in comparison with their status vis-a-vis the export policies in general, and the not so encouraging environment for the forestry system in particular within which these products do not occupy a prestigious position. This situation may mean that the contribution of the NWFPs to India's export earnings can be significantly enhanced if the collection can be systematically organized, and processing facilities developed.

Exports of the NWFPs need not, however, be encouraged indiscriminately. The social opportunity cost of raising some of these may be relatively high or the country may not have comparative advantage in some respects. For instance, amongst the different categories of essential oils exported from India, the one based on lemon grass has been the most important, but specific efforts in this direction may not be considered desirable when there is a wide internal market. Similarly, bamboo is a scarce raw material for a socially, economically, and culturally valuable product and its exports may even be discouraged.

On the other hand, exports of some of the NWFPs can and must be encouraged. Dyeing and tanning materials, gums and resins, lacs, black pepper, and drugs and insecticides fall in this category. Let us discuss only two of these. Black pepper is already a good source of foreign exchange earnings.

TABLE I—VALUE OF EXPORTS OF NON-WOOD FOREST PRODUCTS AND ALL COMMODITIES FROM INDIA: 1967-68 to 1979-80

(*Rs. million*)

Sr. No.	Commodity	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1.	Materials used for plaiting	0·7	0·5	0·4	0·7	0·5	2·1	1·8	1·6	1·8	3·2	4·8	9·1	7·8	35·0
2.	Essential oils ..	37·0	43·2	42·9	37·5	38·9	40·8	60·9	92·7	37·9	38·2	53·3	49·3	73·4	646·0
3.	Materials used for dyeing and tanning	10·5	5·1	7·2	5·1	8·6	3·8	8·0	7·7	10·0	9·8	N.A.	N.A.	N.A.	75·8
4.	Gums and resins ..	22·4	30·6	42·6	53·2	52·5	52·1	61·4	83·8	55·2	69·7	113·6	129·0	121·8	887·9
5.	Material used as drugs and insecticides ..	36·2	43·5	40·7	55·6	64·1	49·6	86·8	156·7	123·9	283·8	279·2	194·4	203·6	1,618·1
6.	Black pepper ..	129·5	96·6	160·3	150·0	143·9	139·8	218·6	333·1	333·9	373·7	480·1	276·9	327·6	3,164·0
7.	Cardamom ..	N.A.	N.A.	N.A.	N.A.	82·0	69·5	N.A.	N.A.	195·0	0·6	1·1	3·2	2·7	354·1
8.	Lac	51·5	50·4	47·8	50·0	65·9	61·9	144·0	243·3	127·6	97·6	63·3	89·8	114·1	1,207·2
9.	Tendu leaves ..	8·1	10·9	8·8	9·3	7·4	11·0	7·4	18·9	9·6	14·2	16·0	11·2	12·0	144·8
10.	Total NWFPs ..	295·9	280·8	350·7	361·4	463·8	430·6	588·9	937·8	894·9	890·7	1,011·4	762·9	863·0	8,132·9
11.	All commodities ..	11,987	13,600	14,133	15,352	16,082	19,708	25,234	33,288	40,428	51,432	54,079	57,263	64,588	417,174
12.	NWFPs as per cent of all commodities	2·5	2·1	2·5	2·4	2·9	2·2	2·3	2·8	2·2	1·7	1·9	1·3	1·3	2·0

Sources: 1. Relevant issues of Monthly Statisics of Foreign Trade of India, Directorate General of Commercial Intelligence and Statistics, Government of India, Calcutta.
2. Relevant issues of Economic Survey, Ministry of Finance, Government of India, Controller of Publications, Delhi.

N.A. = Not available.

Average annual exports during 1967-68 and 1980-81 were over Rs. 243 million. Demand in the foreign markets was not price elastic. While the factors other than price which govern the exports must be studied, the extent of the market did not appear to be a limitation. Since the species is a climber, black pepper production can be enhanced at a near zero opportunity cost in terms of timber production.

Another interesting example is offered by forest plants which yield poisons. Pyrethrum, obtained from *Chrysanthemum* species is an important one. Its production in the past went down due to the introduction of synthetic substitutes such as DDT. In the recent years, however, an awareness regarding the long-term adverse consequences of such substitutes has been on the increase, and the use of DDT has already been prohibited in some countries. The market for natural insecticides can, therefore, recover in the foreseeable future. There is, of course, the need for a study to assess the relative costs of producing natural and industrial insecticides. While assessing these costs, due weight must also be assigned to environmental aspects of using the two types of insecticides. Large parts of India offer good potential for raising pyrethrum plantations. Appropriate efforts can not only help in enhancing export earnings, but can also enhance agricultural production and protect human beings from the die-hard air and water pollutants.

POTENTIAL CONTRIBUTION OF NWFPS TO AGRICULTURAL DEVELOPMENT

Over 3,000 species of trees and plants are known to grow in India. Most of them generate goods other than timber and/or fuelwood. This wealth is spread all over the country, but very little data on it are available. It has been argued that systematic collection and processing of the NWFPs can considerably enhance their contribution to India's export earnings. That will also improve upon the image of the forestry systems, bridge the wide gap between people and the forests, and create a climate for speedier growth of the agricultural sector.

It must be noted at this stage that nearly 60 per cent of the total output of the NWFPs in India is consumed locally, and not recorded. A policy to enhance exports of these products must essentially accompany the efforts to enhance their production so as to ensure their continued availability to the people living close to or inside the forests. Once this is ensured, the welfare of the local people can be increased, particularly through enhanced employment opportunities; uemployment has been one of the most important concerns, and the problem is relatively more serious in rural India where the cultivated land continues to be the single most important absorber of surplus labour. It is known that farms in most parts of India are already overcrowded and the productivity per worker is extremely low.

In a search for alternatives, it can be noted that activities pertaining to collection of NWFPs appear to hold much greater potential for employment in comparison with the wood products. This is particularly true for initial processing. One estimate has been that NWFPs account for employment of

nearly 1.2 million man-years, or over 55 per cent of the total in forestry. The estimated potential employment has been placed at 1.85 million man-years.[4] Another estimate has been that the collection of NWFPs engaged 0.8 million man-years in 1970, and this figure could be around 3.3 million man-years by 2000 A. D. Details pertaining to the methodology used for arriving at these estimates were not available.[5] A more recent study has placed the current and potential employment, only for collection of these products, respectively at 1.6 and 4 million man-years.[6]

It must be noted that all NWPFs do not occur everywhere, and a majority of these have to be collected during specific seasons. Contrary to the common belief that most NWFPs are harvested during the lean months for farm work, some 50 per cent of the NWFPs are gathered from March to June. The estimates of current and potential employment during this period have been 2,88,600 and 17,65,400 man-years respectively.[7] This may lead to a thought that a major portion of total employment provided or expected to be provided by NWFPs is not or would not be to the advantage of a substantial portion of seasonally unemployed people in rural India, but that is not the whole story.

Firstly, except for some parts of the country, all the labour force in rural India is not fully employed even during the busy farming seasons. Secondly, the estimates of current and potential employment presented here pertain only to collection of NWFPs. Facilities for processing these products must be developed, but the processing activities can be carried out during the lean agricultural periods. Thirdly and more importantly, the nation should even be willing to accept a situation where the demand for labour in gathering NWFPs is in conflict with crop farming. This can be considered desirable for (*i*) reducing the dependance of rural labour force on cultivated land; (*ii*) generating healthy competition in rural labour markets; and (*iii*) encouraging technological change in agriculture which, in turn, can go a long way towards enhancing productivity per unit of land and labour engaged.

It can, thus, be concluded that additional employment opportunities in any season, and sustained efforts at harnessing the renewable natural resources can provide additional strength to the economy through enhanced exports, and gainful employment of the unemployed labour force in rural India. These can create conditions for dynamic and sustained change in farming in particular, and the socio-economic fabric in general.

4. M. M. Pant, "Forestry for Employment Promotion", *Eastern Economist*, May 19, 1978, p. 974.
5. Government of India: Report of the National Commission on Agriculture 1976, Ministry of Agriculture and Irrigation, Part XIII: Rural Employment and Special Area Programmes, Controller of Publications, Delhi, 1976, p. 28.
6. Gupta and Guleria: *op. cit*, pp. 133-134
7. *ibid.*